

January 27, 1997

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Subject: **Docket Nos. 50-361**
 Steam Generator Eddy Current Inspection Data
 San Onofre Nuclear Generating Station
 Unit 2

Reference: January 24, 1997 NRC Meeting Notice for a January 30, 1997 meeting
 on the San Onofre Unit 2 Steam Generator inspection results.

In response to the meeting agenda attached to the referenced NRC Meeting Notice dated January 24, 1997, this letter provides a copy of the specified eddy current data from some of the steam generator tubes inspected during the current San Onofre Unit 2 refueling outage.

Enclosure 1 provides the raw eddy current inspection data from both the Plus Point and bobbin coil inspections for those tubes that are candidates for in-situ pressure testing or pulling during the current refueling outage. This includes data for at least two crack indications detected at dented locations. Enclosure 1, an optical disc copy of Raw Eddy Current Inspection Data, is being sent to NRC Consultant, Dr. Caius Dodd. Enclosure 2 is the drawings of the standards that were used to calibrate the inspection probes. The data is compatible with EddyNet95.

300016

9701300215 970127
PDR ADOCK 05000361
Q PDR

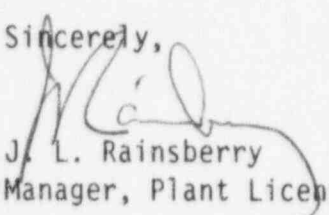
Adol
/

Document Control Desk

-2-

If you have any questions or need additional information, please call me.

Sincerely,



J. L. Rainsberry
Manager, Plant Licensing

Enclosures

cc: L. J. Callan, Regional Administrator, NRC Region IV
K. E. Perkins, Jr., Director, Walnut Creek Field Office, NRC Region IV
J. A. Sloan, NRC Senior Resident Inspector, San Onofre Units 2 & 3
M. B. Fields, NRC Project Manager, San Onofre Units 2 and 3
C. Dodd, NRC Consultant

bcc: (see attached sheet)

ENCLOSURES

ENCLOSURE 1 (optical disc sent to NRC Consultant, Dr. Caius Dodd)

Raw Eddy Current Inspection Data

San Onofre Unit 2 Steam Generators 88 and 89

Steam Generator 89 Tube Pull Candidates (94-32, 61-111, 16-164)

In-Situ Testing Candidates in both Steam Generators

ENCLOSURE 2

Drawings of the Standards Used to Calibrate the Inspection Probes

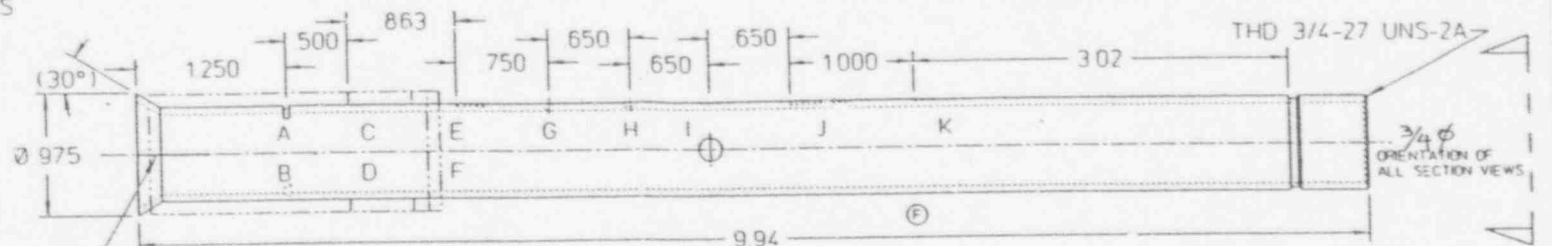
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	Z-15045	Z-15577 Z-15586
	Z-15050	Z-15578 Z-15587
	Z-13325	Z-15579 Z-15588
	Z-13326	Z-15580 Z-15589
	Z-13328	Z-15581 Z-15590
	Z-13329	Z-15582 Z-15591
		Z-15583 Z-15592
		Z-15584 Z-15593
		Z-15585 Z-15594

NOTE: SEE 2-415-0004 FOR PLACEMENT
OF NYLON SLEEVE

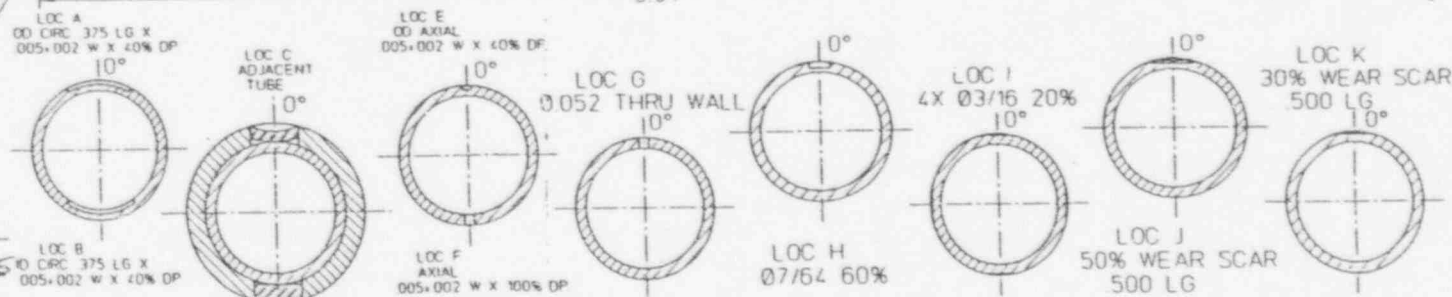
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				REV	STATUS	LTR	DATE	DESCRIPTION			
				2	SHEET	H	4/5/96	ADDED ORIENTATION FOR SEC. VIEWS			

LOCATION	A	B	C	D	E	F	G	H	I	J	K
PHYSICALLY MEAS DPTH	.0195	.0205	—	—	.0215	THRU	THRU	.0300	.0100	.0260	.0155
DEPTH IN % OF WALL	39%	41%	—	—	43%	100%	100%	59%	20%	51%	31%
E.T. PHASE ANGLE MEAS							40°	110°	151°		

DIA OF DEFECT ±.003



ALIGN ELECTRO-ETCH
AND GROOVES



MATERIAL INCONEL 600
AVERAGE MEAS WALL THK .0505
NOMINAL WALL THK .049
HEAT LOT NO 752493
TEST FREQ USED 400 KHZ
SERIAL NO Z-15045
P.O. NO 8710
REL NO NA
QUALITY REL NO NA
DATE MFG 5-17-96
O.A. INSP Ray P. [Signature]
CUSTOMER Rockridge Technologies
RECORDED 40
PROBE USED AGILEX # 71186
REVIEWED BY [Signature]

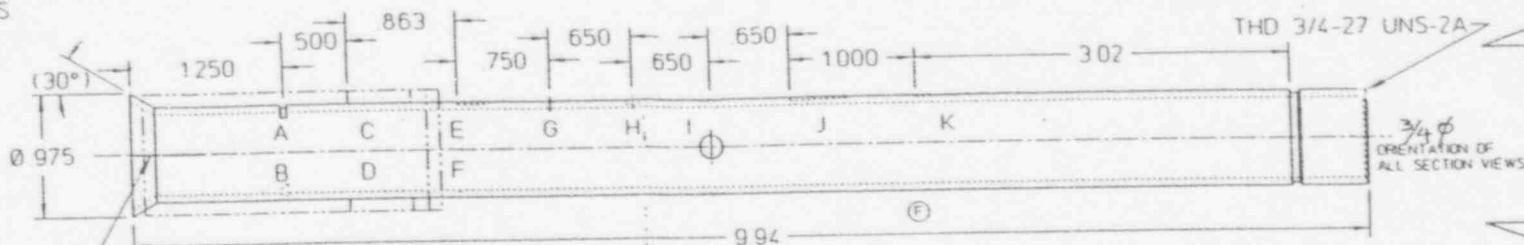
NOTE

DIM ARE IN INCHES TOLERANCES DECIMAL FRACT + 1/16 XXXX ± .003 XXX ± .015 XX ± .050 X ± .003 ANGULAR .3° FINISH	DRAWN	DATE	ZETEC INC. POST OFFICE BOX 110 ISSAQUAH WASHINGTON 98027-0110 U.S.A. TELEPHONE (206) 382-5336	
	G. MATELICH	08/24/94		
	CHECK		TITLE DUAL GUIDE TUBE STD. W/ MISC. DEFECTS	
	B. JONES	08/30/94		
	DESIGN		SIMILAR	DWG NO
	APVD. DA			2-415-1015
	G. ATKINS	08/31/94	SCALE NTS	USE 2-415-0004 SH 1 OF 2

NOTE: SEE 2-415-0004 FOR PLACEMENT
OF NYLON SLEEVE

REV. STATUS		REVISIONS		REVISIONS		APVD	CK	DR
LTR	DATE	DESCRIPTION						
H	4/5/96	ADDED ORIENTATION FOR SEC. VIEWS						KZ

LOCATION	A	B	C	D	E	F	G	H	I	J	K
PHYSICALLY MEAS DEPTH	.0200	.0205	—	—	.0205	THRU	THRU	.0310	.0100	.0260	.0165
DEPTH IN % OF WALL	40%	41%	—	—	41%	100%	100%	61%	20%	51%	33%
E.T. PHASE ANGLE MEAS							40°	111°	153°		
DIA OF DEFECT :003											

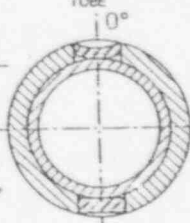


ALIGN ELECTRO-ETCH
AND GROOVES

LOC A
00 CIRC 375 LG X
005+.002 W X 40% DP



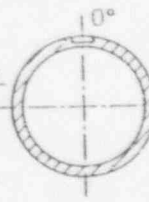
LOC C
ADJACENT
TUBE



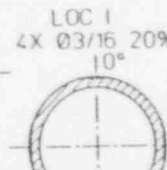
LOC E
00 AXIAL
005+.002 W X 40% DP



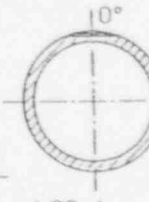
LOC G
0.052 THRU WALL



LOC H
0.07/64 60%

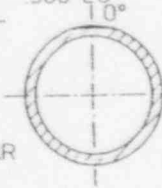


LOC I
4X 0.03/16 20%

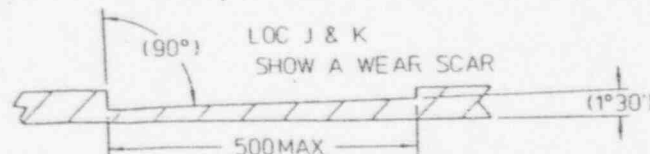


LOC J
50% WEAR SCAR
500 LG

LOC K
30% WEAR SCAR
500 LG



LOC D
BAT WING



MATERIAL INCONEL 600
AVERAGE MEAS WALL THK .0505
NOMINAL WALL THK .049
HEAT LOT NO 752493
TEST FREQ USED 400 KHZ
SERIAL NO Z-15050
P.O. NO 8710
REL NO NA
QUALITY REL NO NA
DATE MFG 5-17-96
O.A. INSP [Signature]
CUSTOMER Rockridge Technologies
RECORDED 40
PROBE USED AG26LCB #71186
REVIEWED BY [Signature]

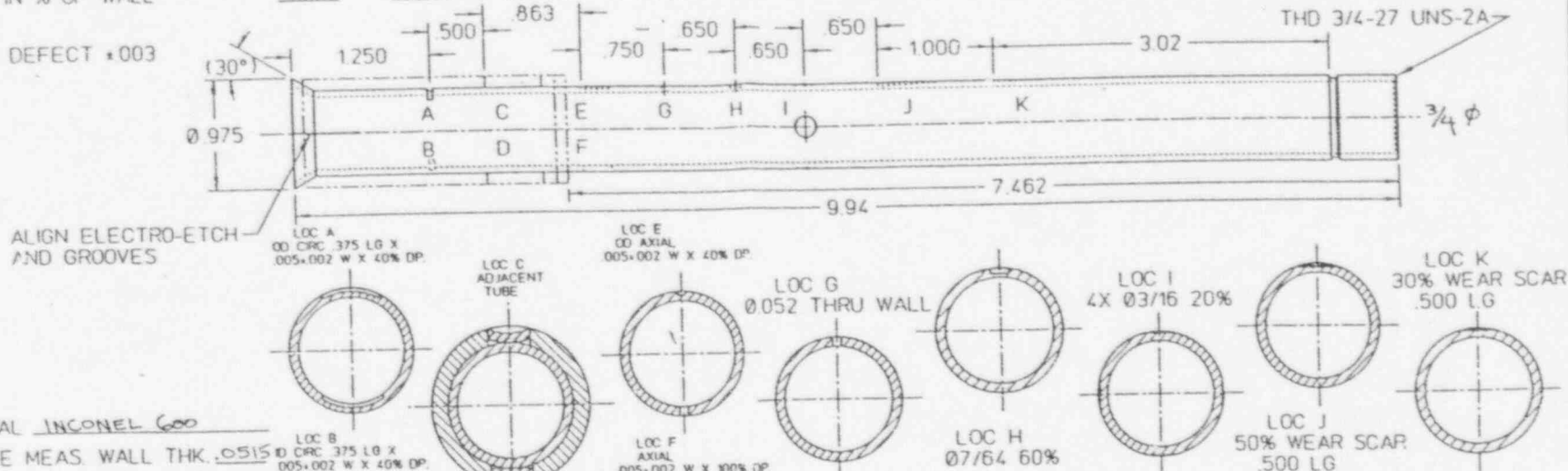
NOTE

DIM ARE IN INCHES TOLERANCES DECIMAL FRACT 1/16 XXXX + .003 XXX + .015 XX + .050 X + .003 ANGULAR .3° FINISH	DRAWN G MATELICH	DATE 08/24/94	ZETEC INC TITLE DUAL GUIDE TUBE STD. W/ MISC. DEFECTS SIMILAR DWG NO 2-415-1015 SCALE NTS USED ON 2-415-0004 SHT 1 OF 2
	CHECK B JONES	08/30/94	
	DESIGN		
	APVD DA G ATKINS	08/31/94	

POST OFFICE BOX 140 ISSAQUAH WASHINGTON
98027-0140 USA TELEPHONE (206) 387-5316

REVISIONS				REVISIONS				APVD	CK	DR
LTR	DATE	DESCRIPTION								
E	11/29/94	ADDED WIDTH CALL-OUT LOC. A-E-F						HA	BT	KZ

LOCATION	A	B	C	D	E	F	G	H	I	J	K
PHYSICALLY MEAS. DEPTH	.0210	.0205	—	—	.0215	THRU	THRU	.0300	.0100	.0240	.0140
DEPTH IN % OF WALL	41%	40%	—	—	42%	100%	100%	58%	19%	47%	27%
DIA OF DEFECT $\pm .003$											

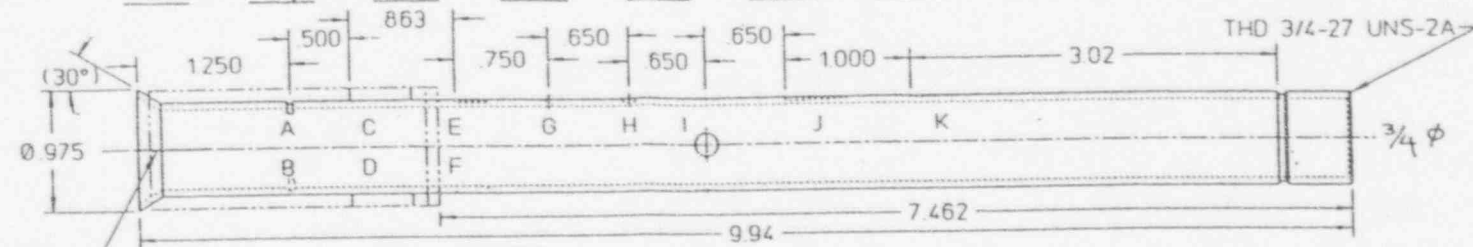


MATERIAL INCONEL 600
 AVERAGE MEAS. WALL THK. .0515
 NOMINAL WALL THK. .049
 HEAT LOT NO. 752493
 TEST FREQ. USED NA
 SERIAL NO. Z-13325
 P.O. NO. 679
 REL. NO. MR5524
 QUALITY REL. NO. NA
 DATE MFG. 2-1-95
 O.A. INSP. HA
 CUSTOMER CONRAD NUCLEAR
 RECORDED NA
 PROBE USED NA
 REVIEWED BY HA

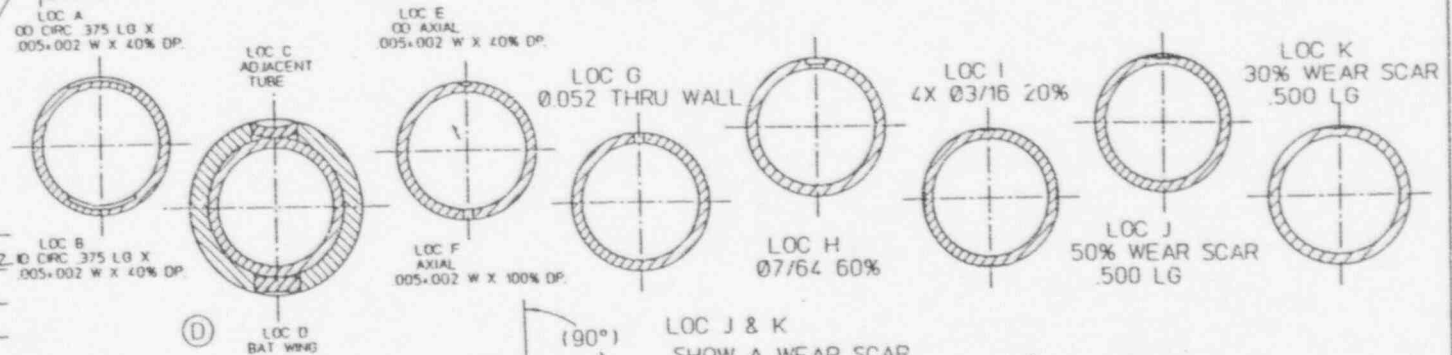
NOTE:

UNL. OTHERWISE SPECIFIED DIM ARE IN INCHES TOLERANCES DECIMAL FRACT. $\pm 1/16$ XXXX $\pm .003$ XXX $\pm .015$ XX $\pm .050$ X $\pm .003$ ANGULAR $\pm 3^\circ$ FINISH	DRAWN G MATELICH	DATE 08/24/94	ZETEC INC. POST OFFICE BOX 100 ISSAQUAH WASHINGTON 98027-0100 U.S.A. TELEPHONE (206) 387-5378
	CHECK B JONES	08/30/94	
	DESIGN		
	APVD. OA G ATKINS	08/31/94	
TITLE DUAL GUIDE TUBE STD. W/ MISC. DEFECTS		SIMILAR	DWG NO. 2-415-1015
SCALE NTS		USED ON 2-415-0004	SHT 1 OF 2

				REVISIONS						
				REV	STATUS	DATE	DESCRIPTION	APVD	CK	DR
			C	2	SHEET	11/29/94	ADDED WIDTH CALL-OUT LOC. A-B-E-F	HR	BT	KZ

LOCATION	A	B	C	D	E	F	G	H	I	J	K
PHYSICALLY MEAS'D DEPTH	.0215	.0200	—	—	.0210	THRU	THRU	.0310	.0110	.0260	.0195
DEPTH IN % OF WALL	42%	39%	—	—	41%	100%	100%	60%	21%	50%	28%
DIA OF DEFECT ±.003											

ALIGN ELECTRO-ETCH
AND GROOVES



MATERIAL INCONEL 600
 AVERAGE MEAS WALL THK. .052
 NOMINAL WALL THK. .049
 HEAT LOT NO. 752493
 TEST FREQ USED NA
 SERIAL NO. Z-13326
 P.O. NO. 679
 REL. NO. MR5524
 QUALITY REL. NO. NA
 DATE MFG. 2-1-95
 O.A. INSP. Handwritten signature
 CUSTOMER CONRAD NUCLEAR
 RECORDED NA
 PROBE USED NA
 REVIEWED BY Handwritten signature

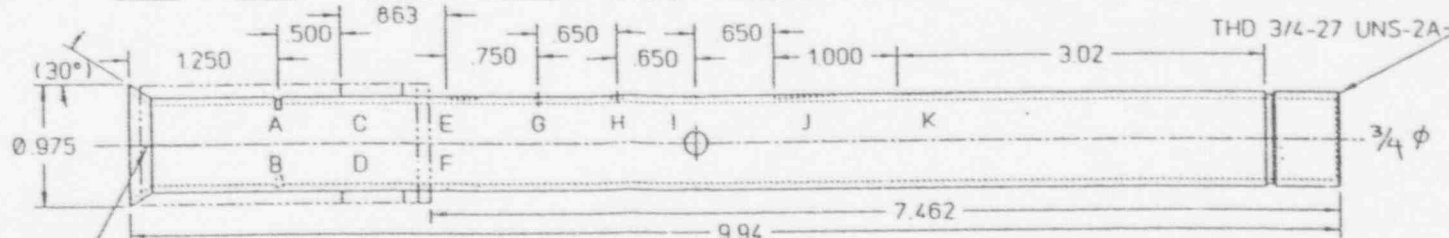
NOTE:

UNLESS OTHERWISE SPECIFIED DIM ARE IN INCHES TOLERANCES DECIMAL FRACT. ± 1/16 .XXXX ± .003 .XXX ± .015 .XX ± .050 .X ± .003 ANGULAR .3° FINISH	DRAWN	DATE	ZETEC INC POST OFFICE BOX 110 ISSAQUAH WASH-INGTON 98027-0110 U.S.A. TELEPHONE (206) 382-5316
	G. MATELICH	08/24/94	
	CHECK	08/30/94	
	DESIGN		
	APVD. OA		
	G. ATKINS	08/31/94	
TITLE		DUAL GUIDE TUBE STD. W/ MISC. DEFECTS	
SIMILAR		DWG NO.	
		2-415-1015	
SCALE NTS		USED ON 2-415-0004 SHT 1 OF 2	

				REVISIONS				
				REV. STATUS OF SHEETS	LTR	DATE	DESCRIPTION	APVD CK DR
				2 SHEET	E	11/29/94	ADDED WIDTH CALL-OUT LOC. A-B-E-F	BA BT KZ

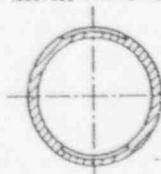
LOCATION	A	B	C	D	E	F	G	H	I	J	K
PHYSICALLY MEAS. DEPTH	.0200	.0210	—	—	.0210	THRU	THRU	.0300	.0100	.0250	.0145
DEPTH IN % OF WALL	39%	41%	—	—	41%	100%	100%	58%	19%	49%	28%

DIA OF DEFECT ±.003

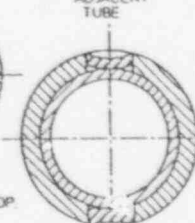


ALIGN ELECTRO-ETCH AND GROOVES

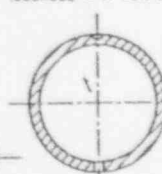
LOC A
ØØ CIRC 375 LG X
ØØS+.002 W X 40% DP.



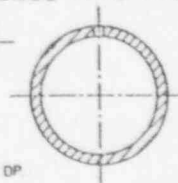
LOC C
ADJACENT TUBE



LOC E
ØØ AXIAL
ØØS+.002 W X 40% DP.



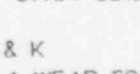
LOC G
Ø.052 THRU WALL



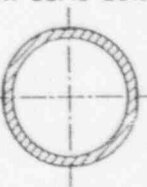
LOC F
AXIAL
ØØS+.002 W X 100% DP.



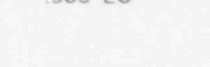
LOC H
Ø7/64 60%



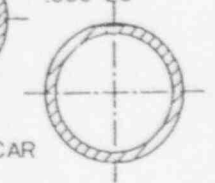
LOC I
4X Ø3/16 20%



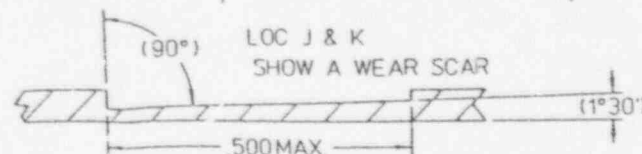
LOC J
50% WEAR SCAR
500 LG



LOC K
30% WEAR SCAR
500 LG



LOC D
BAT WING



MATERIAL INCONEL 600

AVERAGE MEAS. WALL THK. .0515

NOMINAL WALL THK. .049

HEAT LOT NO. 752493

TEST FREQ. USED NA

SERIAL NO. E-13328

P.O. NO. 679

REL. NO. MR5524

QUALITY REL. NO. NA

DATE MFG. 2-1-95

O.A. INSP. *Hung*

CUSTOMER CONRAD NUCLEAR

RECORDED NA

PROBE USED NA

REVIEWED BY *[Signature]*

NOTE

UNL. OTHERWISE SPECIFIED
DIM ARE IN INCHES
TOLERANCES
DECIMAL FRACT. ± 1/16
XXXX ± .003
XXX ± .015
XX ± .050
X ± .003
ANGULAR ± 3°
FINISH

DRAWN
G. MATELICH
CHECK
B. JONES
DESIGN
APVD. OA
G. ATKINS

DATE
08/24/94
08/30/94
08/31/94

ZETEC INC.

POST OFFICE BOX 110 ISSAQUAH WASHINGTON
98027-0110 USA TELEPHONE (206) 792-5316

TITLE
DUAL GUIDE TUBE STD.
W/ MISC. DEFECTS

SIMILAR

OWG NO

2-415-1015

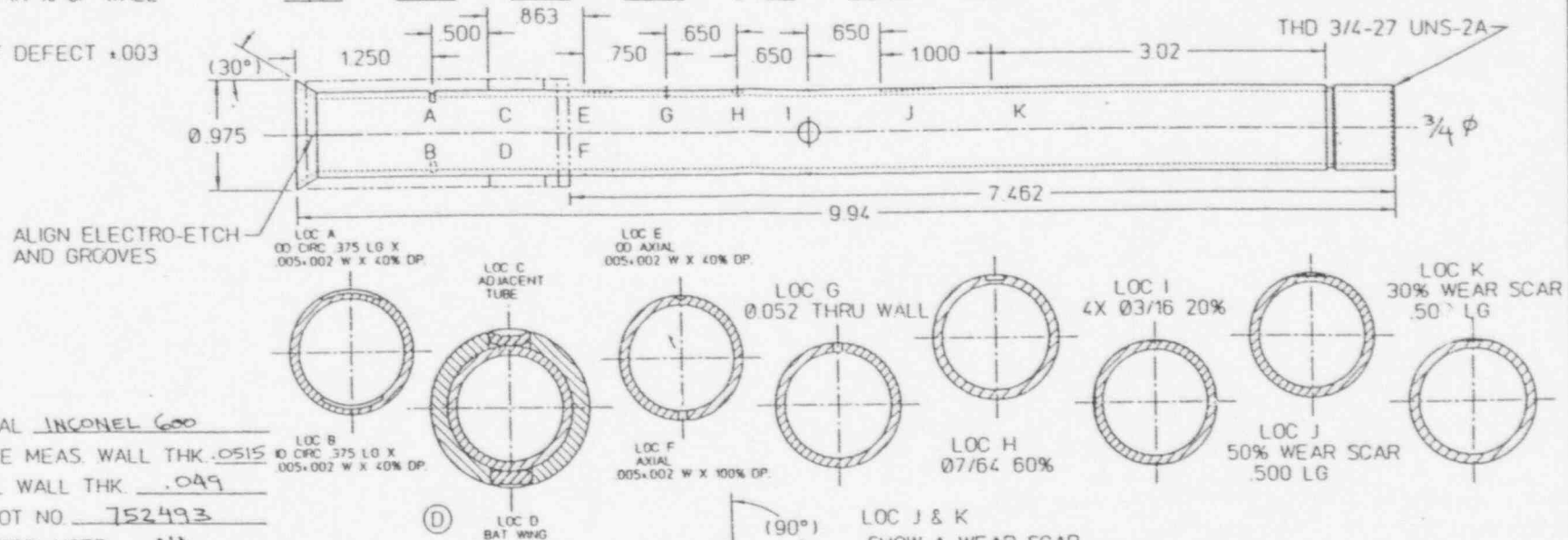
SCALE NTS

USED BY 2-415-0004

SHT 1 OF 2

REV. STATUS OF SHEETS				REVISIONS				APVD	CK	DR
LTR	DATE	DESCRIPTION								
E	11/29/94	ADDED WIDTH CALL-OUT LOC. A-B-E-F						HA	DR	KZ

LOCATION	A	B	C	D	E	F	G	H	I	J	K
PHYSICALLY MEAS. DEPTH	.0205	.0210	—	—	.0210	THRU	THRU	.0300	.0105	.0240	.0150
DEPTH IN % OF WALL	40%	41%	—	—	41%	100%	100%	58%	20%	47%	29%
DIA OF DEFECT $\pm .003$											



MATERIAL INCONEL 600
 AVERAGE MEAS. WALL THK. .0515
 NOMINAL WALL THK. .049
 HEAT LOT NO. 752493
 TEST FREQ. USED NA
 SERIAL NO. Z-13329
 P.O. NO. 679
 REL. NO. MR5524
 QUALITY REL. NO. NA
 DATE MFG. 2-1-95
 O.A. INSP. HA
 CUSTOMER CONRAD NUCLEAR
 RECORDED NA
 PROBE USED NA
 REVIEWED BY HA

NOTE:

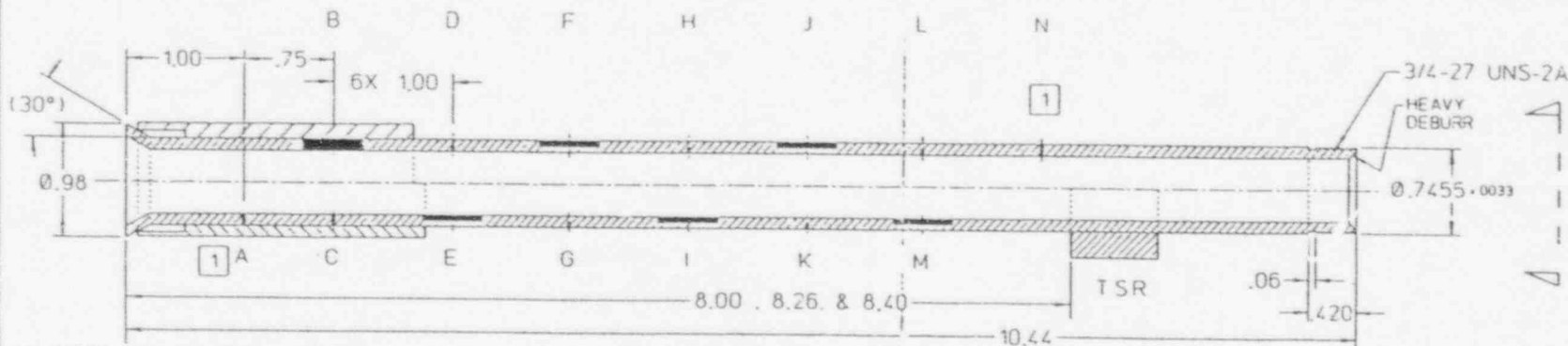
UNL. OTHERWISE SPECIFIED DIM ARE IN INCHES TOLERANCES DECIMAL FRACT. $\pm 1/16$ XXXX $\pm .003$ XXX $\pm .015$ XX $\pm .050$ % $\pm .003$ ANGULAR $\pm 3^\circ$ FINISH	DRAWN G. MATELICH	DATE 08/24/94	ZETEC INC. POST OFFICE BOX 110 ISSAQUAH WASH-STATE 98027-0110 U.S.A. TELEPHONE (206) 387-5316
	CHECK B. JONES	08/30/94	
	DESIGN		
	APVD. OA G. ATKINS	08/31/94	
TITLE DUAL GUIDE TUBE STD. W/ MISC. DEFECTS		SIMILAR	DWG NO. 2-415-1015
SCALE NTS		USED CN 2-415-0004	SHT 1 OF 2

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG

REVISIONS		REV STATUS OF SHEETS	LTR		DATE	DESCRIPTION	APVD	CK	DR
3	2								
		SHEET							

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS. DEPTH	THRU	THRU	THRU	.0295	.0305	.0315	.0310	.0200	.0205	.0210	.0220	.0095	.0100	THRU
DEPTH IN % OF WALL	100%	100%	100%	58%	60%	62%	61%	39%	40%	43%	43%	19%	20%	100%

SHOWS 100%
THRU HOLE
LOC N



1 0.052 ±.003 IN STD. ≤ .75 DIA.
0.067 ±.003 IN STD. > .75 DIA.

MATERIAL INCONEL 600

AVERAGE MEAS WALL THK .051

NOMINAL WALL THK .049

HEAT LOT NO 752493

TEST FREQ USED NA

SERIAL NO Z-15577

PO NO 51148

REL NO NA

QUALITY REL NO NA

DATE MFG 12-16-96

O.A. INSP Harry C. Allen

CUSTOMER ROCKRIDGE TECHNOLOGIES

RECORDED NA

PROBE USED NA

REVIEWED BY Charlotte Butler

SHOWS 100%
AXIAL FLAW
LOC B



LOC A
SHOWS 100%
THRU HOLE

SHOWS 60% ID
CIRC FLAW
LOC D



LOC C
SHOWS 100%
CIRC FLAW

SHOWS 60% ID
AXIAL FLAW
LOC E



LOC E
SHOWS 60% ID
AXIAL FLAW

SHOWS 60% OD
AXIAL FLAW
LOC F



LOC G
SHOWS 60% OD
CIRC FLAW

SHOWS 40% ID
CIRC FLAW
LOC H



LOC I
SHOWS 40% ID
AXIAL FLAW

SHOWS 40% OD
AXIAL FLAW
LOC J



LOC K
SHOWS 40% OD
CIRC FLAW

SHOWS 20% ID
CIRC FLAW
LOC L



LOC M
SHOWS 20% ID
AXIAL FLAW

NOTE

3/4" φ (STOCK) TUBING

UNLESS OTHERWISE SPECIFIED
DIM ARE IN INCHES
TOLERANCES
DECIMAL FRACT. 1/16
XXXX ± .003
XXX ± .015
XX ± .050
X ± .003
ANGULAR ± .3°
FINISH

DRAWN

K ZEGKE

CHECK

ZOR

DESIGN

APVD CA

B. Allen

DATE

12/03/96

12/16/96

12/16/96

12/10/96

12/10/96

ZETEC INC

POST OFFICE BOX 10550 WASHINGTON
98027-0550 USA TELEPHONE (206) 392-5210

TITLE

G.T. CALIBRATION STANDARD

D=4040-1-A P=3435

SIMILAR

DWG NO

2-415-1059

SCALE NTS

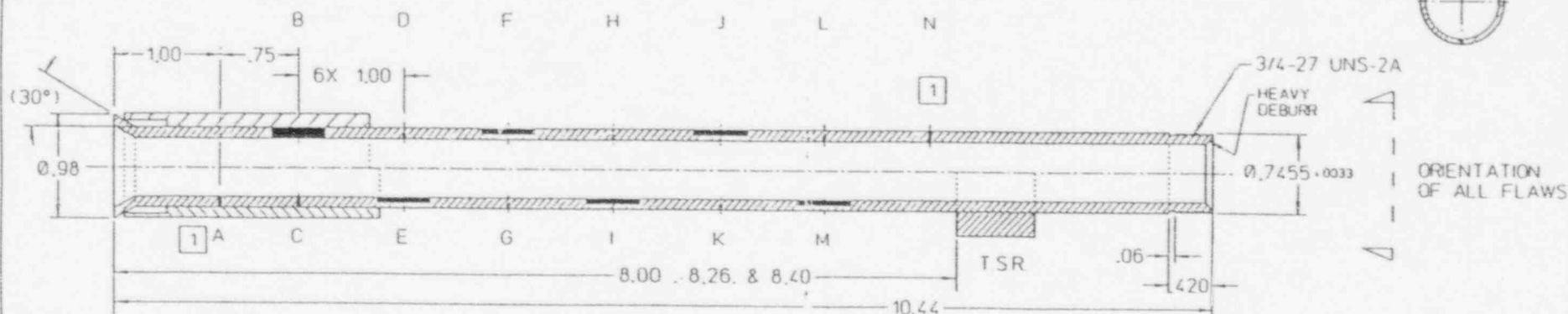
DATE

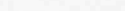
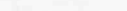
2-415-0015

SHT 1 OF 3

		REVISIONS	REV STATUS OF SHEETS	LTR	DATE	DESCRIPTION	APVD	CHK	DATE
3	2	SHEET							

SHOWS 100%
THRU HOLE
LOC N



SHOWS 100% AXIAL FLAW LOC B	SHOWS 60% ID CIRC. FLAW LOC D	SHOWS 60% OD AXIAL FLAW LOC F	SHOWS 40% ID CIRC FLAW LOC H	SHOWS 40% OD AXIAL FLAW LOC J	SHOWS 20% ID CIRC FLAW LOC L
					

LOC A
SHOWS 100%
THRU HOLE

LOC C
SHOWS 100%
CIRC FLAW

LOC E
SHOWS 60% ID
AXIAL FLAW

LOC G
SHOWS 60% OD
CIRC. FLAW

LOC I
SHOWS 40% ID
AXIAL FLAW

LOC K
SHOWS 40% OD
CIRC FLAW

LOC M
SHOWS 20% ID
AXIAL FLAW

REVIEWED BY Charlotte Better

$\frac{3}{4}$ " ϕ (STOCK) TUBING

FINISH	0.51 000
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11. Al.

2/10/98

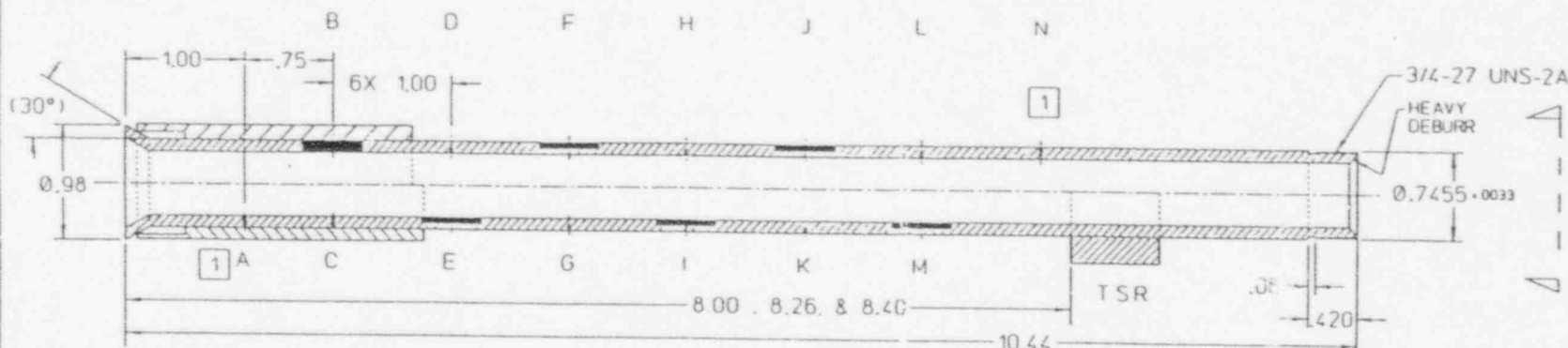
1955
1956

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG

REV. NO.			REV. STATUS			REV. NO.			REV. STATUS			REV. NO.			REV. STATUS		
3	2	SHEET	REV	STATUS	OF SHEETS	LTR	DATE	DESCRIPTION	APVD	CK	DR						

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS DEPTH	THRU	THRU	THRU	.0290	.0280	.0315	.0315	.0190	.0195	.0205	.0205	.0100	.0095	THRU
DEPTH IN % OF WALL	100%	100%	100%	57%	55%	62%	62%	37%	38%	40%	40%	20%	19%	100%

SHOWS 100%
THRU HOLE
LOC N



1 0.052 ±.003 IN STD. ≤ .75 DIA.
0.067 ±.003 IN STD. > .75 DIA.

MATERIAL INCONEL 600
AVERAGE MEAS WALL THK .051
NOMINAL WALL THK .049
HEAT LOT NO 752493
TEST FREQ USED NA
SERIAL NO Z-15579
PO NO 51148
REL NO NA
QUALITY REL NO NA
DATE MFG 12-16-96
O A INSP Harry B. Batten
CUSTOMER ROCKRIDGE TECHNOLOGIES
RECORDED NA
PROBE USED NA
REVIEWED BY Charlotte Batten

SHOWS 100%
AXIAL FLAW
LOC B

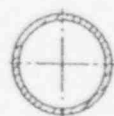
SHOWS 60% ID
CIRC FLAW
LOC C

SHOWS 60% OD
AXIAL FLAW
LOC F

SHOWS 40% ID
CIRC FLAW
LOC H

SHOWS 40% OD
AXIAL FLAW
LOC J

SHOWS 20% ID
CIRC FLAW
LOC L



LOC A
SHOWS 100%
THRU HOLE



LOC C
SHOWS 100%
CIRC FLAW



LOC E
SHOWS 60% ID
AXIAL FLAW



LOC G
SHOWS 60% OD
CIRC FLAW



LOC I
SHOWS 40% ID
AXIAL FLAW



LOC K
SHOWS 40% OD
CIRC FLAW



LOC M
SHOWS 20% ID
AXIAL FLAW

NOTE

3/4" (STOCK) TUBING

ONLY OTHERWISE SPECIFIED
DIM ARE IN INCHES
TOLERANCES
DECIMAL FRACT ±1/16
XXXX ±.003
XXX ±.015
XX ±.050
X ±.003
ANGULAR .3°
FINISH DIST 000

DRAWN
K ZEGKE
CHECK
DESIGN
APVD CA
DATE
12/03/96
12/16/96
12/10/96

ZETEC
INC

POST OFFICE BOX 140 HADDON HAVEN, MASSACHUSETTS 01907-0140 USA TELEPHONE (208) 397-5348

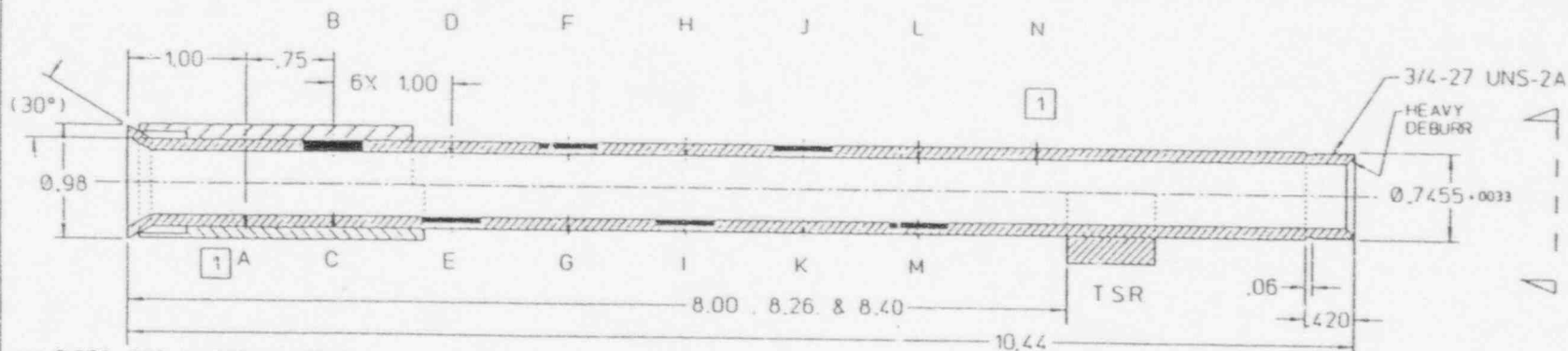
TITLE
G.T. CALIBRATION STANDARD
D=4040-1-A P=3435
SIMILAR
DWG NO
2-415-1059
SCALE NTS
USED
2-415-0015
SHT 1 OF 3

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG

REV. NO.		REV. STATUS		LTR		DATE		DESCRIPTION		APVD	CK	DR
3	2	SHEET										

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS DEPTH	THRU	THRU	THRU	.2295	.0295	.0305	.0310	.0190	.0200	.0210	.0210	.0095	.0100	THRU
DEPTH IN % OF WALL	100%	100%	100%	58%	58%	60%	61%	37%	39%	41%	41%	19%	20%	100%

SHOWS 100%
THRU HOLE
LOC N



ORIENTATION
OF ALL FLAWS

1 0.052 ±.003 IN STD. ≤ .75 DIA
0.067 ±.003 IN STD. > .75 DIA

MATERIAL INCONEL 600
AVERAGE MEAS WALL THK .051
NOMINAL WALL THK .049
HEAT LOT NO 752493
TEST FREQ. USED NA
SERIAL NO Z-15580
P.O. NO 51148
REL. NO NA
QUALITY REL NO NA
DATE MFG 12-16-96
QA INSP [Signature]
CUSTOMER ROCKRIDGE TECHNOLOGIES
RECORDED NA
PROBE USED NA
REVIEWED BY Charlotte Better

SHOWS 100%
AXIAL FLAW
LOC B

SHOWS 60% ID
CIRC. FLAW
LOC D

SHOWS 60% OD
AXIAL FLAW
LOC F

SHOWS 40% ID
CIRC. FLAW
LOC H

SHOWS 40% OD
AXIAL FLAW
LOC J

SHOWS 20% ID
CIRC. FLAW
LOC L



LOC A
SHOWS 100%
THRU HOLE



LOC C
SHOWS 100%
CIRC FLAW



LOC E
SHOWS 60% ID
CIRC FLAW



LOC G
SHOWS 60% OD
CIRC FLAW



LOC I
SHOWS 40% ID
AXIAL FLAW



LOC K
SHOWS 40% OD
CIRC FLAW



LOC M
SHOWS 20% ID
AXIAL FLAW

NOTE

3/4" (STOCK) TUBING

UNLESS OTHERWISE SPECIFIED
DIM ARE IN INCHES
TOLERANCES
DECIMAL FRACT. ±.1/16
XXXX ±.003
XXX ±.015
XX ±.050
X ±.003
ANGULAR .3°
FINISH

DIST 000

DRAWN
K ZEGKE
CHECK
ZOR
DESIGN
P
APVD DA
12/10/96

DATE
12/03/96

ZETEC INC

POST OFFICE BOX 110 ISSAQUAH WASHINGTON
98027-0110 USA TELEPHONE (206) 392-5316

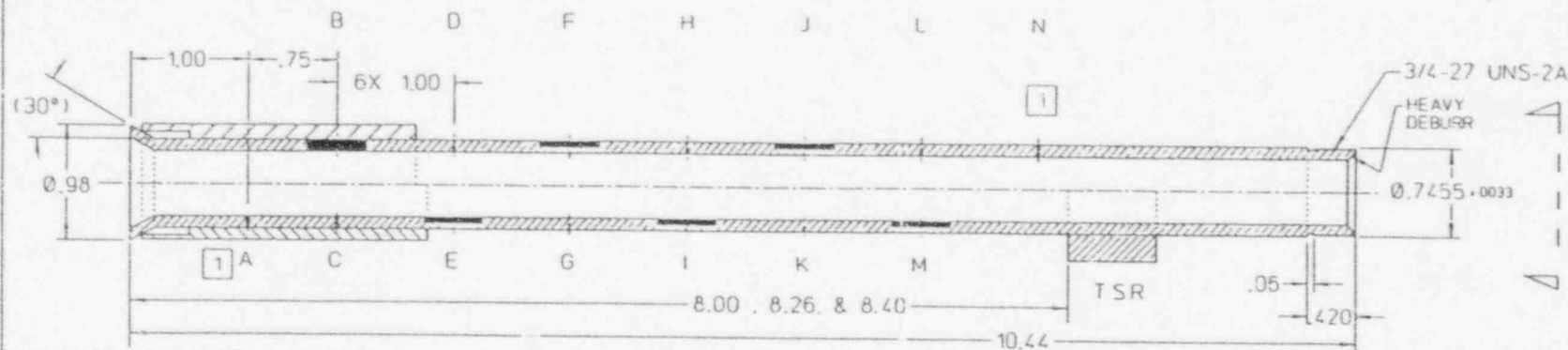
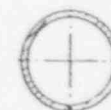
TITLE
G.T. CALIBRATION STANDARD
D=4040-1-A P=3435
SCALE NTS
USED
2-415-0015 Sht 1 OF 3

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG

REVISIONS		REV STATUS		LTR		DATE		DESCRIPTION		APVD	CK	DR
3	2	SHEET										

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS DEPTH	THRU	THRU	THRU	.0295	.0295	.0300	.0300	.0185	.0190	.0210	.0200	.0095	.0095	THRU
DEPTH IN % OF WALL	100%	100%	100%	53%	52%	59%	59%	36%	37%	41%	39%	19%	19%	100%

SHOWS 100%
THRU HOLE
LOC N



1 0.052 ±.003 IN STD. ≤ .75 DIA
0.067 ±.003 IN STD. > .75 DIA

MATERIAL INCONEL 600

AVERAGE MEAS WALL THK .051

NOMINAL WALL THK .049

HEAT LOT NO 752493

TEST FREQ USED NA

SERIAL NO Z-15581

P.O. NO 51145

REL NO NA

QUALITY REL NO NA

DATE MFG 12-16-96

O.A. INSP Steve Allen

CUSTOMER ROCKRIDGE TECHNOLOGIES

RECORDED NA

PROBE USED NA

REVIEWED BY Charlotte Butler

SHOWS 100%
AXIAL FLAW
LOC B

SHOWS 60% ID
CIRC FLAW
LOC D

SHOWS 60% OD
AXIAL FLAW
LOC F

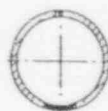
SHOWS 40% ID
CIRC FLAW
LOC H

SHOWS 40% OD
AXIAL FLAW
LOC J

SHOWS 20% ID
CIRC FLAW
LOC L



LOC A
SHOWS 100%
THRU HOLE



LOC C
SHOWS 100%
CIRC FLAW



LOC E
SHOWS 60% ID
AXIAL FLAW



LOC G
SHOWS 60% OD
CIRC FLAW



LOC I
SHOWS 40% ID
AXIAL FLAW



LOC K
SHOWS 40% OD
CIRC FLAW



LOC M
SHOWS 20% ID
AXIAL FLAW

NOTE:

3/4" φ (STOCK) TUBING

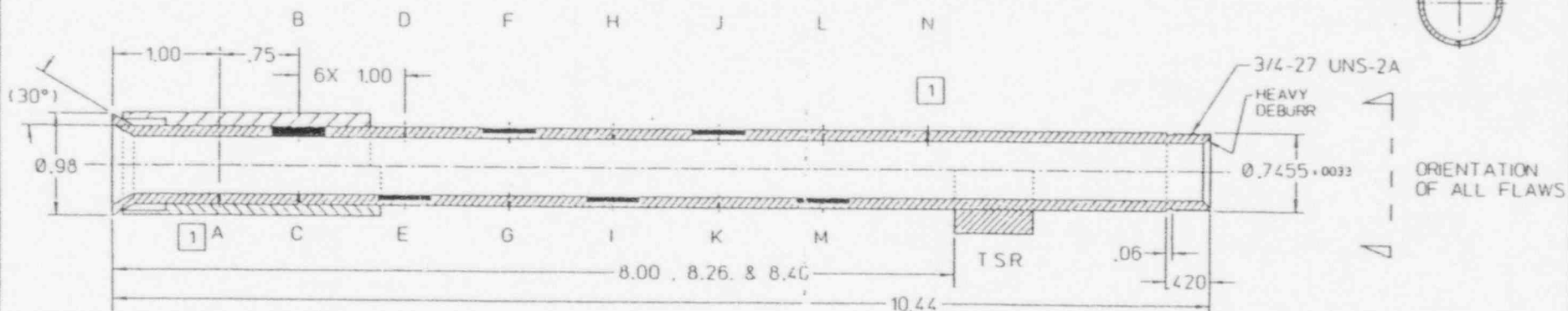
UNLESS OTHERWISE SPECIFIED
DIM ARE IN INCHES
TOLERANCES
DECIMAL FRACT 1/16
XXXX ± .003
XXX ± .015
XX ± .050
X ± .003
ANGULAR .3°
FINISH DIST 000

DRAWN
K ZEGKE
CHECK
ZOR
DESIGN
APVD DA
12/10/96

DATE
12/03/96
ZETEC INC.
POST OFFICE BOX 10 ISSAQUAH WASHINGTON
98027-0100 USA TELEPHONE (206) 382-5316
TITLE
G.T. CALIBRATION STANDARD
D4040-1-A P43435
SIMILAR
DWG NO
2-415-1059
SCALE NTS
USED IN 2-415-0016 SHIT 1 OF 3

		REVISIONS	REV STATUS OF SHEETS	LTR	DATE	DESCRIPTION	APVD	CK	DR
3	2	SHEET		1					

SHOWS 100%
THRU HOLE
LOC N



SHOWS 100% AXIAL FLAW LOC B	SHOWS 60% ID. CIRC. FLAW LOC D	SHOWS 60% OD. AXIAL FLAW LOC F	SHOWS 40% ID CIRC FLAW LOC H	SHOWS 40% OD. AXIAL FLAW LOC J	SHOWS 20% ID CIRC FLAW LOC L
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LOC A SHOWS 100% THRU HOLE

LOC C SHOWS 100% CIRC FLAW

LOC E SHOWS 60% ID AXIAL FLAW

LOC G SHOWS 60% OD CIRC FLAW

LOC I SHOWS 40% ID AXIAL FLAW

LOC K SHOWS 40% OD CIRC FLAW

LOC M SHOWS 20% ID AXIAL FLAW

REVIEWED BY Charlotte Better

$\frac{3}{4}$ " ϕ (STOCK) TUBING

FINISH	DIST 000
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APVD 04

2/1

SCALE 1-50

POST OFFICE BOX 140 ISSAQUAH WASHINGTON
98027-0140 U.S.A. TELEPHONE (206) 382-5338

2-415-1059

DN 2-415-0015

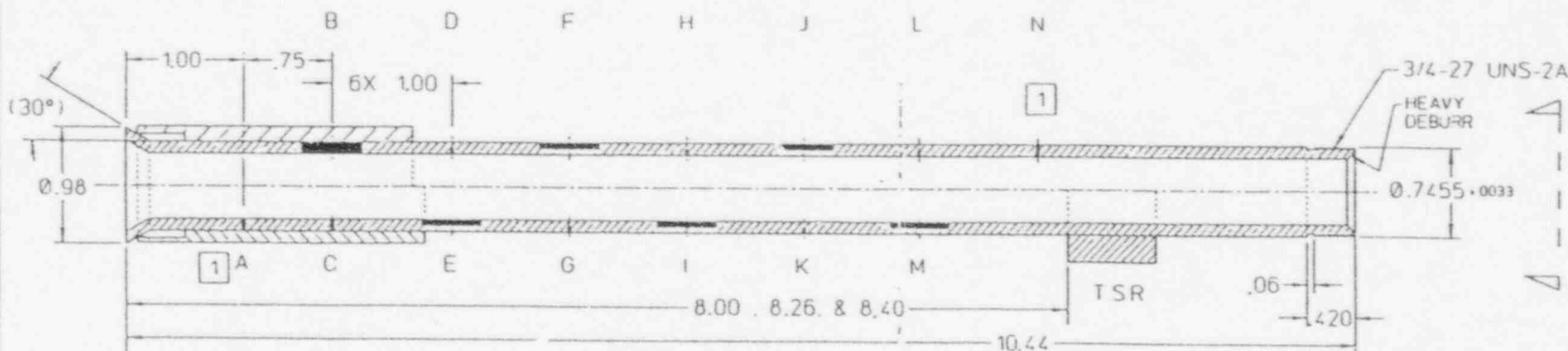
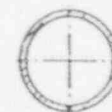
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ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG

REVISED		REV STATUS		LTR		DATE		REVISIONS		DESCRIPTION		APVD	CK	DR
3	2	SHEET	OF SHEETS											

LOCATION A B C D E F G H I J K L M N
PHYSICALLY MEAS DEPTH THRU THRU THRU .0290 .0295 .0320 .0305 .0200 .0190 .0220 .0205 .0095 .0100 THRU
DEPTH IN % OF WALL 100% 100% 100% 57% 58% 63% 60% 39% 37% 43% 40% 19% 20% 100%

SHOWS 100%
THRU HOLE
LOC N



1 0.052 ±.003 IN STD. ≤ .75 DIA
0.067 ±.003 IN STD. > .75 DIA

MATERIAL INCONEL 600

AVERAGE MEAS WALL THK .051

NOMINAL WALL THK .049

HEAT LOT NO 752493

TEST FREQ USED NA

SERIAL NO Z-15583

PO NO 51148

REL NO NA

QUALITY REL NO NA

DATE MFG 12-16-96

O.A. INSP *[Signature]*

CUSTOMER ROCKRIDGE TECHNOLOGIES

RECORDED NA

PROBE USED NA

REVIEWED BY *Charlotte Potter*

SHOWS 100%
AXIAL FLAW
LOC B



LOC A
SHOWS 100%
THRU HOLE

SHOWS 60% ID
CIRC. FLAW
LOC D



LOC C
SHOWS 100%
CIRC FLAW

SHOWS 60% OD
AXIAL FLAW
LOC F



LOC E
SHOWS 60% ID
AXIAL FLAW

SHOWS 40% ID
CIRC FLAW
LOC H



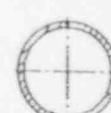
LOC G
SHOWS 60% OD
CIRC FLAW

SHOWS 40% OD
AXIAL FLAW
LOC J



LOC I
SHOWS 40% ID
AXIAL FLAW

SHOWS 20% ID
CIRC FLAW
LOC L



LOC K
SHOWS 40% OD
CIRC FLAW

SHOWS 20% ID
CIRC FLAW
LOC L



LOC M
SHOWS 20% ID
AXIAL FLAW

NOTE:

3/4" φ (STOCK) TUBING

ORL OTHERWISE SPECIFIED

DIM ARE IN INCHES

TOLERANCES

DECIMAL FRACT 1/16

XXXX ± .003

XXX ± .015

XX ± .050

X ± .003

ANGULAR .3°

FINISH

DIST 000

DRAWN

K ZEGKE

CHECK

ZOR

DESIGN

PO

APVD OA

B. Potter

DATE

12/03/96

DATE

12/03/96

12/10/96

12/10/96

12/10/96

12/10/96

12/10/96

12/10/96

12/10/96

12/10/96

ZETEC INC

POST OFFICE BOX 110 ISSAQUAH WASH-INGTON
98027-0110 U.S.A. TELEPHONE (206) 387-5116

TITLE

G.T. CALIBRATION STANDARD

D=4040-1-A P=3435

SIMILAR

DWG NO

2-415-1059

SCALE NTS

USED

2-415-0015

SHT

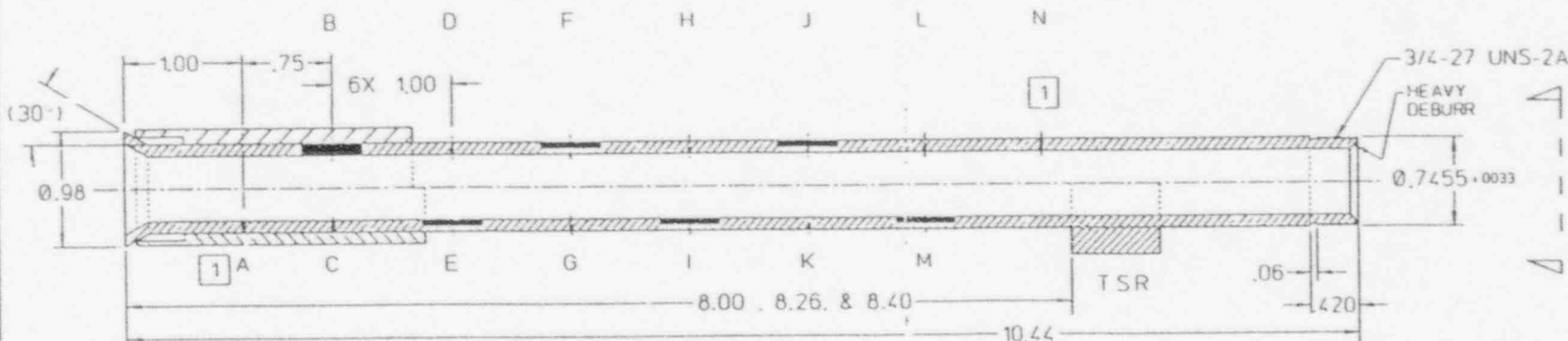
1 OF 3

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG

		REVISIONS	REV STATUS OF SHEETS	LTR	DATE	DESCRIPTION	APVD	CK	DR
3	2	SHEET							

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS DEPTH	THRU	THRU	THRU	.0300	.0290	.0315	.0300	.0195	.0190	.0210	.0210	.0100	.0095	THRU
DEPTH IN % OF WALL	100%	100%	100%	59%	57%	62%	59%	38%	37%	41%	41%	20%	19%	100%

SHOWS 100%
THRU HOLE
LOC N



ORIENTATION
OF ALL FLAWS

1 0.052 ±.003 IN STD. ≤ .75 DIA
0.067 ±.003 IN STD. > .75 DIA

MATERIAL INCONEL 600

AVERAGE MEAS WALL THK .051

NOMINAL WALL THK .049

HEAT LOT NO 752493

TEST FREQ USED NA

SERIAL NO Z-15584

P.O. NO 51148

REL NO NA

QUALITY REL NO NA

DATE MFG 12-16-96

O.A. INSP Henry Allen

CUSTOMER ROCKWELL TECHNOLOGIES

RECORDED NA

PROBE USED NA

REVIEWED BY Charlotte Potter

SHOWS 100%
AXIAL FLAW
LOC B

SHOWS 60% ID
CIRC FLAW
LOC D

SHOWS 60% OD
AXIAL FLAW
LOC F

SHOWS 40% ID
CIRC FLAW
LOC H

SHOWS 40% OD
AXIAL FLAW
LOC J

SHOWS 20% ID
CIRC FLAW
LOC L



LOC A
SHOWS 100%
THRU HOLE



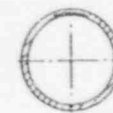
LOC C
SHOWS 100%
CIRC FLAW



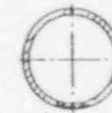
LOC E
SHOWS 60% ID
AXIAL FLAW



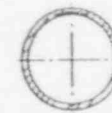
LOC G
SHOWS 60% OD
CIRC FLAW



LOC I
SHOWS 40% ID
AXIAL FLAW



LOC K
SHOWS 40% OD
CIRC FLAW



LOC M
SHOWS 20% ID
AXIAL FLAW

NOTE

3/4" φ (STOCK) TUBING

UNLESS OTHERWISE SPECIFIED
DIM ARE IN INCHES
TOLERANCES
DECIMAL FRACT ±1/16
XXXX ±.003
XXX ±.015
XX ±.050
X ±.003
ANGULAR .3°
FINISH DIST 000

DRAWN
K ZEGKE
CHECK
ZOR
DESIGN
APVD OA
H. Allen

DATE
12/03/96
12/14/96
12/10/96
12/10/96

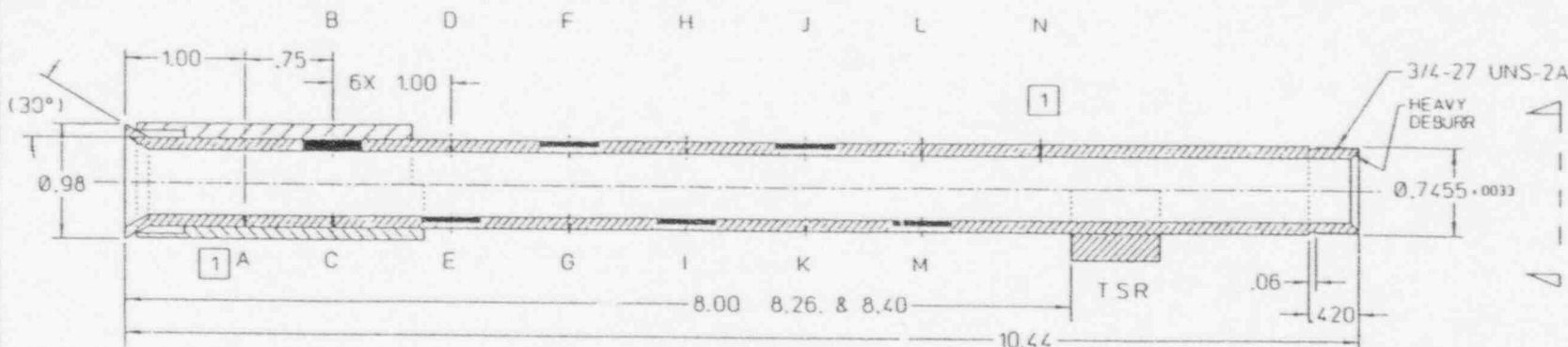
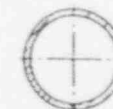
ZETEC INC.
POST OFFICE BOX 400 ISSAQUAH WASHINGTON
98227-0400 USA TELEPHONE (206) 792-5330
TITLE
G.T. CALIBRATION STANDARD
D=4040-1-A P=3435
SIMILAR
DWG NO
2-415-1059
SCALE N.T.S.
USED IN 2-415-0016
SHT 1 OF 3

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG

		REVISIONS	REV STATUS	LTR		DATE	DESCRIPTION	APVD	CK	DR
3	2	SHEET	OF SHEETS							

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS DEPTH	THRU	THRU	THRU	.0295	.0290	.0295	.0300	.0190	.0195	.0205	.0200	.0100	.0110	THRU
DEPTH IN % OF WALL	100%	100%	100%	58%	57%	58%	59%	37%	38%	40%	39%	20%	22%	100%

SHOWS 100%
THRU HOLE
LOC N



1 0.052 ±.003 IN STD. ≤ .75 DIA
0.067 ±.003 IN STD. > .75 DIA

SHOWS 100%
AXIAL FLAW
LOC B

SHOWS 60% ID
CIRC FLAW
LOC D

SHOWS 60% OD
AXIAL FLAW
LOC F

SHOWS 40% ID
CIRC FLAW
LOC H

SHOWS 40% OD
AXIAL FLAW
LOC J

SHOWS 20% ID
CIRC FLAW
LOC L



LOC A
SHOWS 100%
THRU HOLE



LOC C
SHOWS 100%
CIRC FLAW



LOC E
SHOWS 60% ID
AXIAL FLAW



LOC G
SHOWS 60% OD
CIRC FLAW



LOC I
SHOWS 40% ID
AXIAL FLAW



LOC K
SHOWS 40% OD
CIRC FLAW



LOC M
SHOWS 20% ID
AXIAL FLAW

NOTE:
3/4" (stock) TUBING

UNLESS OTHERWISE SPECIFIED
DIM ARE IN INCHES
TOLERANCES
DECIMAL FRACT 1/16
XXXX ± .003
XXX ± .015
XX ± .050
X ± .003
ANGULAR .3°
FINISH DIST 000

DRAWN
K ZEGKE
CHECK
ZOR
DESIGN
PD
APVD OA
B. Allen

DATE
12/03/96
12/11/96
12/10/96

ZETEC INC

POST OFFICE BOX 100 ISSAQUAH WASHINGTON
98027-0100 U.S.A. TELEPHONE (206) 382-5316

TITLE
G.T. CALIBRATION STANDARD

SIMILAR DWG NO D-4040-1-A P-3435

SCALE NTS USED 2-415-0016 SHIT 1 OF 3

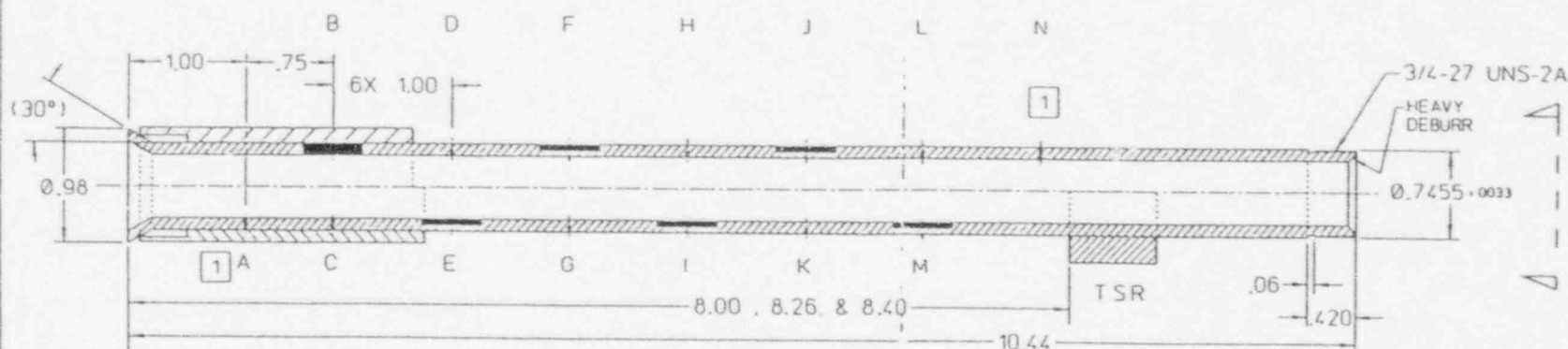
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AVERAGE MEAS WALL THK .051
NOMINAL WALL THK .049
HEAT LOT NO 752493
TEST FREQ USED NA
SERIAL NO Z-15585
PO NO S1148
REL NO NA
QUALITY REL NO NA
DATE MFG 12-16-96
O.A. INSP Allen
CUSTOMER Rock Ridge Technologies
RECORDED NA
PROBE USED NA
REVIEWED BY Charlotte Better

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG

REVISEMENTS		REV STATUS		LTR		DATE		REVISIONS		DESCRIPTION		APVD	CK	DR
3	2	SHEET	OF SHEETS											

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS DEPTH	THRU	THRU	THRU	.0295	.0305	.0315	.0305	.0205	.0215	.0210	.0200	.0085	.0100	THRU
DEPTH IN % OF WALL	100%	100%	100%	58%	60%	62%	60%	40%	42%	41%	39%	17%	20%	100%

SHOWS 100%
THRU HOLE
LOC N



ORIENTATION
OF ALL FLAWS

1 0.052 ±.003 IN STD. ≤ .75 DIA.
0.067 ±.003 IN STD. > .75 DIA.

MATERIAL INCONEL 600

AVERAGE MEAS WALL THK .051

NOMINAL WALL THK .049

HEAT LOT NO 752493

TEST FREQ USED NA

SERIAL NO Z-15586

P.O. NO 51148

REL. NO NA

QUALITY REL NO NA

DATE MFG 12-16-96

O.A. INSP Mike Allen

CUSTOMER ROCKRIDGE TECHNOLOGIES

RECORDED NA

PROBE USED NA

REVIEWED BY Charlotte Bitter

SHOWS 100%
AXIAL FLAW
LOC B

SHOWS 60% ID
CIRC. FLAW
LOC D

SHOWS 60% OD
AXIAL FLAW
LOC F

SHOWS 40% ID
CIRC. FLAW
LOC H

SHOWS 40% OD
AXIAL FLAW
LOC J

SHOWS 20% ID
CIRC. FLAW
LOC L



LOC A
SHOWS 100%
THRU HOLE



LOC C
SHOWS 100%
CIRC. FLAW



LOC E
SHOWS 60% ID
AXIAL FLAW



LOC G
SHOWS 60% OD
CIRC. FLAW



LOC I
SHOWS 40% ID
AXIAL FLAW



LOC K
SHOWS 40% OD
CIRC. FLAW



LOC M
SHOWS 20% ID
AXIAL FLAW

NOTE

3/4" (STOCK) TUBING

UNL. OTHERWISE SPECIFIED

DIM ARE IN INCHES

TOLERANCES

DECIMAL FRACT. ±1/16

XXXX ±.003

XXX ±.015

XX ±.050

X ±.003

ANGULAR .3°

FINISH

DIST 000

DRAWN

K ZEGKE

CHECK

DESIGN

APVD OA

12/10/96

DATE

12/03/96

ZETEC
INC

POST OFFICE BOX 110 ISSAQUAH WASHINGTON
98027-0110 U.S. TELEPHONE (206) 382-5316

TITLE

G.T. CALIBRATION STANDARD

D=4040-1-A P=3435

SIMILAR

DWG NO

2-415-1059

SCALE NTS

USED

2-415-0016

SHT

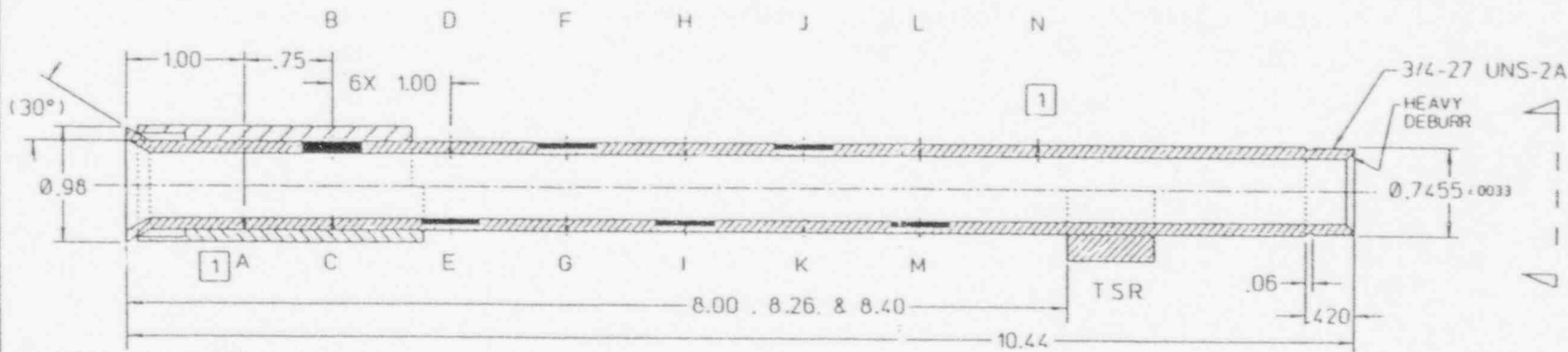
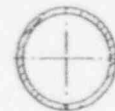
1 OF 3

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG

REVISED		REV STATUS		REVISIONS		DESCRIPTION		APVD	CK	DR
3	2	SHEET	OF SHEETS	LTR	DATE					

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS DEPTH	THRU	THRU	THRU	.0295	.0305	.0315	.0295	.0190	.0190	.0210	.0205	.0090	.0105	THRU
DEPTH IN % OF WALL	100%	100%	100%	58%	60%	62%	58%	37%	37%	41%	40%	18%	21%	100%

SHOWS 100%
THRU HOLE
LOC N



ORIENTATION
OF ALL FLAWS

1 0.052 ±.003 IN STD. ≤ .75 DIA
0.067 ±.003 IN STD. > .75 DIA

MATERIAL INCONEL 600
AVERAGE MEAS WALL THK .051
NOMINAL WALL THK .049
HEAT LOT NO 752493
TEST FREQ USED NA
SERIAL NO Z-15587
PO NO 51148
REL NO NA
QUALITY REL NO NA
DATE MFG 12-16-96
O.A INSP [Signature]
CUSTOMER Rockridge Technologies
RECORDED NA
PROBE USED NA
REVIEWED BY Charlotte Batten

SHOWS 100%
AXIAL FLAW
LOC B



LOC A
SHOWS 100%
THRU HOLE

SHOWS 100% ID
CIRC FLAW
LOC C



LOC C
SHOWS 100%
CIRC FLAW

SHOWS 60% ID
CIRC FLAW
LOC D



LOC D
SHOWS 60% ID
CIRC FLAW

SHOWS 60% OD
AXIAL FLAW
LOC E



LOC E
SHOWS 60% OD
AXIAL FLAW

SHOWS 40% ID
CIRC FLAW
LOC F



LOC F
SHOWS 40% ID
CIRC FLAW

SHOWS 40% OD
CIRC FLAW
LOC G



LOC G
SHOWS 40% OD
CIRC FLAW

SHOWS 20% ID
CIRC FLAW
LOC H



LOC H
SHOWS 20% ID
CIRC FLAW

NOTE
3/4" (STOCK) TUBING

UNLESS OTHERWISE SPECIFIED
DIM ARE IN INCHES
TOLERANCES
DECIMAL : FRACT : 1/16
XXXX : .003
XXX : .015
XX : .050
X : .003
ANGULAR : .3°
FINISH : DIST 000

DRAWN
K ZEGKE
CHECK
ZOR
DESIGN
APVD DA
B. Altun
DATE
12/03/96
12/16/96
12/10/96

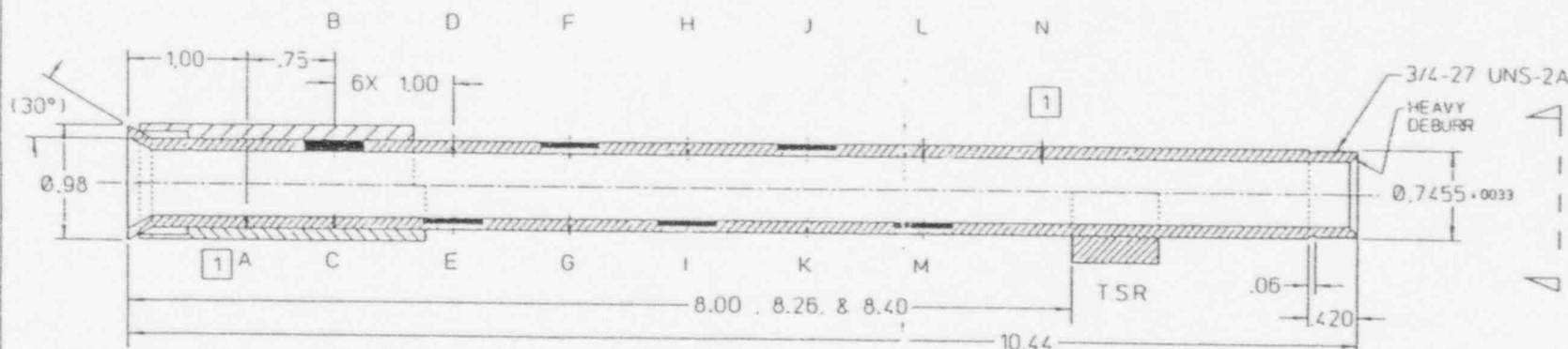
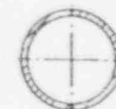
ZETEC INC
POST OFFICE BOX 140 ISSAQUAH WASH-WA 98277 DND USA TELEPHONE (206) 382-5336
TITLE
G.T. CALIBRATION STANDARD
D=4040-1-A P=3435
SIMILAR
DWG NO
2-415-1059
SCALE NTS
USED
2-415-0016
SHT 1 OF 3

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG.

REVISES		REV STATUS OF SHEETS		REVISES		DESCRIPTION		APVD	CK	DR
3	2	SHEET		LTR	DATE					

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS DEPTH	THRU	THRU	THRU	.0290	.0300	.0295	.0305	.0190	.0200	.0200	.0205	.0100	.0105	THRU
DEPTH IN % OF WALL	100%	100%	100%	57%	59%	58%	60%	37%	39%	39%	40%	20%	21%	100%

SHOWS 100%
THRU HOLE
LOC N



ORIENTATION
OF ALL FLAWS

1 0.052 ±.003 IN STD. ≤ .75 DIA
0.067 ±.003 IN STD. > .75 DIA

MATERIAL INCONEL 600

AVERAGE MEAS WALL THK .051

NOMINAL WALL THK .049

HEAT LOT NO 752493

TEST FREQ USED NA

SERIAL NO Z-15588

P.O. NO 51148

REL NO NA

QUALITY REL NO NA

DATE MFG 12-16-96

O.A. INSP W. Allen

CUSTOMER ROCKRIDGE TECHNOLOGIES

RECORDED NA

PROBE USED NA

REVIEWED BY Charlotte Better

SHOWS 100%
AXIAL FLAW
LOC B



LOC A
SHOWS 100%
THRU HOLE

SHOWS 60% ID
CIRC FLAW
LOC D



LOC C
SHOWS 100%
CIRC FLAW

SHOWS 60% OD
AXIAL FLAW
LOC F



LOC E
SHOWS 60% ID
AXIAL FLAW

SHOWS 40% ID
CIRC FLAW
LOC H



LOC G
SHOWS 60% OD
CIRC FLAW

SHOWS 40% OD
AXIAL FLAW
LOC J



LOC I
SHOWS 40% ID
AXIAL FLAW

SHOWS 20% ID
CIRC FLAW
LOC L



LOC K
SHOWS 40% OD
CIRC FLAW



LOC M
SHOWS 20% ID
AXIAL FLAW

NOTE:

3/4" (STOCK) TUBING

UNLESS OTHERWISE SPECIFIED

DIM ARE IN INCHES

TOLERANCES

DECIMAL FRACT 1/16

XXXX ± .003

XXX ± .015

XX ± .050

X ± .003

ANGULAR 3°

FINISH

DIST 000

DRAWN
K ZEGKE

CHECK
ZOR

DESIGN
PJD

APVD OA
B. Allen

DATE
12/03/96

12/11/96

12/10/96

12/10/96

ZETEC
INC

POST OFFICE BOX 100 ISSAQUAH WASHINGTON
98227-0100 USA TELEPHONE (206) 362-5330

TITLE

G.T. CALIBRATION STANDARD

D#4040-1 A P#3435

SIMILAR

DWG NO

2-415-1059

SCALE NTS

USED

2-415-0016

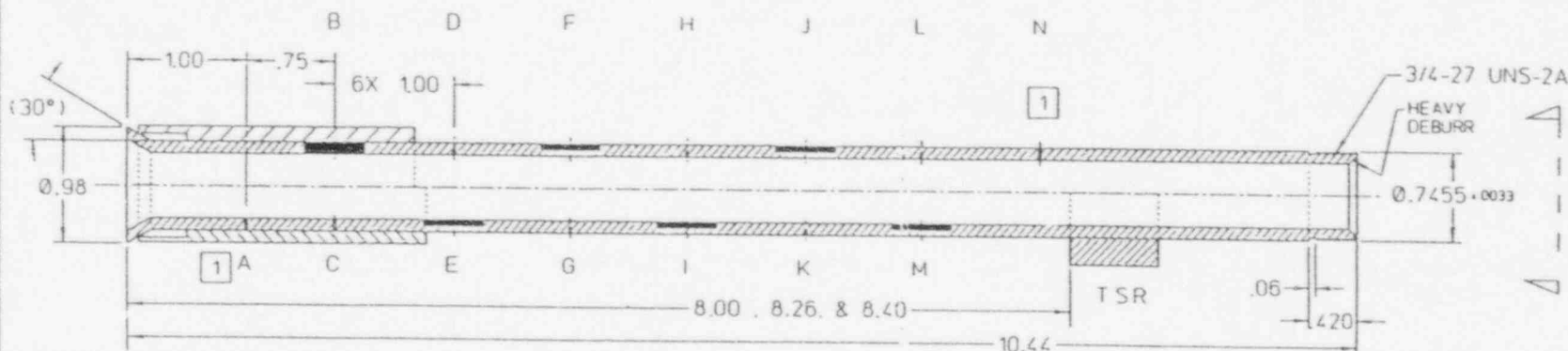
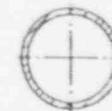
SHT 1 OF 3

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG

REVISIONS			REV STATUS OF SHEETS	REVISIONS			APVD	CK	DR
LTR	DATE	DESCRIPTION							
3	2	SHEET							

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS DEPTH	THRU	THRU	THRU	.0290	.0295	.0305	.0310	.0195	.0195	.0205	.0205	.0100	.0105	THRU
DEPTH IN % OF WALL	100%	100%	100%	57%	58%	60%	61%	38%	38%	40%	40%	20%	21%	100%

SHOWS 100%
THRU HOLE
LOC N



ORIENTATION
OF ALL FLAWS

1 0.052 ± .003 IN STD. ≤ .75 DIA
0.067 ± .003 IN STD. > .75 DIA

MATERIAL INCONEL 600
AVERAGE MEAS WALL THK .051
NOMINAL WALL THK .049
HEAT LOT NO 752493
TEST FREQ USED NA
SERIAL NO Z-15589
P.O. NO 51145
REL. NO NA
QUALITY REL NO NA
DATE MFG 12-16-96
O.A. INSP Harry C. Allen
CUSTOMER Rock Ridge Technologies
RECORDED NA
PROBE USED NA
REVIEWED BY Charlotte Butler

SHOWS 100%
AXIAL FLAW
LOC B

SHOWS 60% ID
CIRC FLAW
LOC D

SHOWS 60% OD
AXIAL FLAW
LOC F

SHOWS 40% ID
CIRC FLAW
LOC H

SHOWS 40% OD
AXIAL FLAW
LOC J

SHOWS 20% ID
CIRC FLAW
LOC L



LOC A
SHOWS 100%
THRU HOLE



LOC C
SHOWS 100%
CIRC FLAW



LOC E
SHOWS 60% ID
AXIAL FLAW



LOC G
SHOWS 60% OD
CIRC FLAW



LOC I
SHOWS 40% ID
AXIAL FLAW



LOC K
SHOWS 40% OD
CIRC FLAW



LOC M
SHOWS 20% ID
AXIAL FLAW

NOTE:

3/4" φ (STOCK) TUBING

UNLESS OTHERWISE SPECIFIED
DIM ARE IN INCHES
TOLERANCES
DECIMAL FRACT 1/16
XXXX ± .003
XXX ± .015
XX ± .050
X ± .003
ANGULAR .3°
FINISH DIST 000

DRAWN
K ZEGKE

DATE
12/03/96

CHECK
ZOR

DATE
12/16/96

DESIGN
HJD

DATE
12/10/96

APVD OA
H. Allen

DATE
12/10/96

ZETEC INC.

POST OFFICE BOX 140 ISSAQUAH WASHINGTON
9827-0140 U.S.A. TELEPHONE (206) 392-5316

TITLE

G.T. CALIBRATION STANDARD

D4040-1-A Pa3435

SIMILAR

DWG NO

2-415-1059

SCALE NTS

USED

2-415-0016

SHT

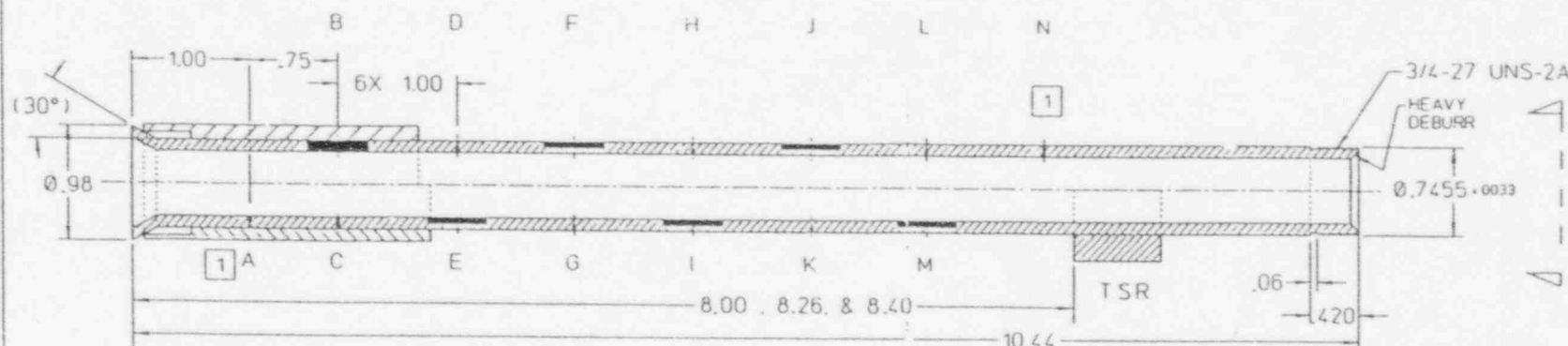
1 OF 3

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG

REVISED		REV STATUS		REVISIONS		LTR		DATE		DESCRIPTION		APVD		CK		DR	
3	2	SHEET	OF SHEETS														

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS DEPTH	THRU	THRU	THRU	.0305	.0305	.0310	.0305	.0200	.0200	.0206	.0210	.0095	.0100	THRU
DEPTH IN % OF WALL	100%	100%	100%	60%	60%	61%	60%	39%	39%	40%	41%	19%	20%	100%

SHOWS 100%
THRU HOLE
LOC N



ORIENTATION
OF ALL FLAWS

1 0.052 ±.003 IN STD. ≤ .75 DIA
0.067 ±.003 IN STD. > .75 DIA

MATERIAL INCONEL 600

AVERAGE MEAS WALL THK .051

NOMINAL WALL THK .049

HEAT LOT NO 752493

TEST FREQ USED NA

SERIAL NO Z-15590

P.O. NO 51145

REL NO NA

QUALITY REL NO NA

DATE MFG 12-16-96

Q.A. INSP *[Signature]*

CUSTOMER ROCKRIDGE TECHNOLOGIES

RECORDED NA

PROBE USED NA

REVIEWED BY *Charlotte Butler*

SHOWS 100%
AXIAL FLAW
LOC B



LOC A
SHOWS 100%
THRU HOLE

SHOWS 60% ID
CIRC FLAW
LOC D



LOC C
SHOWS 100%
CIRC FLAW

SHOWS 60% OD
AXIAL FLAW
LOC F



LOC E
SHOWS 60% ID
AXIAL FLAW

SHOWS 40% ID
CIRC FLAW
LOC H



LOC G
SHOWS 60% OD
CIRC FLAW

SHOWS 40% OD
AXIAL FLAW
LOC J



LOC I
SHOWS 40% ID
AXIAL FLAW

SHOWS 20% ID
CIRC FLAW
LOC L



LOC K
SHOWS 40% OD
CIRC FLAW

SHOWS 20% ID
AXIAL FLAW
LOC M



LOC N
SHOWS 100%
THRU HOLE

NOTE:

3/4" φ (STOCK) TUBING

UNLESS OTHERWISE SPECIFIED

DIM ARE IN INCHES

TOLERANCES

DECIMAL FRACT .1/16

XXXX ± .003

XXX ± .015

XX ± .050

X ± .003

ANGULAR .3°

FINISH

DIST 000

DRAWN

K ZEGKE

CHECK

DESIGN

APVD OA

[Signature]

DATE

12/03/96

12/14/96

12/16/96

12/10/96

[Signature]

ZETEC
INC

POST OFFICE BOX 140 ISSAQUAH WASHINGTON
98272-0140 U.S.A. TELEPHONE (206) 382-5316

TITLE

G.T. CALIBRATION STANDARD

SIMILAR

SCALE NTS

DWG NO

2-415-1059

D=40±0.1-A P=3435

2-415-0016

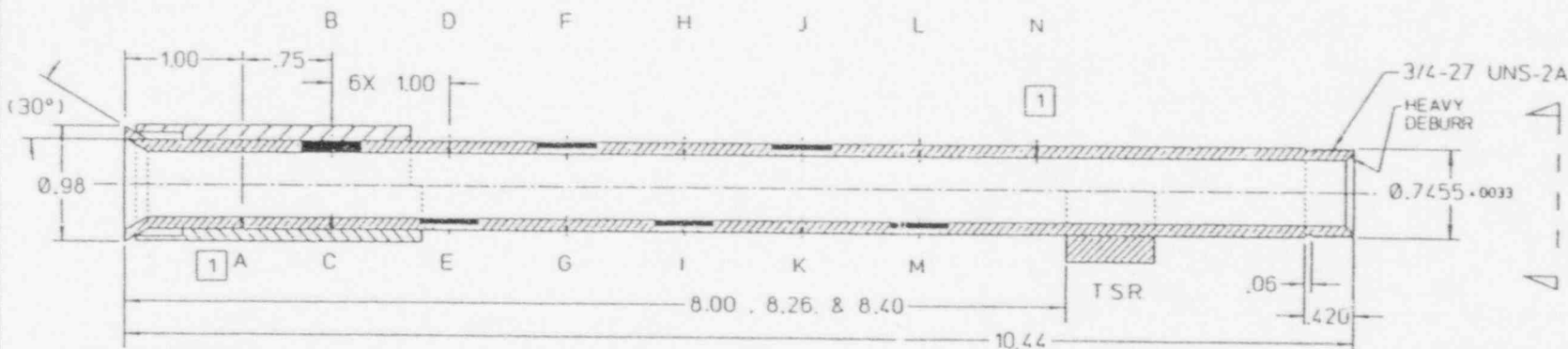
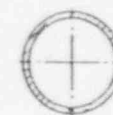
1 OF 3

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG

REV. NO.		REV. STATUS		DATE		DESCRIPTION		APVD	CK	DR
3	2	SHEET	OF SHEETS							

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS DEPTH	THRU	THRU	THRU	.0300	.0295	.0320	.0300	.0190	.0200	.0200	.0205	.0095	.0100	THRU
DEPTH IN % OF WALL	100%	100%	100%	59%	58%	63%	59%	37%	39%	39%	40%	19%	20%	100%

SHOWS 100%
THRU HOLE
LOC N



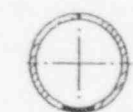
1 Ø.052 ±.003 IN STD. ≤ .75 DIA
Ø.067 ±.003 IN STD. > .75 DIA

MATERIAL INCONEL 600
AVERAGE MEAS WALL THK .051
NOMINAL WALL THK .049
HEAT LOT NO 752493
TEST FREQ USED NA
SERIAL NO Z-15591
P.O. NO 51148
REL. NO NA
QUALITY REL NO NA
DATE MFG 12-16-96
O.A. INSP Myer Allen
CUSTOMER ROCKRIDGE TECHNOLOGIES
RECORDED NA
PROBE USED NA
REVIEWED BY Charlotte Butler

SHOWS 100%
AXIAL FLAW
LOC B



LOC A
SHOWS 100%
THRU HOLE



LOC C
SHOWS 100%
CIRC FLAW



LOC E
SHOWS 60% ID
AXIAL FLAW



SHOWS 60% ID
AXIAL FLAW
LOC F



LOC G
SHOWS 60% ID
CIRC FLAW

SHOWS 40% ID
CIRC FLAW
LOC H



LOC I
SHOWS 40% ID
AXIAL FLAW

SHOWS 40% ID
CIRC FLAW
LOC J



LOC K
SHOWS 40% ID
CIRC FLAW

SHOWS 20% ID
CIRC FLAW
LOC L



LOC M
SHOWS 20% ID
AXIAL FLAW

NOTE

3/4" (STOCK) TUBING
SMALL DENT LOCATED BETWEEN F-G
AND H-I. PROPER FUNCTION OF
STANDARD AND RESPONSE FROM
ADJACENT EDM NOTCHES NOT AFFECTED

UNL. OTHERWISE SPECIFIED
DIM ARE IN INCHES
TOLERANCES
DECIMAL FRACT. ±1/16
XXXX ±.003
XXX ±.015
XX ±.050
X ±.003
ANGULAR .5°
FINISH DIST 000

DRAWN
K ZEGKE
CHECK
ZOR
DESIGN
APVD OA
B. Allen

DATE
12/03/96
12/16/96
12/16/96
12/10/96

ZETEC INC.

POST OFFICE BOX 110 ISSAQUAH WASHINGTON
98027-0110 US TELEPHONE (206) 382-5300

TITLE

G.T. CALIBRATION STANDARD

D=4040-1-A P=3435

SIMILAR

DWG NO

2-415-1059

SCALE NTS

USED

2-415-0016

SHT

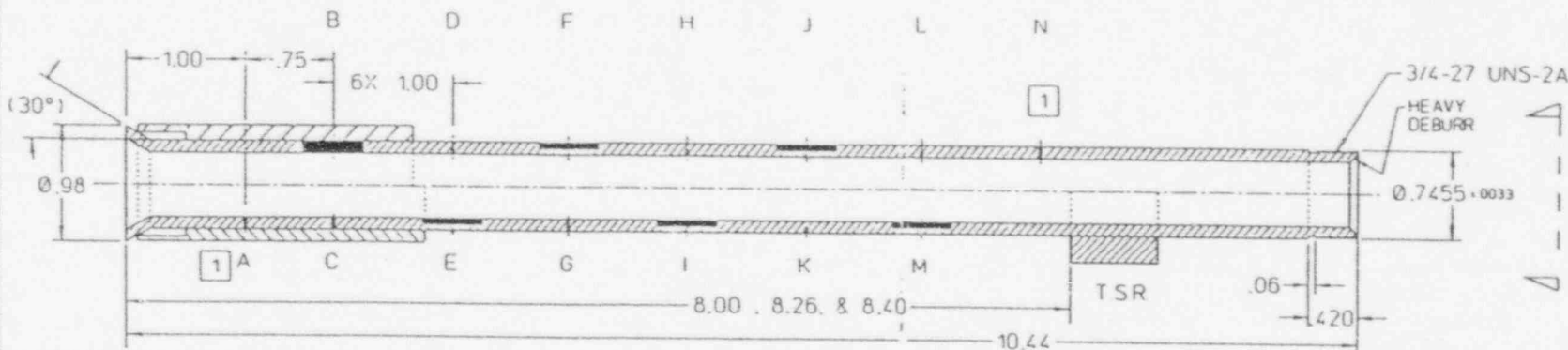
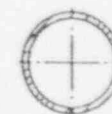
OF 3

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG

REVISIONS		REV STATUS OF SHEETS	LTR		DATE	DESCRIPTION	APVD	CK	DR
3	2								
		SHEET							

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS DEPTH	THRU	THRU	THRU	.0305	.0295	.0300	.0296	.0205	.0195	.0200	.0200	.0085	.0100	THRU
DEPTH IN % OF WALL	100%	100%	100%	60%	58%	59%	58%	40%	38%	39%	39%	17%	20%	100%

SHOWS 100%
THRU HOLE
LOC N



ORIENTATION
OF ALL FLAWS

1 0.052 ±.003 IN STD. ≤ .75 DIA
0.067 ±.003 IN STD. > .75 DIA

MATERIAL INCONEL 600

AVERAGE MEAS WALL THK .051

NOMINAL WALL THK .049

HEAT LOT NO 752493

TEST FREQ USED NA

SERIAL NO Z-15592

P.O NO 51148

REL NO NA

QUALITY REL NO NA

DATE MFG 12-16-96

O.A INSP Handwritten signature

CUSTOMER ROCKRIDGE TECHNOLOGIES

RECORDED NA

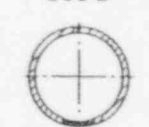
PROBE USED NA

REVIEWED BY Charlotte Better

SHOWS 100%
AXIAL FLAW
LOC B



LOC A
SHOWS 100%
THRU HOLE



LOC C
SHOWS 100%
CIRC FLAW

SHOWS 60% ID
CIRC FLAW
LOC D



LOC E
SHOWS 60% ID
AXIAL FLAW

SHOWS 60% OD
AXIAL FLAW
LOC F



LOC G
SHOWS 60% OD
CIRC FLAW

SHOWS 40% ID
CIRC FLAW
LOC H



LOC I
SHOWS 40% ID
AXIAL FLAW

SHOWS 40% OD
AXIAL FLAW
LOC J



LOC K
SHOWS 40% OD
CIRC FLAW

SHOWS 20% ID
CIRC FLAW
LOC L



LOC M
SHOWS 20% ID
AXIAL FLAW

NOTE:

3/4" (STOCK) TUBING

ONE OTHERWISE SPECIFIED
DIM ARE IN INCHES
TOLERANCES
DECIMAL : FRACT : 1/16
XXXX ± .003
XXX ± .015
XX ± .050
X ± .003
ANGULAR : 3°
FINISH : DIST 000

DRAWN
K ZEGKE
CHECK
ZOR
DESIGN
PJD
APVD OA
B. Altman

DATE
12/03/96
12/16/96
12/16/96
12/10/96

ZETEC
INC

POST OFFICE BOX 140 ISSAQUAH WASHINGTON
98227-0140 U.S. TELEPHONE (206) 392-5316

TITLE
G.T. CALIBRATION STANDARD
D=4040-1-A P=3435
SIMILAR
DWG NO
2-415-1059
SCALE NTS
USED
2-415-0016 SHT 1 OF 3

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ± .002 WIDE X .500 LONG

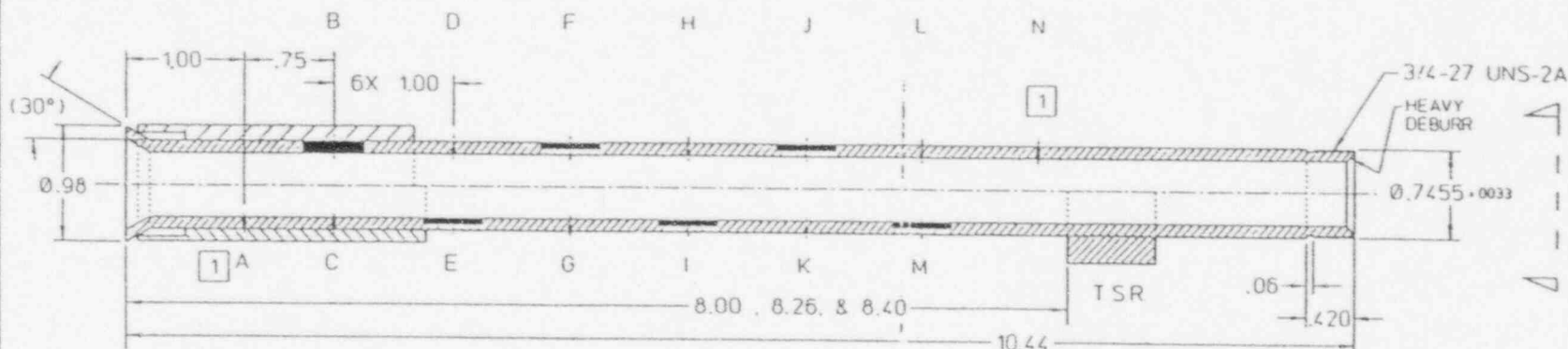
REVISES		REV STATUS		REVISIONS												
LTR	DATE	DESCRIPTION										APVD	CK	DR		
3	2	SHEET														

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS DEPTH	THRU	THRU	THRU	.0305	.0310	.0310	.0305	.0200	.0200	.0210	.0200	.0095	.0100	THRU
DEPTH IN % OF WALL	100%	100%	100%	60%	61%	61%	60%	39%	39%	41%	39%	19%	20%	100%

SHOWS 100%
THRU HOLE
LOC N



ORIENTATION
OF ALL FLAWS



1 0.052 ± .003 IN STD. ≤ .75 DIA
0.067 ± .003 IN STD. > .75 DIA

MATERIAL INCONEL 600

AVERAGE MEAS WALL THK .05

NOMINAL WALL THK .049

HEAT LOT NO 752493

TEST FREQ USED NA

SERIAL NO Z-15593

P.O. NO 51148

REL. NO NA

QUALITY REL. NO NA

DATE MFG 12-16-96

O.A. INSP Billy Allen

CUSTOMER ROCKRIDGE TECHNOLOGIES

RECORDED NA

PROBE USED NA

REVIEWED BY Charlotte Rittler

SHOWS 100%
AXIAL FLAW
LOC B



LOC A
SHOWS 100%
THRU HOLE

SHOWS 60% ID
CIRC FLAW
LOC D



LOC C
SHOWS 100%
CIRC FLAW

SHOWS 60% OD
AXIAL FLAW
LOC F



LOC E
SHOWS 60% ID
AXIAL FLAW

SHOWS 40% ID
CIRC FLAW
LOC H



LOC G
SHOWS 60% OD
CIRC FLAW

SHOWS 40% OD
AXIAL FLAW
LOC J



LOC I
SHOWS 40% ID
AXIAL FLAW

SHOWS 40% OD
CIRC FLAW
LOC L



LOC K
SHOWS 40% OD
CIRC FLAW

SHOWS 20% ID
CIRC FLAW
LOC L



LOC M
SHOWS 20% ID
AXIAL FLAW

NOTE:

3/4" (STOCK) TUBING

UNLESS OTHERWISE SPECIFIED

DIM ARE IN INCHES

TOLERANCES

DECIMAL: FRACT 1/16

XXXX ± .003

XXX ± .015

XX ± .050

X ± .003

ANGULAR .3°

FINISH

DIST 000

DRAWN

K ZEGKE

CHECK

2.0R

DESIGN

12/10/96

APVD DA

12/10/96

DATE

12/03/96

ZETEC INC

POST OFFICE BOX 400 ASHQUAN WASHINGTON
20027-0400 USA TELEPHONE (202) 387-5310

TITLE

G.T. CALIBRATION STANDARD

D=4040-1-A P=3435

SIMILAR

DWG NO

2-415-1059

SCALE NTS

USED

2-415-0016

SHT 1 OF 3

ALL AXIAL AND CIRC. FLAWS
ARE EDM .005 ±.002 WIDE X .500 LONG

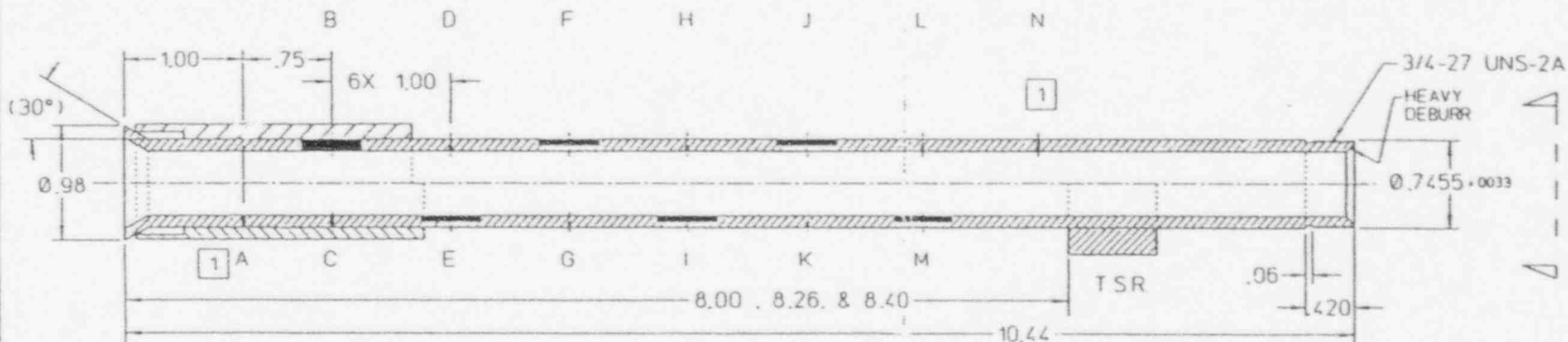
REVISIONS		REV STATUS		REVISIONS										APVD	CK	DR
LTR	DATE	DESCRIPTION														
3	2	SHEET														

LOCATION	A	B	C	D	E	F	G	H	I	J	K	L	M	N
PHYSICALLY MEAS DEPTH	THRU	THRU	THRU	.0300	.0295	.0310	.0305	.0200	.0205	.0210	.0205	.0105	.0105	THRU
DEPTH IN % OF WALL	100%	100%	100%	59%	58%	61%	60%	39%	40%	41%	40%	21%	21%	100%

SHOWS 100%
THRU HOLE
LOC N



ORIENTATION
OF ALL FLAWS



1 0.052±.003 IN STD. ≤ .75 DIA
0.067±.003 IN STD. > .75 DIA

MATERIAL INCONEL 600

AVERAGE MEAS WALL THK .051

NOMINAL WALL THK .049

HEAT LOT NO. 752493

TEST FREQ USED NA

SERIAL NO Z-15594

PO NO 51148

REL NO NA

QUALITY REL NO NA

DATE MFG 12-16-96

O A INSP Handwritten signature

CUSTOMER ROCK RIDGE TECHNOLOGIES

RECORDED NA

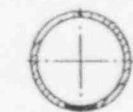
PROBE USED NA

REVIEWED BY Charlotte Butler

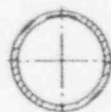
SHOWS 100%
AXIAL FLAW
LOC B



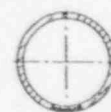
LOC A
SHOWS 100%
THRU HOLE



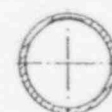
LOC C
SHOWS 100%
CIRC FLAW



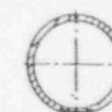
LOC E
SHOWS 60% ID
AXIAL FLAW



LOC G
SHOWS 60% OD
CIRC FLAW



LOC I
SHOWS 40% ID
AXIAL FLAW



LOC K
SHOWS 40% OD
CIRC FLAW



LOC M
SHOWS 20% ID
AXIAL FLAW

NOTE:

3/4" (stock) TUBING

UNLESS OTHERWISE SPECIFIED
DIM ARE IN INCHES
TOLERANCES
DECIMAL FRACT .1/16
XXXX ± .003
XXX ± .015
XX ± .050
X ± .003
ANGULAR .3°
FINISH DIST 000

DRAWN
K ZEGKE
CHECK
ZOR
DESIGN
PJD
APVD OA
H. O'Brien

DATE
12/03/96
12/11/96
12/10/96

ZETEC INC
POST OFFICE BOX 110 ISSAQUAH WASHINGTON
98277-0110 USA TELEPHONE (206) 392-5316
TITLE
G.T. CALIBRATION STANDARD
D#4040-1-A P#3435
SIMILAR
DWG NO
2-415-1059
SCALE NTS
USED
2-415-0016
SHT 1 OF 3