Metalex
Manufacturing
Inc.

Metalex
Certified ISO 9001 Quality Management
Veteran Owned Business 30 Plus Years

#1-- INSIDE Pkg - Cust Copy

Packing List# 37025 Rel# 1 PAGE 1
Metalex Job# 2005-3802

Ship To: ARGONNE NATIONAL
LABORATORY
BLDG 201, OCF-PRO
9700 S CASS AVE.
ARGONNE IL 60439

Date: 11/29/05
Ship Via: REMAIN @ METALEX
PTA#
(prepaid shipments only)
BOL/Air Bill#
Prepaid: Collect:
Weight: Ctns: Zone:
Dimensions:

Attn: MICHAEL OPRONDEK
Customer PO: 5A06990

P.O. Item No.	Qty Ordered	Qty Shipped	Qty Back Ordered	Description
002	19	1	18	L143-110700 REV. 07 STRONBACK S/N: 5A06990-04 -CERTIFICATE OF CONFORMANCE, INSPECTION DATA, AND CERTIFICATIONS ENCLOSED. -REF: SDR'S #3801-001, #3801-004, & #3801-006 TESTING SURVEILLANCE BY ANL HAS BEEN WAIVED PER ATTACHED E-MAIL FROM MICHAEL OPRONDEK DATED 11/22/05.

Received By:

Printed Name _____ Signature _____ Date _____

MX3006 (10/02)

Metalex Manufacturing Inc.
5750 Cornell Road • Cincinnati, OH 45242
Phone (513) 489-0507 • Fax (513) 489-1020
EMAIL: metalex@metalexmfg.com

Metalex
Customized Machinery and Parts
ISO 9001:2000 and AS9100 Certified
Veteran Owned Business 30 Plus Years

CERTIFICATE OF CONFORMANCE

Date: 11/29/2005
Customer: Argonne National Laboratory
Bldg. 201, OCF-PRO
9700 S Cass Ave.
Argonne, Illinois 60439
Attention: Michael Oprondek

Metalex Job# 2005-3802
Purchase Order # 5A06990
MX Packing List # 37025

Metalex certifies that all material, processes, procedures, and dimensions are as called for on the purchase order, drawings, and/or amendments supplied by you.
All information concerning this part or parts, units and/or assemblies are on file at Metalex Manufacturing, Inc.

ITEM	QTY	PART NUMBER	REV	PART NAME	ID # *
0002	1	L143-110700	07	Strongback	5A06990-04

*IDENTIFICATION NUMBER INCLUDES SERIAL #, HEAT #, AND/OR LOT #.

COMMENTS: "First Article" submitted on Metalex Shipper #36794 dated 10/17/05 (Job#05-3801).

Metalex is in compliance with Statement of Workscope Document No. L143-110700, Revision 5, dated 09/05/05.

Material from Heat Lot #G97B.

Reference SDR# 3801-001 (Material Substitution), SDR# 3801-004 (Modification), & SDR# 3801-006 (Modification).

Testing Surveillance by ANL has been wavied per attached e-mail from Michael Oprondek dated 11/22/05.

Metalex Representative Signature	Print Name	Date
QE	TODD CAUDILL (MTX QC 12)	11/29/2005

MX1011 (05/05)

Caudill, Todd

From: Schuermann, Rob
Sent: Tuesday, November 22, 2005 5:35 PM
To: Black, Katrina; Caudill, Todd; Hubbard, Bruce
Cc: Baldwin, Steve; Alford, Jim; Dufresne, Scott
Subject: FW: Metalex's notification for final inspection of Strongback serial number 5A06990 -04 (MX Job# 3802)

ANL will not be coming in to witness Strongback inspections. We need to complete work scope and ship in place at Metalex. Final documentation should be submitted electronically and (2) hardcopies mailed in the same manner as the First Article Unit.

Thanks,

Rob

From: Oprondek, Michael T. [mailto:moprondek@anl.gov]
Sent: Tuesday, November 22, 2005 5:27 PM
To: Schuermann, Rob
Subject: RE: Metalex's notification for final inspection of Strongback serial number 5A06990-04.

Hi, Rob
The Inspection Plan that was previously accepted for the production strongbacks should be sufficient. Therefore, a rep from ANL will not attend on the 29th.
Thank you again for your help.

==========

Michael Oprondek, Procurement Department,
Argonne National Laboratory; operated for the
U. S. Department of Energy by the University of Chicago
phone 630 252 7069 fax 630 252 4517

From: Schuermann, Rob [mailto:schuermann@metalexmfg.com]
Sent: Tuesday, November 22, 2005 10:09 AM
To: Oprondek, Michael T.
Cc: Lawrence, Glen; tbarsz@anl.gov; Black, Katrina; Alford, Jim; Dufresne, Scott
Subject: Metalex's notification for final inspection of Strongback serial number 5A06990-04.

Mr. Michael Oprondek,

This email is Metalex's notification that final inspection of L143-110700 Strongback serial number 5A06990-04 is on schedule for Tuesday November 29th, 2005 as per the Production Program Schedule.

For planning purposes, please advise if a designated representative of ANL will be onsite at Metalex for witness of the dimensional inspection of Strongback serial number 5A06990-04 so that we can be proactive and schedule the appropriate resources in advance.

Please review and advise.

Thank you in advance for you support.

Rob Schuermann
Director, Technical Business Unit

METALEY MANUFACTURING INC.
5750 Cornell Road
Cincinnati, OH 45242
Phone: 513-489-0507
Fax: 513-489-1020
E mail: schuermann@metalexmfg.com

To: METALEX MANUFACTURING INC
Address: 5750 CORNELL ROAD
CINCINNATI, OH 45242
Attention Of: PURCHASING AGENT

ATI Wah Chang
Allegheny Technologies
P.O. Box 460
Albany, Oregon 97321-0136
(541) 926-4211 FAX (541) 967-6948

PRODUCT CERTIFICATION

METALEX
QA DEPT.
ACCEPTED
DATE 11/23/05
BY TC

IN REGARD TO YOUR

Vendor Identification:	Wah Chang
Purchase Order No.:	58095-BL
Sales Order No.:	127418
Item No.:	1
Description:	Titanium Grade 2 Billet
Dimensions:	12.020-12.060" Dia. x 134.50-134.75" L
Specifications:	ASTM B381-05, AMS H 81200A and P.O.
Date:	September 15, 2005
Date Revised:	**November 11, 2005 to add part number to certification**
Heat No.:	G97B
Alloy:	Ti-2
SFC No.:	1305187
Quantity Shipped (pcs.):	3
Weight Shipped (lbs.):	7506
Length Shipped (ft.):	N/A
Part No.:	5A06990-04, 5A06990-06, 5A06990-08

Processed and Heat Treated on SFC 1304189

JOB # 3802, 3803, & 3804
SIN 04 SIN 06 SIN 08
PART # L143-110700

THE TEST REPORT FOLLOWS:

Material Condition: Forged, conditioned, annealed and machined.

INGOT CHEMISTRY IN PERCENT

Element	Alpha Spec.	Spec. Max.	TOP	MIDDLE	BOTTOM
C		0.08	0.01	0.009	0.01
Fe		0.30	0.05	0.06	0.05
H		0.015	0.001	0.001	0.001
N		0.03	0.007	0.008	0.008
O		0.25	0.15	0.14	0.15
OTHERS_EACH		0.1	<0.1	<0.1	<0.1
OTHERS_TOTAL		0.4	<0.4	<0.4	<0.4
Ti	BALANCE				

CERTIFICATE OF CONFORMITY

This is to hereby certify that the listed material has been processed, annealed and tested in accordance with the specifications noted in the Purchase Order.

Certified By: S. Giuliani, QA Specialist \es 11/11/05

Purchase Order No.: 58095-BL
Sales Order No.: 127418
Item No.: 1
Heat No.: G97B
SFC No.: 1305187

ATI Wah Chang
Allegheny Technologies
P.O. Box 460
Albany, Oregon 97321-0136
(541) 926-4211 FAX (541) 967-6948

Wah Chang Is A Registered / Certified ISO 9001:2000 Company.

ROOM TEMPERATURE TENSILES (FOR INFO ONLY)

Test	Method	Offset	Gage	Units	Spec. Min.	Trans.
Tensile Strength:	ASTM E8			Ksi	50	64.8
Yield Strength:	ASTM E8	0.2%		Ksi	40	48.8
Elongation:	ASTM E8		1"	Pct	20	30
Reduction in Area:	ASTM E8			Pct	30	55

METALEX
QA DEPT.
ACCEPTED
DATE 11/23/05
BY TC

HEAT TREAT PROCESS CERTIFICATION FORM

S. O. #: N/A MOT # 43669H Start Time: 23:15

Heat #: G97B Date: 8/10/05 Finish Time: 07:15

Material ID's:

A				
B				
C				
D				

Was the Lot Split? (yes) (no) (Circle one)

Furnace #: 9 Size: 13" (Rnd.) (RCS) (Plate) (Rect.)

Heat Treated to Specification: AMS-H-81200, Latest Revision

HEAT TREATING PROCEDURE:

STRESS RELIEVE

Anneal	Temp. 1100 °F	Time at Temp. 8 Hrs. Ø mins.	To	Hrs.	mins.
Beat Soln. Treat	Temp. ____ °F	Time at Temp. ____ Hrs. ____ mins.	To	Hrs.	mins.
Solution Treat	Temp. ____ °F	Time at Temp. ____ Hrs. ____ mins.	To	Hrs.	mins.
Duplex Anneal	Temp. ____ °F	Time at Temp. ____ Hrs. ____ mins.	To	Hrs.	mins.

Quench Media: (Furnace Cool) (Air Cool) (Fan Cool) (Water Quench)
(Circle One)

Heat Treatment Performed By: [signature] 8/10/05

Date Operator Trained: N/A

Supervisor Review: [signature]

Quality Assurance Review:

METALS QA DEPT ACCEPTED DATE 9/16/05 BY TC MTX QC 12

HEAT TREAT CHARTS IN JOB #05-3801 FOLDER TC 10/13/05 MTX QC 12

HEAT TREAT PROCESS CERTIFICATION FORM

S. O. #: N/A

MOT #: 43669H

Start Time: 07:45

Heat #: G97Is

Date: 8·9·05

Finish Time: 20:05

Material ID's:

A				
B				
C				
D				

Was the Lot Split? (yes) (no) (Circle one)

Furnace #: 9 Size: 13" (Rnd) (RCS) (Plate) (Rect.)

Heat Treated to Specification: AMS-H-81200, Latest Revision

HEAT TREATING PROCEDURE:

Anneal	Temp. 1250 °F	Time at Temp. 8 Hrs. Ø mins.	To 8 Hrs. Ø mins.
Beat Soln. Treat	Temp. ____ °F	Time at Temp. ____ Hrs. ____ mins.	To ____ Hrs. ____ mins.
Solution Treat	Temp. ____ °F	Time at Temp. ____ Hrs. ____ mins.	To ____ Hrs. ____ mins.
Duplex Anneal	Temp. ____ °F	Time at Temp. ____ Hrs. ____ mins.	To ____ Hrs. ____ mins.

Quench Media: (Furnace Cool) (Air Cool) (Fan Cool) (Water Quench)
(Circle One)

Heat Treatment Performed By: [signature]

Date Operator Trained: N/A

Supervisor Review: DM [signature]

Quality Assurance Review: ____

METALEX QA DEPT ACCEPTED DATE 9/4/05 BY TC

HEAT TREAT CHARTS IN JOB # 05-3801 FOLDER TC 101-3105

QF 166-004 Rev. 2 (4/28/03) Laod on Nts1/QMCFILE/FORMS/QF 166-004 Rev. 2

Caudill, Todd

From: Lawson, Brian
Sent: Wednesday, October 12, 2005 5:05 PM
To: Caudill, Todd
Subject: FW: Missing certifications

Todd, Are you okay with this?

Brian R. Lawson

From: Anthony, Scott [mailto:Scott.Anthony@WahChang.com]
Sent: Wednesday, October 12, 2005 5:09 PM
To: Lawson, Brian
Cc: Brown, Dave
Subject: RE: Missing certifications

I checked with QA, and the reason that these items were not included is that this material is the same heat as the first piece that we sent you. They were processed in the same furnace runs. So, the certs and charts that were provided with first shipment (the single piece that went out in late August) are the same certs and charts that apply to these three pieces. If you need additional copies, we can furnish those. I'm sorry for the confusion. Let me know if you are okay using what you have, or want another set.

Scott Anthony
Sr. Sales Representative
ATI Wah Chang
Phone: 541-812-7119
Fax: 541-967-6994

From: Lawson, Brian [mailto:lawsonb@metalexmfg.com]
Sent: Wednesday, October 12, 2005 12:32 PM
To: Anthony, Scott
Subject: Missing certifications

On this lot of material we are missing heat treat certifications for anneal and stress relieve and heat treat charts.

Brian R. Lawson

ATI Wah Chang

ATTACHMENT No. 2
Wah Chang / Kach Machine Works P.O. 180122
CERTIFICATE OF CONFORMANCE
pieces [redacted] sfc 1304189

Kach Machine Works hereby certifies that all conversion processing for the above Purchase Order conforms to material and/or manufacturing requirements indicated in the drawing or specifications, as applicable. Inspection and/or test reports substantiating conformity are attached.

METALEX
QA DEPT.
ACCEPTED
DATE 1/13/15
BY T

Any exceptions, deviations, or non-conformances are listed below.
(Attach additional sheets if necessary.)

NONE

MAN VAN NGUYEN
Name

foreman
Title

KACH MACHINE WORKS, Inc.

3838 N. BALLAST STREET • SWAN ISLAND • PORTLAND, OREGON 97217

QUALITY CONTROL DIMENSION INSPECTION REPORT

CUSTOMER: WAH CHANG DATE: 08-26-05

PART NAME: 12" x 135" long Shaft PART NO.: 5A-06990-04

P.O. NO.: 180122 NO. PCS.: 1 I.D. NO.: SFC 1304189-C1

MATERIAL: TITANIUM HEAT NO.: G97B

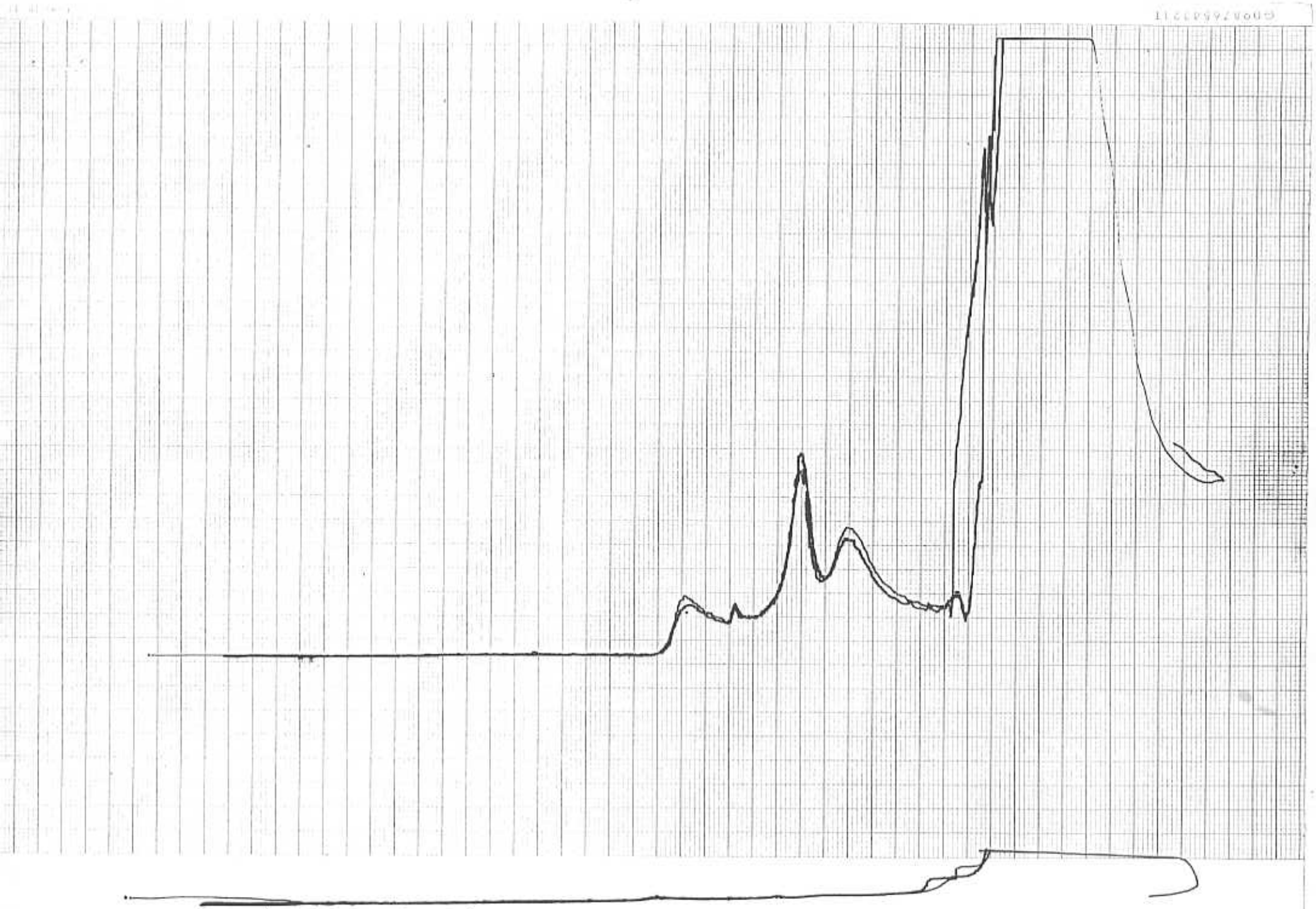
DRAWING NO.: NONE REVISION:

DIM. NO.	Given	Actual					
1	OD 12.060" 12.020"	12.052" 12.054"					
2	LENGTH 134¾", 134½"	134¾"					
3	Run out	None					
4	Finish 125	100					
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

METALEX
QA DEPT. MTX
ACCEPTED
DATE 11-23-05
BY TC

REMARKS

Mamlan Duncan
INSPECTOR



S/N 5A06990-04

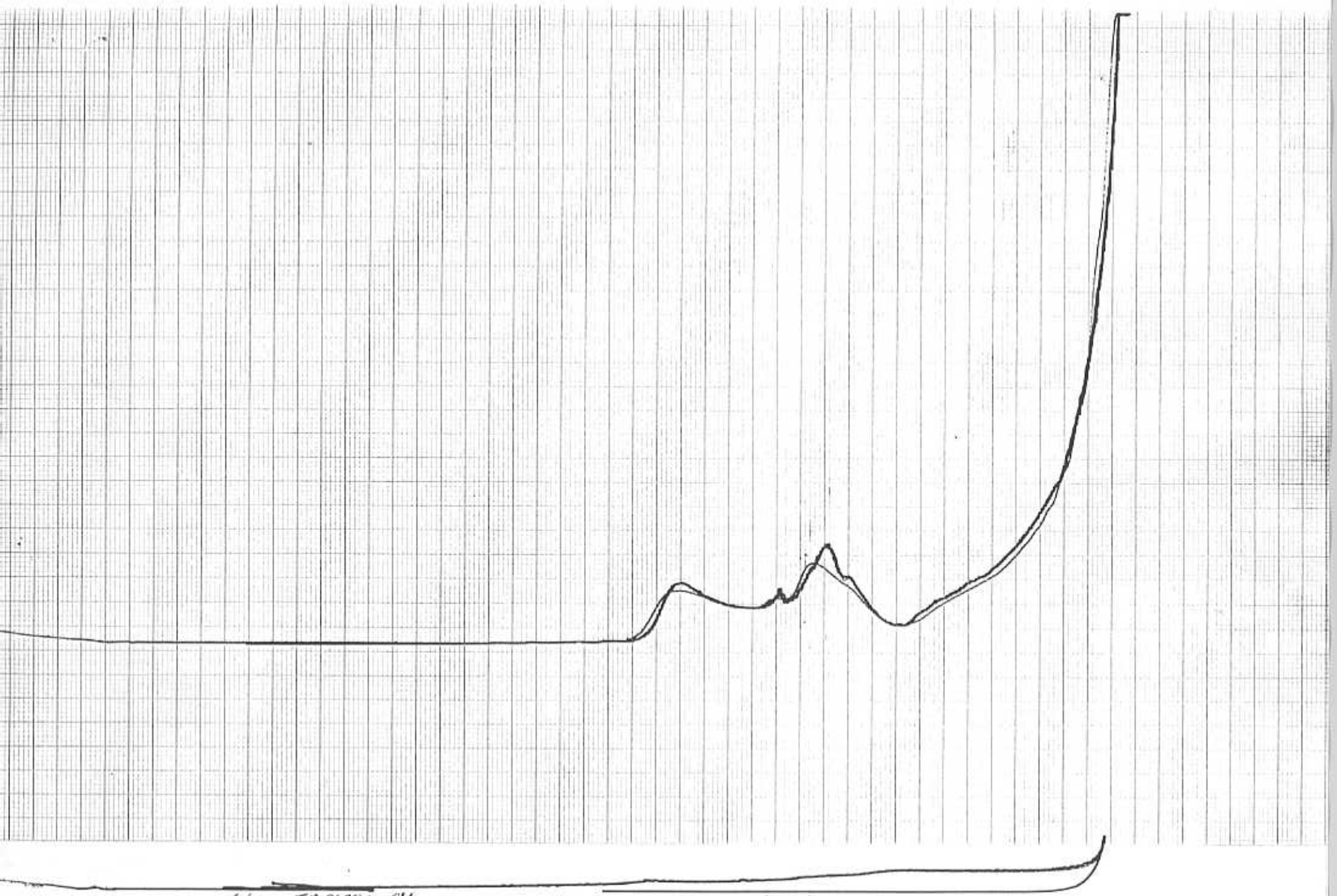
Job# 3802

After part machined

OP#50

Part# L143-110700

10-17-05



S/N - 5A06990-04

Job#3802 PART# L143-110700 ~~10-20-05~~ S.W 10.20.05

(SCAN BEfore machined) STEVE WALLACE 10-12-05

OPP# 20

JOB # 3802

SUPPLIER DISPOSITION REQUEST (SDR)

(Form ANL-311 includes instructions and continuation sheet)

(CHECK ONE)

Page 1 of 1

[✓] 1A. Deviation Request

[ ] 1B. Nonconformance Action Request

2. SDR No. 3801-001

3. SDR Date 06/23/2005

4. Supplier Name, Address, Telephone, Fax

Metalex Manufacturing Inc.
5750 Cornell Road
Cincinnati, Ohio 45242
513-489-0507
513-489-1020

5. Purchase Order No. 5A06990

6. Related Documents

6.1 Document No. L143-00030 Date

7. Qty.	8. Describe Nonconforming Condition	9. Identify Requirement	10. Cause & Corrective Action
	1.) Document No. L143-00030 Section 4.1.1 has the forging being made per ASTM B 381-03. The current revision level of this specification is ASTM B 381-05. Metalex supplier, ATI Wah Chang would like to work to the latest revision.	Metalex request direction from ANL on what revision applies to this contract. Metalex supplier, ATI Wah Chang needs this clear direction as soon as possible to continue with acceptance of the order.	

SUPPLIER'S COMMENTS (IF YES, EXPLAIN)

11. Affects Form, Fit or Function
[ ] Yes [✓] No

12. Affects Price
[ ] Yes [✓] No

Rob Schuermann - Director, Tech. Business Unit - 06/23/05

06/23/05

15. SUPPLIER REPRESENTATIVE - TITLE - DATE

13. Affects Delivery
[✓] Yes [ ] No This will hold up material supplier.

14. Recommended Disposition and Comments:

10. ANL REPRESENTATIVE - DATE

17. ANL Disposition and Remarks: Accept ASTM B381-05 as equivalent to ASTM B381-05 for our purposes on this procurement

18. Approved

7/1/05

TECHNICAL REPRESENTATIVE - DATE

7/1/05

QUALITY ASSURANCE REPRESENTATIVE - DATE

PROCUREMENT REPRESENTATIVE - DATE

JOB#3602

SUPPLIER DISPOSITION REQUEST (SDR)

Form ANL-31* includes instructions and continuation sheet.)

Page 1 of 1

(CHECK ONE)

✓ 1A. Deviation Request

__ 1B. Nonconformance Action Request

2. SDR No. 3801-004

3. SDR Date 08/17/2005

4. Supplier Name, Address, Telephone, Fax

Metalex Manufacturing Inc.
5750 Cornell Road
Cincinnati, Ohio 45242
(513) 489-0507 phone
(513) 489-1020 fax

5. Purchase Order No. 5A06990

6. Related Documents

6.1 ANL drawing L143-110700 Rev.4 Date

7. Qty.	8. Describe Nonconforming Condition	9. Identify Requirement	10. Cause & Corrective Action
	1) Along with this form, Metalex has attached a sketch named SDR 3801-004, pages 1 and 2. This sketch outlines some additional "for manufacturing process only" holes that Metalex is requesting permission to add to the Strongback details. On each end of each part, (4) 5/8-11 tapped holes and (2) .6250" diameter dowel pin holes are requested to be added for internal use at Metalex.	Metalex requests direction from ANL on this item.	

SUPPLIER'S COMMENTS
IF YES EXPLAIN:

11. Affects Form, Fit or Function
__ Yes ✓ No

12. Affects Price
__ Yes ✓ No

13. Affects Delivery
☐ Yes ☑ No Only if this is unresolved when raw material is arrives

14. Recommended Disposition and Comments:

Rob Schuermann - Director, Tech Business unit - 08/17/05

15. SUPPLIER REPRESENTATIVE - TITLE - DATE

16. ANL REPRESENTATIVE - DATE

17. ANL Disposition and Remarks: The requested modifications for internal Metalex use are allowed.

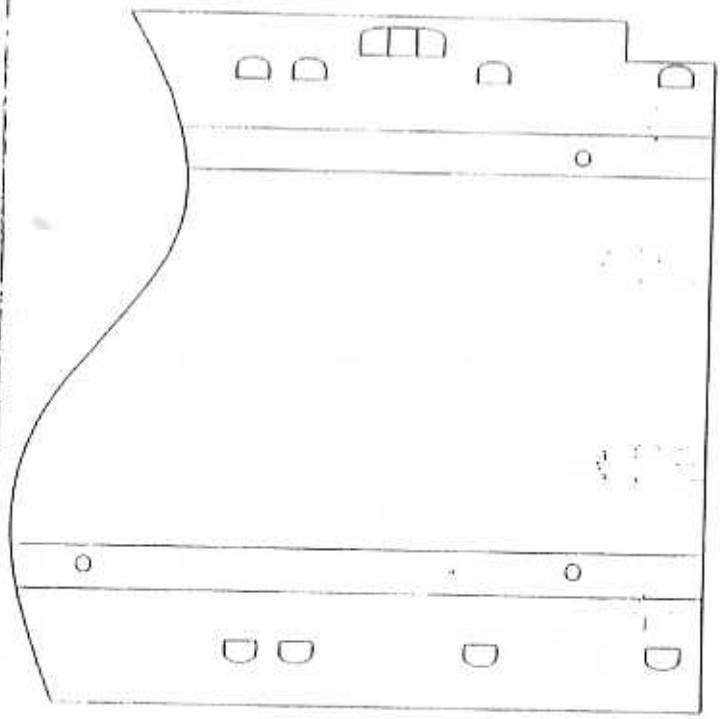
18. Approved

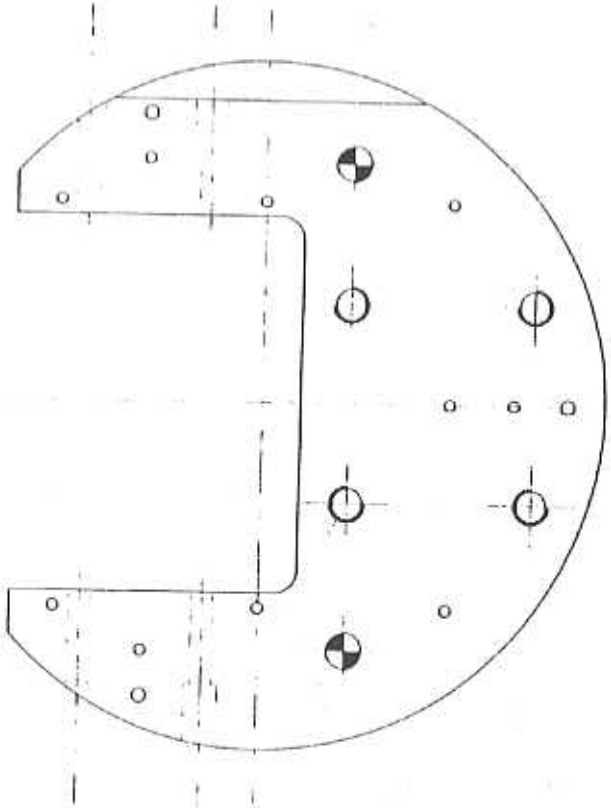
08-23-05 TECHNICAL REPRESENTATIVE - DATE

8/25/05 QUALITY ASSURANCE REPRESENTATIVE - DATE

8/26/05 PROCUREMENT REPRESENTATIVE - DATE

REV.	DATE	BY	DESCRIPTION

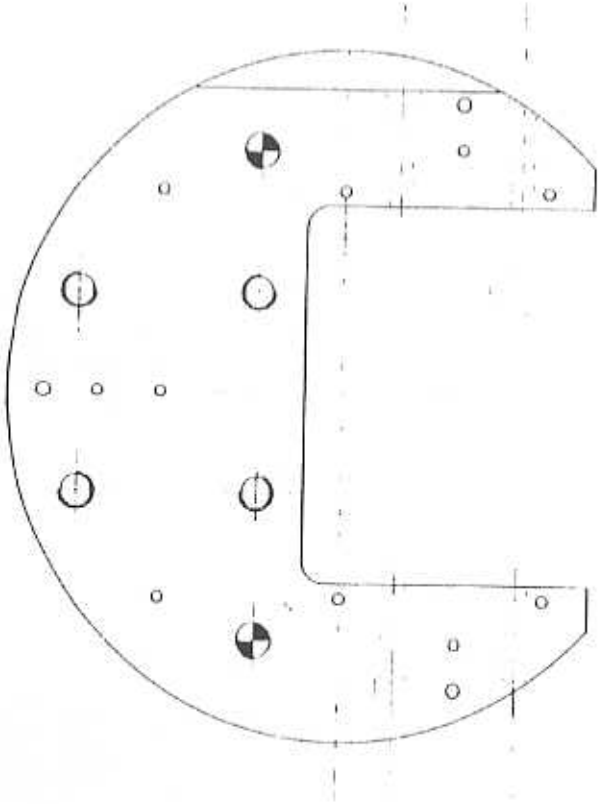


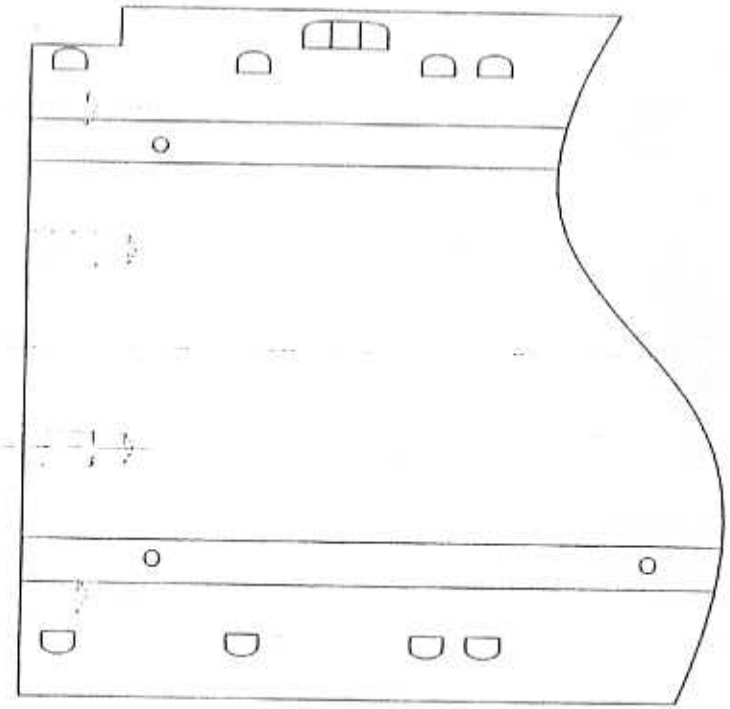


Metallex
CERTIFIED ISO 9001
QUALITY MANAGEMENT

PART NAME: STRONGBACK DEVIATION
PROJECT: ARGONNE
DRAWN BY: T.J.RAUCH
DATE: 17AUG05
CHECKED BY: T.J.RAUCH
DATE: 17AUG05
SCALE: FULL
INCH X METRIC
SHEET 2 OF 2
JOB 3801
AutoCAD Release 14
DRAWING No. SDR 3801-004
REV. D

REV	DATE	BY	DESCRIPTION





Metalux

CERTIFIED ISO 9001
QUALITY MANAGEMENT

STRONGBACK DEVIATION		ARGONNE	
T.J RAUCH	17AUG05		
T.J RAUCH	17AUG05	FULL	INCH X METRIC
1 OF 2	3B01	DRAWING No SDR 3B01-004	REV D
AutoCAD Release 14			

SUPPLIER DISPOSITION REQUEST (SDR)

(Form ANL-311 includes instructions and continuation sheet.)

(CHECK ONE)

Page 1 of 1

☑ 1A. Deviation Request

☐ 1B. Nonconformance Action Request

2. SDR No. 3801-006

3. SDR Date 11/03/2005

4. Supplier Name, Address, Telephone, Fax

Metalex Manufacturing Inc.
5750 Cornell Road
(513) 489-0507 phone
(513) 489-1020 fax

5. Purchase Order No. 5A06990

6. Related Documents

6.1 ANL drawing L143-110700 Rev.7 Date

7. Qty.	8. Describe Nonconforming Condition	9. Identify Requirement	10. Cause & Corrective Action
	1) Along with this form, Metalex has attached a sketch named MXPL143-110700-03. This sketch outlines some additional "for manufacturing process only" holes that Metalex is requesting permission to add to the production Stongback details. These three (3) .2500" diameter tooling holes located as shown will allow ease of manufacturing and inspection of the critical overall length of this detail.	Metalex requests direction and approval from ANL on this item.	

SUPPLIER'S COMMENTS
(IF YES, EXPLAIN):

11. Affects Form, Fit or Function
☐ Yes ☑ No

12. Affects Price
☐ Yes ☑ No

Rob Schuermann - Director, Tech. Business Unit -11/03/05

Rob Schuermann 11/03/05

15. SUPPLIER REPRESENTATIVE – TITLE – DATE

13. Affects Delivery
☐ Yes ☑ No

14. Recommended Disposition and Comments:

Recommend acceptance.

[signature]

16. ANL REPRESENTATIVE – DATE

17. ANL Disposition and Remarks: Acceptable

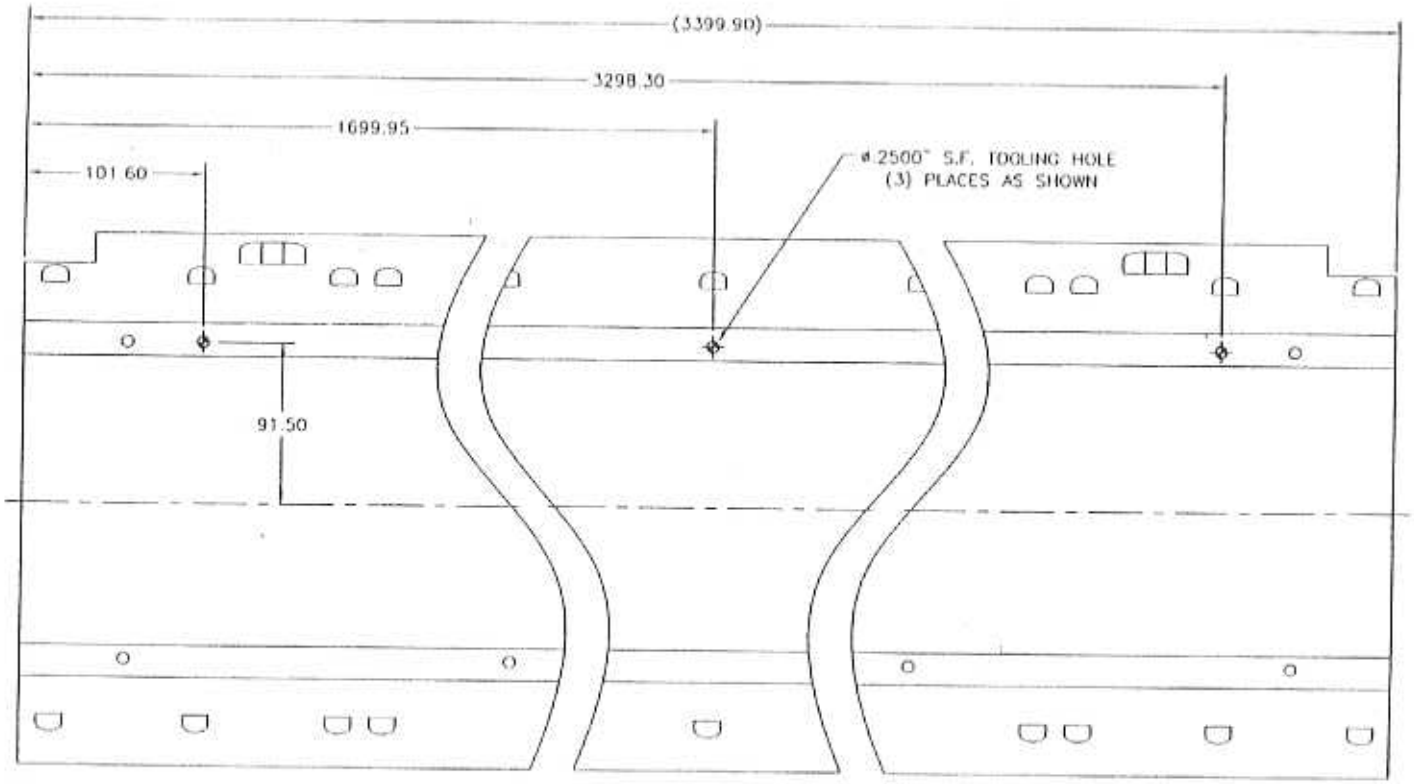
18. Approved

[signature] 11/03/05
TECHNICAL REPRESENTATIVE – DATE

[signature] 11/03/05
QUALITY ASSURANCE REPRESENTATIVE – DATE

[signature] 11/3/5
PROCUREMENT REPRESENTATIVE – DATE

ANL-311 (4-94)



These three (3) .2500" diameter tooling holes located as shown will allow ease of manufacturing and inspection of the critical overall length of this detail.

REV.	DATE	BY	DESCRIPTION

Metalex
CERTIFIED ISO 9001 QUALITY MANAGEMENT
5750 Carnell Road • Blue Ash Industrial Park
Cincinnati, Ohio 45212 • Ph. (513)488-0507

UNLESS OTHERWISE SPECIFIED: 1)BREAK ALL SHARP CORNERS 2)TOLERANCES AS FOLLOWS: 2 PLACE DEC. ±.03 3 PLACE DEC. ±.005 4 PLACE DEC. ±.0005 ON NON-DEC. 44/2 ANGLES ±2.5° 32/MACHINES 125 FINISH

PART NAME: STRONGBACK PROCESS		PROJECT: ARGONNE			
DRAWN BY: R SCHUERMANN	DATE: 03NOV05	MATERIAL:		HEAT TREAT:	
CHECKED BY: R.SCHUERMANN	DATE: 03NOV05	SCALE: FULL	INCH	X	METRIC
SHEET 1 OF 2	JOB 3801	DRAWING No. MXPL143-110700-03		REV	D
AutoCAD Release 14					

Schuermann, Rob

From: Oprondek, Michael T. [moprondek@anl.gov]
Sent: Thursday, November 03, 2005 5:36 PM
To: Schuermann, Rob
Cc: Lawrence, Glen; Barsz, Thomas R.
Subject: metalex SDR 006
Attachments: metalex.pdf

<<metalex.pdf>>

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Michael Oprondek, Procurement Department,
Argonne National Laboratory; operated for the
U. S. Department of Energy by the University of Chicago
phone 630 252 7069 fax 630 252 4517

Metalex Customized Machinery and Plant — CERTIFIED ISO 9001 QUALITY MANAGEMENT	INSPECTION PLANNING & REPORT FORM Metalex Mfg. 5750 Cornell Rd • Cincinnati, OH 45242 • (513) 489-0507	Job No. 2005-3802	Qty 1

Inspection Origin	Vendor (Sub-Tier Source) Identification		Customer Identification		
☐ Receiving ☐ In-Process ■ Final ☐ Rework/Repair ☐ First Article	Vendor Name N/A		Part No. L143-110700	REV 07	P.O. Number 5A06990
	Date Rec'd N/A	P.O. No. N/A	Part Name STRONGBACK		
At Oper. 150	Serial Numbers: S/N: 5A06990-04 PRODUCTION		Customer Name ARGONNE NATIONAL LABORATORY		

SPECIFICATION	B/P ZONE	INSPECTION METHOD / GAGE NO.	ACTUAL DIMENSION / GAGE VERIFICATION (Range of Readings or Accept Status)	QTY ACC	QTY REJ
** ALL DIMENSIONS TO BE RECORDED IN MILLIMETERS **					
ALL DIMENSIONS APPLY AT A TEMPERATURE OF 20 DEGREES CELSIUS. PART MUST BE IN THERMAL EQUILIBRIUM DURING MEASUREMENTS AND AT THE SAME TEMPERATURE AT THE BEGINNING AND CONCLUSION OF THE MEASUREMENTS WITHIN +/-0.3 DEG. CELSIUS. ** THE PART TEMPERATURE BEFORE, DURING, AND AFTER DIMENSIONAL MEASUREMENT SHALL BE RECORDED BELOW**					
PART TEMPERATURE *BEFORE* INSPECTION	SOW 4.5.1	CONTACT THERMOMETER MX1794	67.9°F	MTX QC 16	
PART TEMPERATURE *DURING* INSPECTION	SOW 4.5.1	CONTACT THERMOMETER MX1794	67.89°F	MTX QC 16	
PART TEMPERATURE *AFTER* INSPECTION	SOW 4.5.1	CONTACT THERMOMETER MX1794	67.9°F	MTX QC 16	
DRAWING L143-110700					
MATERIAL DESCRIPTION: ASTM B381 F2 TITANIUM GRADE 2	A2	CERT# 127418	CONFORMS	MTX QC 16	
ALL DIMENSIONS ARE IN MILLIMETERS, SURFACE FINISH IN MICRONS.	NOTE #1		INFORMATION ONLY	MTX QC 16	
REMOVE ALL BURRS AND BREAK SHARP EDGES 0.3mm MAX.	NOTE #2	VISUAL & RADIUS GAGE MX837 & MX838	CONFORMS	MTX QC 16	
UNLESS OTHERWISE SPECIFIED, SURFACE FINISH TO BE 6.4 MICRONS.	NOTE #3	PROFILOMETER MX1304	CONFORMS	MTX QC 16	
⊥ .05 A B	D7	CMM MX1269	w/in .0004 (.010 mm)	MTX QC 16	
⊥ .05 A B	D2	CMM MX1269	w/in .0005 (.012 ~~.014~~ mm) BH 11/29/05	MTX QC 16	
1.6	D2	PROFILOMETER MX1304	1.6 OR BETTER	MTX QC 16	
167.00 +.05 / -.00	C2	CMM MX1269	167.01 - 167.04	MTX QC 16	

STAMP	INSPECTED BY	DATE	PAGE 1 OF 2	QTY ACC	QTY REJ
MTX QC 16	[signature]	11/29/05		1	

MX1010 (7/98)

Metalex Customized Machinery and Tooling CERTIFIED ISO 9001 QUALITY MANAGEMENT	INSPECTION PLANNING & REPORT FORM Metalex Mfg. 5750 Cornell Rd • Cincinnati, OH 45242 • (513) 489-0507	Job No. 2005-3802	Qty 1

Inspection Origin	Vendor (Sub-Tier Source) Identification		Customer Identification		
☐ Receiving ☐ In-Process ■ Final ☐ Rework/Repair ☐ First Article	Vendor Name N/A		Part No. L143-110700	REV 07	P.O. Number 5A06990
	Date Rec'd N/A	P.O. No. N/A	Part Name STRONGBACK		
At Oper. 150	Serial Numbers: S/N: 5A06990-04 PRODUCTION		Customer Name ARGONNE NATIONAL LABORATORY		

SPECIFICATION	B/P ZONE	INSPECTION METHOD / GAGE NO.	ACTUAL DIMENSION / GAGE VERIFICATION (Range of Readings or Accept Status)	QTY ACC	QTY REJ
83.50 ±.08	C2	CMM MX1269	83.50-83.52	MTX QC 16	
1.6	C2	PROFILOMETER MX1304	1.6 OR BETTER	MTX QC 16	
⏥ .05	C2	CMM MX1269	w/in .025	MTX QC 16	
⏥ .05	C2	CMM MX1269	w/in .033	MTX QC 16	
⏥ .05	D1	CMM MX1269	.050	MTX QC 16	
⊥ .1 A	D1	CMM MX1269	w/in .028	MTX QC 16	
// .05 A	E8	CMM MX1269	.017	MTX QC 16	
ALL OTHER FEATURES ARE ACCEPTED PER METALEX OPERATOR ACCEPTANCE PROGRAM (OAP) MXWI17001 & OPERATOR SIGNOFF OF ROUTER OPERATIONS FOR COMPLIANCE TO ALL DRAWING FEATURES GENERATED WITHIN THAT DEFINED OPERATION.		ROUTER SIGNOFF MX5009	CONFORMS	MTX QC 16	

STAMP	INSPECTED BY	DATE	PAGE 2 OF 2	QTY ACC	QTY REJ
MTX QC 16	[signature]	11/29/05		1	

MX1010 (7/98)