Energy Industries of Ohio

Contract # S005242-F

Modular Coil Winding Form

B-1 Documentation Package

10/11/06

This B-1 Documentation consists of:

Part 1

Final documentation package Metal Tek Intl. – Pages 3 - 75
Latest revision 9/1/2006
Foundry documentation

Part 2

Final documentation package Major Tool - Pages 76 - 147
Latest revision 10/11/06
Machine shop documentation

NOTE - MTM – new EIO TOC is on page 77. Use this as a reference for finding files in MTM portion of Doc package.

Part 3

Metal Tek radiographic films from part 1 (shipped to PPPL)

Major Tool radiographic films from part 2 (shipped to PPPL)

Energy Industries of Ohio

Contract # S005242-F

Modular Coil Winding Forms

B-1 Documentation Package

Part 1 – Metal Tek International
Casting Data Package

Revised 9/1/2006

**Note – Document #'s listed in the TOC (page 4) are not necessarily the same as the number hand written on the top of the document. Please use page # to find relevant document.

B-1 Documentation Package

List of Documents 9-1-06

MetalTek INTERNATIONAL

Carondelet Division

8600 Commercial Blvd. - Pevely, MO 63070 USA
Phone: 636-479-4499 - Fax: 636-479-3399

Material Test Report

ENERGY INDUSTRIES OF OHIO

Purchase Order Number PPPL-FP-LTS-2
Pattern Number MCWF-B1 Coil
CAF Metal Designation CF8MNMnMod
Material Spec CF8MNMnMOD

Cert Number 177210-1
Pour Date 11/11/2005

Weighted average of 3 heats –Ladle 1 #31558(35%),Ladle 2 #31576(28%),Ladle 3 #31579(37%) Total Weight 34109 lbs.

Element	Min	Actual	Max
C	0.04	0.04	0.07
MN	2.3	2.8	2.8
SI	0.0	0.4	0.7
CR	18.0	18.3	18.5
NI	13.0	13.1	13.5
MO	2.1	2.2	2.5
P*	0.0	0.036	0.035
S	0.0	0.012	0.025
N	0.24	0.25	0.28

*Over specification, see CA 1537.

Comparison to WC Analysis
All analysis at CAF was performed after the preventive maintenance.

Lab	I.D.	Sample	C	Si	Mn	Cr	Ni	Mo	N	P	S
	Ladle # 1										
CAF	31558	Button #1	0.04	0.3	2.9	18.4	13.0	2.3	0.25	0.032	0.012
CAF	31558	Button #2	*	0.3	2.7	18.3	12.9	2.3	*	0.034	0.013
WC	31558	Button #2	*	0.3	2.6	18.2	13.0	2.3	*	0.031	0.019
	Ladle # 2										
CAF	31576	Button #1	0.04	0.4	2.7	18.3	13.1	2.2	0.25	0.035	0.012
CAF	31576	Button #2	*	0.4	2.7	18.3	13.2	2.2	*	0.038	0.013
WC	31576	Button #2	*	0.4	2.6	18.2	13.3	2.2	*	0.037	0.020
	Ladle # 3										
CAF	31579	Button #1	0.04	0.4	2.9	18.3	13.1	2.2	0.25	0.040	0.012
CAF	31579	Button #2	*	0.4	2.9	18.3	13.1	2.3	*	0.032	0.012
WC	31579	Button #2	*	0.4	2.7	18.1	13.2	2.3	*	0.038	0.019

Respectfully Submitted,
Charles A. Ruud
Quality Assurance Manager

Superior Quality Engineered Metal Products

MetalTek INTERNATIONAL

Carondelet Division

8600 Commercial Blvd. - Pevely, MO 63070 USA
Phone: 636-479-4499 - Fax: 636-479-3399

Material Test Report

ENERGY INDUSTRIES OF OHIO

Purchase Order Number PPPL-FP-LTS-2 Heat Number 31455 Pour Date 11/2/2005
Pattern Number SE-141-058 COIL B SHIM Cert Number 177360-1
CAF Metal Designation CF8MNMnMod S/N 1
Material Spec CF8MNMN MOD

Element	Min	Actual	Max
C	0.04	0.04	0.07
MN	2.3	2.8	2.8
SI	0.0	0.3	0.7
CR	18.0	18.3	18.5
NI	13.0	13.4	13.5
MO	2.1	2.2	2.5
P	0.0	0.030	0.035
S	0.0	0.010	0.025
N	0.24	0.24	0.28

The certificate is produced with EDP and valid without signature.

Respectfully Submitted,
Charles A. Ruud
Quality Assurance Manager

PRODUCT CONFORMANCE REPORT

Product	LNM 4455	Size(s) mm	1,2
Class.	EN 12072-99: G 20 16 3 Mn L	Lot/Batch	3018513/78308
		Item No.	692129
Customer	EUROWELD MOORESVILLE N.C. 28117 UNITED STATES	Quantity	105,0 KG
		Customer ref.	P.O. 05 - 46
		LSW Order No.	SD427896

Chemical analysis (%) EN10204 2.2

C	Si	Mn	P	S	Cr	Ni	Mo	Cu	N
0,01	0,5	7,3	0,015	0,001	20,3	15,4	2,9	0,1	0,19

Mechanical tests, all weld metal EN10204 2.2

Tensile testing

Cond.	Temp. °C	Rp0.2 N/mm2	Rm N/mm2	A5 %
AW	RT	407	623	41

Impact testing

Cond.	Temp.1 °C	Av1 J
AW	-196	67

Additional information EN10204 2.2

Other tests

Remarks

Impact testing (individual values): 70J - 65J - 67J.

The product identified above has been manufactured, tested and supplied in compliance with a Quality Assurance Programme that fulfils the requirements of EN 29000/ ISO 9000/BS 5750 or similar standard.
We herewith certify that the product complies with the above-mentioned standards.
Certified ISO 9001:2000.

Company	Issued by	Function	Date	Cert.No.
Lincoln Smitweld B.V.	P. Nagels	QA Administrator	22/03/2005	3018513/7830

Registered Office
Nieuwe Dukenburgseweg 20
6534 AD NIJMEGEN

Post address
P.O. Box 253
6500 AG Nijmegen

Telephone
31.24 3522911

Fax:
31.24 3522200

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2810 Clark Avenue • St. Louis, MO 63103-2574 • (314) 531-8080 • FAX (314) 531-8085

Chemical, Metallurgical, Mechanical, Nondestructive, Environmental Testing, Analyses and Field Service.

METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070

August 16, 2005
Lab No. 05P-2532
P.O. No. 21324

Attention: Chuck Ruud

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): LNM 4455, LINCOLN LOT 3018513/78308

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: 293°K

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
LNM4455-7	104	0.085	100
LNM4455-8	106	0.093	100
LNM4455-9	99	0.084	100
Average	103	0.087	100

Identification of tested specimen provided by client.

Karl Schmitz, Director
Materials Testing

KS/tlv

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METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070

August 16, 2005
Lab No. 05P-2532
P.O. No. 21324

Attention: CHUCK RUUD

REPORT OF MECHANICAL TESTS

SAMPLE ID: LNM 4455, LINCOLN LOT 3018513/78308

Sample ID	Original Area Sq. Inches	Reduced Area Sq. Inches	Reduction in Area %	Yield Strength PSI	Tensile Strength PSI	Elongation (2.0" Gage Length) in.	Elongation (2.0" Gage Length) %	Modules of Elasticity
LNM4455	0.1932	0.0866	55.2	65200	95200	0.76	38.0	23.4

Round, reduced section tensiles

Yield taken at .2% offset

Tested in accordance with ASTM A 370-03a

Identification of tested specimens provided by the client.

Karl Schmitz, Director
Materials Testing

KS/tlv

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METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070

October 5, 2005
Lab No. 05P-3096
P.O. No. 21324

Attention: Chuck Ruud

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): WELD PLATE- 3018513 / 78308

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: -320°F

REQUIREMENTS: minimum 35 ft / lbs.

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
3018513/78308-1	48	0.033	50
3018513/78308-2	65	0.045	50
3018513/78308-3	48	0.033	50
Average	54	0.037	50

Identification of tested specimen provided by client.

Karl Schmitz, Director
Materials Testing

KS/tlv

Westmoreland Mechanical Testing & Research, Inc.
P.O. Box 388
Westmoreland Drive
Youngstown, Pa. 15696-0388 U.S.A.
Telephone: 724-537-3131 Fax: 724-537-3151
Website: www.wmtr.com
WMT&R is a technical leader in the material testing industry.

ACCREDITED
621-01 & 621-02

Accredited Nadcap Materials Testing Laboratory

October 18, 2005

CERTIFICATION

Section 1 of 1
WMT&R Report No. 5-35979
Requisition No. 4972

MetalTek International
The Carondelet Division
8600 Commercial Blvd.
I-55 Industrial Park
Pevely, MO 63070-1528

Attention: Jim Galaske

Subject: All processes, performed upon the material as received, were conducted at WMT&R, Inc. in accordance with the WMT&R Quality Assurance Manual, Rev. 9, dated 4/1/2000.
The following tests were performed on this order: TENSILE

TENSILE RESULTS: ASTM E21-03a
SOAK TIME: 5 Minutes
SPEED OF TESTING: 0.0030 in./in./min., 0.0500 in./min./in.
DISPOSITION: Report
MATERIAL: METALTEK CF8MNMNMOD

Specimen ID	TestLog Number	Temp. °F	UTS ksi	0.2% YS ksi	Elong %	RA %	Modulus Msi	Ult. Load lbf	0.2% YLD. lbf	Orig. Dia. (in.)	Final Dia. (in.)	4D Orig GL (in.)	4D Final GL (in.)	Orig. Area (sq. in.)	Machine Number	A\U\R
3018513/78308	C54936	-320	184.9	123.7	33	33	32.8	18470	12350	0.3566	0.2926	1.40	1.86	0.09987403	M9	R

A\U\R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

Roy E. Stanmatt Wojton
Technical Services Manager ___ Tensile Supervisor

10-18-05
October 18, 2005

Westmoreland Mechanical Testing & Research, Inc.
P.O. Box 388
Westmoreland Drive
Youngstown, Pa. 15696-0388 U.S.A.
Telephone: 724-537-3131 Fax: 724-537-3151
Website: www.wmtr.com
WMT&R is a technical leader in the material testing industry.

ACCREDITED
621-01 & 621-02

Accredited Nadcap Materials Testing Laboratory

December 6, 2005

CERTIFICATION

Section 1 of 1

WMT&R Report No. 5-39384
P.O. No. 19386 Release#25
Requisition No. 7730

MetalTek International
The Carondelet Division
8600 Commercial Blvd.
I-55 Industrial Park
Pevely, MO 63070-1528

Attention: Jim Galaske

Subject: All processes, performed upon the material as received, were conducted at WMT&R, Inc. in accordance with the WMT&R Quality Assurance Manual, Rev. 9, dated 4/1/2000.
The following tests were performed on this order: TENSILE

TENSILE RESULTS: ASTM E21-05
Requirements: UTS ksi (Min 95\Max ---) 0.2% YS ksi (Min 72\Max ---) 4D Elong. % (Min 32\Max ---) Modulus Msi (Min 21\Max ---)
SOAK TIME: 5 Minutes
SPEED OF TESTING: 0.003 in./in./min., 0.05 in./min./in.
MATERIAL: Metaltek CF8MNMnMOD
DISPOSITION: Acceptable

Coil No.	Specimen	TestLog Number	Temp. °F	UTS ksi	0.2% YS ksi	Elong %	RA %	Modulus Msi	Ult. Load lbf	0.2% YLD. lbf	Orig. Dia. (in.)	Final Dia. (in.)	4D Orig GL (in.)	4D Final GL (in.)	Orig. Area (sq. in.)	Machine Number	A\U\R
B1	Z1	C78929	-320	175.7	105.9	44	45	28.7	16880	10170	0.3497	0.2595	1.40	2.02	0.09604641	M9	A
B1	Z2	C78930	-320	165.0	95.4	46	49	26.8	15860	9168	0.3498	0.2486	1.40	2.04	0.09610135	M9	A
B1	Z3	C78931	-320	154.0	94.7	49	74	22.1	14820	9113	0.3500	0.1772	1.40	2.08	0.09621128	M9	A

A\U\R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

Requirements supplied by MetalTek International.

Roy E. Starr\Matt Wojton
Technical Services Manager\ Tensile Supervisor

12-6-05
December 6, 2005

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METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070

December 16, 2005
Lab No. 05P-3729
P.O. No. 21324

Attention: Chuck Ruud

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): B1 COIL- Z1, Z2, Z3

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: 293°K

REQUIREMENTS: 50 ft / lbs min

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z1-4	145	0.090	90
Z1-5	130	0.072	90
Z1-6	132	0.070	90
Average	136	0.077	90
SAMPLE ID	**FOOT LBS.**	**LATERAL EXPANSION**	**% SHEAR**
Z2-4	165	0.086	90
Z2-5	152	0.086	90
Z2-6	155	0.091	90
Average	157	0.088	90
SAMPLE ID	**FOOT LBS.**	**LATERAL EXPANSION**	**% SHEAR**
Z3-4	168	0.068	90
Z3-5	148	0.067	80
Z3-6	124	0.078	90
Average	147	0.071	87

Identification of tested specimen provided by client.

Karl Schmitz, Director
Materials Testing

ACCREDITED
Certificate No. 0397-01
Certificate No. 0397-02

MEMBER ACIL

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METALTEK INTERNATIONAL
8600 Commercial Blvd.
Pevely, MO 63070

December 16, 2005
Lab No. 05P-3729
P.O. No. 21324

Attention: Chuck Ruud

REPORT OF CHARPY IMPACT TEST

MATERIAL (SAMPLE ID): B1 COIL- Z1, Z2, Z3

SPECIFICATION: ASTM A 370-03a

SPECIMEN TYPE: "A" Vee Notch

SPECIMEN SIZE: 10 mm x 10 mm

TEMPERATURE OF TEST: 77°K

REQUIREMENTS: 35 ft / lbs min

BASE METAL	FOOT LBS.	LATERAL EXPANSION	% SHEAR
Z1-1	92	0.055	80
Z1-2	87	0.045	80
Z1-3	82	0.046	80
Average	87	0.049	80
SAMPLE ID	**FOOT LBS.**	**LATERAL EXPANSION**	**% SHEAR**
Z2-1	80	0.041	80
Z2-2	89	0.050	80
Z2-3	88	0.048	90
Average	86	0.046	83
SAMPLE ID	**FOOT LBS.**	**LATERAL EXPANSION**	**% SHEAR**
Z3-1	84	0.051	70
Z3-2	96	0.056	80
Z3-3	92	0.050	80
Average	91	0.052	77

Identification of tested specimen provided by client.

Karl Schmitz, Director
Materials Testing

ACCREDITED
Certificate No. 0397-01
Certificate No. 0397-02

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8600 Commercial Blvd.
Pevely, MO 63070

December 16, 2005
Lab No. 05P-3729
P.O. No. 21324

Attention: Chuck Ruud

REPORT OF MECHANICAL TESTS

SAMPLE ID: B1 COIL- Z1, Z2, Z3

Sample ID	Original Area Sq. Inches	Reduced Area Sq. Inches	Reduction in Area %	Modulus of Elasticity	Yield Strength PSI	Tensile Strength PSI	Elongation (2.0" Gage Length) in.	%
Z1	0.1886	0.1238	34.4	23.1	40600	84600	0.97	48.5
Z2	0.1901	0.1232	35.2	22.5	47300	91000	0.82	41.0
Z3	0.1964	0.1007	48.7	22.6	42000	82500	1.05	52.5

Round, reduced section tensiles

Yield taken at .2% offset

Tested in accordance with ASTM A 370-03a

Identification of tested specimens provided by the client.

Karl Schmitz, Director
Materials Testing

KS/tlv

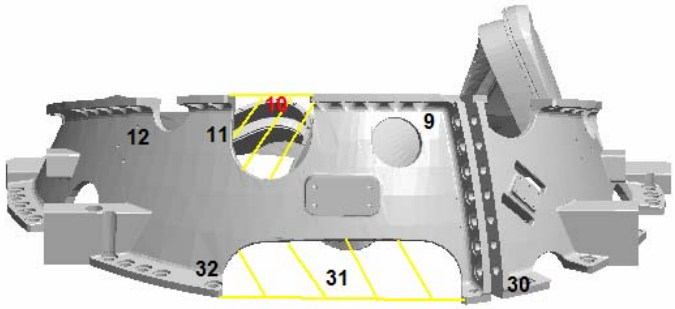
B-1 COIL WELD MAP

Defect Number	Drawing View	Length Inches	Width Inches	Depth Inches	Over 20% wall Over 1 inch Over 10^2 inches Yes/No
1	LEFT	16	2	1	YES
2	LEFT	7	2	1.25	YES
3	LEFT	24	12	.75	YES
4	LEFT	18	7	1	YES
5	LEFT	5	2	1.50	YES
6	LEFT	2	2	1	YES
7	BOTTOM	4	3	THRU	YES
8	BOTTOM	14	3	2	YES
9	BACK	17	3	.75	YES
10	BACK	9.50	2	1.50	YES
11	BACK	7.50	1.75	1.50	YES
12	BACK	13	5	THRU	YES
13	RIGHT	6	3	1.25	YES
14	RIGHT	14	1	1	YES
15	RIGHT	9.50	1.50	.50	YES
16	RIGHT	8	4	2.75	YES
17	RIGHT	7	6	2.25	YES
18	RIGHT	10.25	2	.75	YES
19	RIGHT	8	2.50	.75	YES
20	RIGHT	7	6	.75	YES
21	RIGHT	16	6	1.50	YES
22	RIGHT	7	4.50	.75	YES
23	RIGHT	7	4	.75	YES
24	RIGHT	10	2	THRU	YES
25	RIGHT	13	4	1	YES
26	RIGHT	11	4	.75	YES
27	RIGHT	35	8	1	YES
28	RIGHT	7	1.50	1.50	YES
29	RIGHT	13	4	.75	YES
30	BACK	8	6	THRU	YES
31	BACK	5	2	2	YES
32	BACK	13	2	.75	YES
33	TOP	3	3	1.50	YES
21 RT1	RIGHT	3	3	THRU	YES
22 RT 1	RIGHT	3	3	THRU	YES
7 RT 1	BOTTOM	6	4	THRU	YES

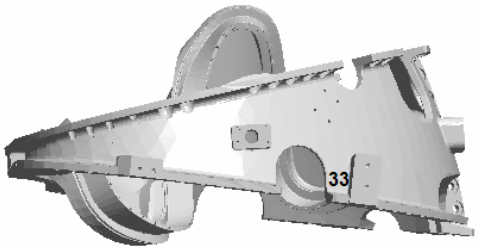
2/7/06

2/16/06

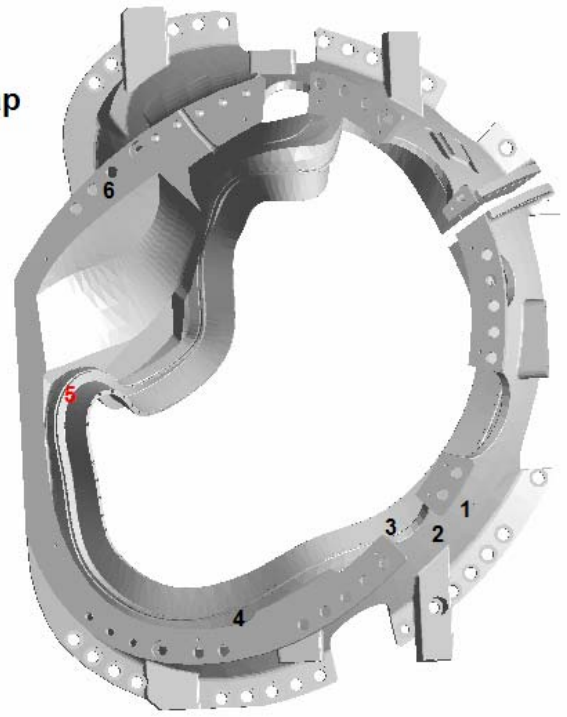
B-1 Weldmap
Back View



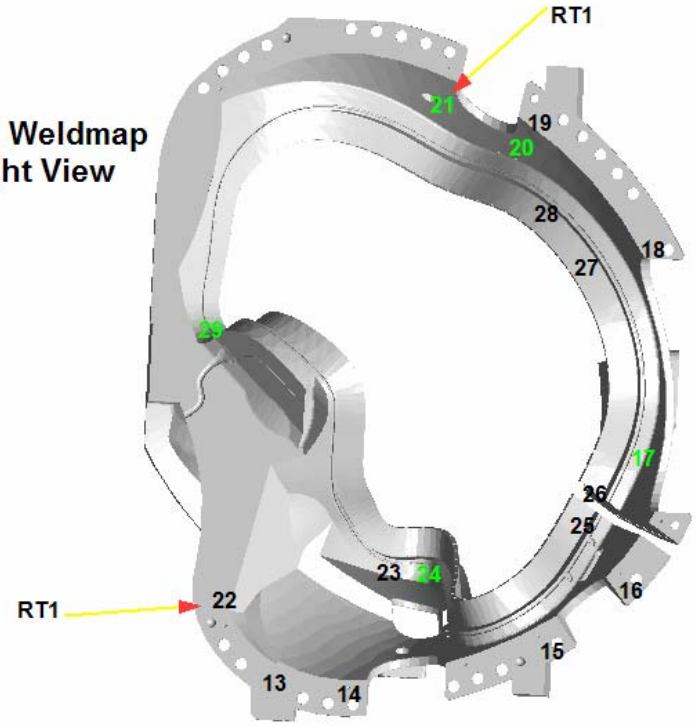
Top View



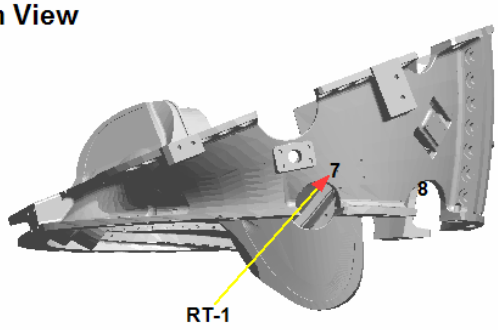
B-1 Weldmap
Left View



B-1 Weldmap
Right View



B-1 Weldmap
Bottom View



TEAM COOPERHEAT-MQS, INC.

RADIOGRAPHIC TECHNIQUE SHEET

FORM 20.3-61 Rev. 4

5512 W. State St-Milwaukee, WI 53208 (414) 771-3060 Fax (414)771-9481 (800) 818-6403 www.cooperheat-mqs.com

CUSTOMER RSS NO.: _____ SHEET: _____ REV: _____

MQS TECH. NO.: 13205

MQS RSS NO.: _____

CUSTOMER METALTEK INTERNATIONAL/ CARONDOLET DIV. DATE: 1/14/2006

PART NO. MCWF-B DESCRIPTION B-COIL MATERIAL SS

TOTAL NUMBER OF VIEWS 107 NUMBER X-RAY VIEWS 107 NUMBER GAMMA RAY VIEWS 0

MACH(s) MAKE(s) VARIAN MODEL(s) L200 S/N(s) 20 MAX KV(s) 7500

SOURCE(s) N/A

PROCEDURE SPECIFICATION ASTM E94-93 ACCEPTANCE CRITERIA MSS-SP-54-1999

MQS PROCEDURE NO. 20.H.010 REV. 0 PENETRAMETER SPEC. ASTM E142-86

PROCESSING: AUTOMATIC X PROCESSOR B2000 MANUAL ___ TEMPERATURE 27.5

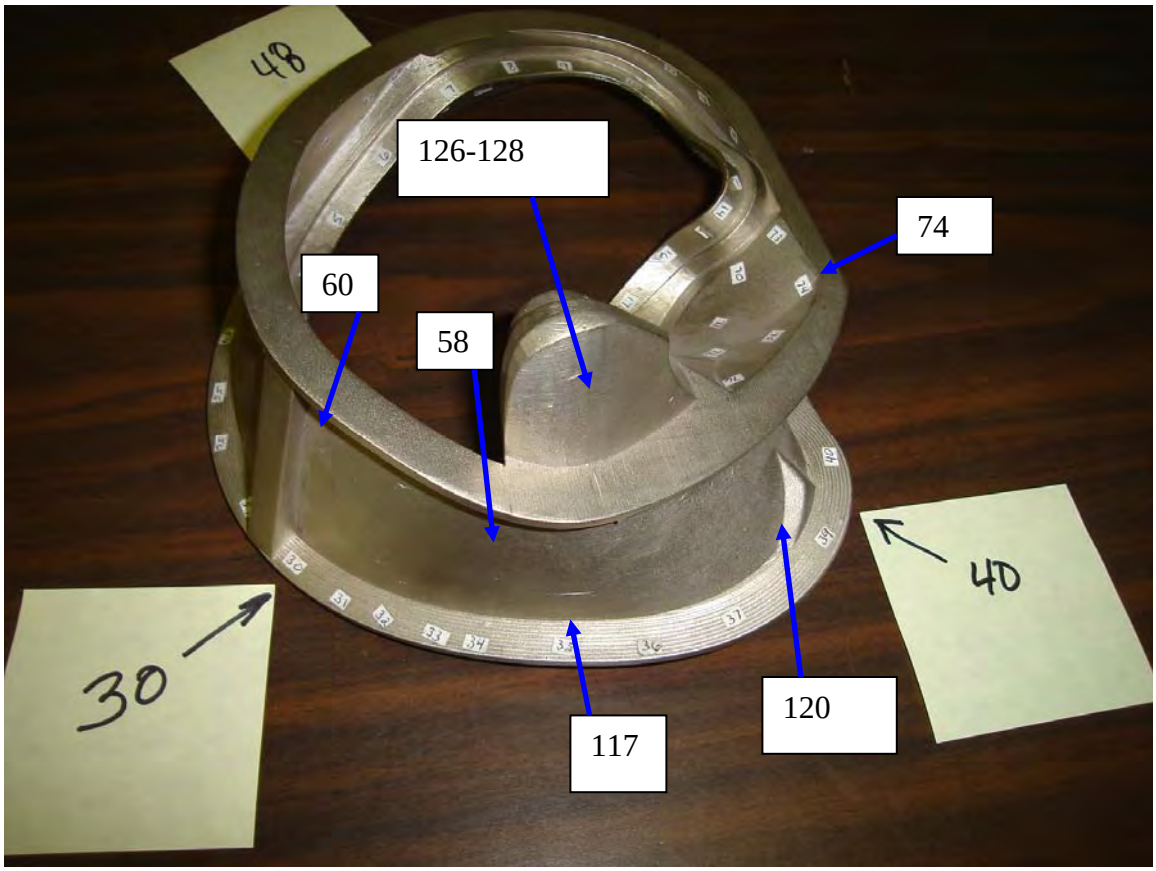
TECHNICIAN JP, SS, ST NDT LEVEL II APPROVED BY C. RUDOLPH NDT LEVEL III

VIEW IDENTIFICATION		SEE ATTACHED					
SOURCE/X-RAY MACH USED		VARIAN					
CURIES OR KV		7500					
MA OR PULSES		N/A					
SOURCE TO FILM DISTANCE		*					
EXPOSURE TIME OR RADS		*					
MATERIAL THICKNESS		*					
MATERIAL GROUP		*					
PENETRAMETRER SIZE/(AMT)	GP. 1	*					
SHIM BLOCK SIZE	GP.	N/A					
FILM SIZE		*					
FILM TYPE/BRAND		*					
PB SCREEN, FRONT		.010					
PB SCREEN, BACK		.010					
SENSITIVITY		2-2T					
FILTER TYPE/LOCATION		N/A					
MASKING TYPE/LOCATION		N/A					
ANGLE		N/A					
NO. OF FILMS IN CASSETTE		*					
VIEWING: SING./DOUB./BOTH		BOTH					
FOCAL SPOT SIZE		2 MM					
SKETCH AND/OR REMARKS		*					
GEOMETRIC UNSHARPNESS		N/A			** ATTACHEDD PHOTOS		

View	SFD	Exposure Time	Film Type	Film Size	IQI
1-2	65"	55 KR	AA-M125-T	14 x 17	(2)50, 80, 100
2-3	65"	55 KR	AA-M125-T	14 x 17	(2)50, 80, 100
3-4	65"	55 KR	AA-M125-T	14 x 17	(2)50, 80, 100
4-5	70"	60 KR	AA-M125-T	14 x 17	(2)50, 80, 100
5-6	65"	55 KR	AA-M125-T	14 x 17	(2)50, 80, 100
6-7	65"	55 KR	AA-M125-T	14 x 17	(2)50, 80, 100
7-8	55"	45 KR	AA-M100-T	14 x 17	(2)50, 80, (2)100
8-9	55"	45 KR	AA-M125-T	14 x 17	(2)50, 80, 100
9-10	65"	55 KR	AA-M100-T	14 x 17	(2)50, 80, (2)100
10-11	90"	110 KR	D8-M100-T	14 x 17	(2)50, 80, 100
11-12	65"	65 KR	AA-M100-T	14 x 17	(2)50, 80, (2)100
12-13	65"	65 KR	AA-M100-T	11 x 14	(2)50, 80, 100
13-14	80"	80 KR	AA-M100-T	14 x 17	(2)50, 80, 100
14-15	80"	120 KR	AA-M100-T	11 x 14	(2)50, 80, 100
15-16	80"	150 KR	/D8//A-M100-T/	14 x 17	(2)50, (2)80, (2)100, (2)120
16-17	68"	67 KR	AA-M100-T	14 x 17	(2)50, 80, (2)100
17-18	68"	67 KR	AA-M100-T	14 x 17	(2)50, 80, (2)100
18-19	80"	85 KR	M100	7 x 17	(2)50
19-20	80"	85 KR	M100	7 x 17	(2)50
20-21	72"	70 KR	AA-M100-T	14 x 17	(2)50, 80, (2)100
21-22	58"	55 KR	AA-M125-T	11 x 14	(2)50, 80, 100
22-23	70"	80 KR	AA-M100-M125-TT	14 x 17	(2)50, 80, 100
23-24	68"	73 KR	AA-M100-T	14 x 17	(2)50, 80, 100
24-25	80"	80 KR	AA-M125-T	14 x 17	(2)50, 80, 100
25-26	70"	75 KR	AA-M100-T	14 x 17	(2)50, 80, 100
26-27	73"	70 KR	AA-M125-T	14 x 17	(2)50, 80, 100
27-28	73"	70 KR	AA-M125-T	14 x 17	(2)50, 80, 100
28-29	72"	70 KR	AA-M125-T	14 x 17	(2)50, 80, 100
29-1	68"	65 KR	AA-M125-T	14 x 17	(2)50, 80, 100
30-31	72"	30 KR	T-T	14 x 17	(2)50
31-32	72"	30 KR	T-T	14 x 17	(2)50
V33	72"	400 KR	D8-D8	14 x 17	200, 220
34-35	72"	30 KR	T-T	14 x 17	(2)50
36-37	72"	30 KR	T-T	14 x 17	(2)50
V38	72"	70 KR	T-M125-T	14 x 17	50, (2)100
39-40	72"	30 KR	T-T	14 x 17	(2)50
40-41	72"	30 KR	T-T	14 x 17	(2)50
42-43	72"	30 KR	T-T	14 x 17	(2)50
43-44	72"	30 KR	T-T	14 x 17	(2)50
V45	72"	70 KR	T-T	14 x 17	(2)100
46-47	72"	30 KR	T-T	14 x 17	(2)50
48-49	72"	30 KR	T-T	14 x 17	(2)50

View	SFD	Exposure Time	Film Type	Film Size	IQI
49-50	72"	30 KR	T-T	14 x 17	(2)50
V51	72"	400 KR	D8-D8	14 x 17	200, 220
V51 A	72 "	400 KR	D8-D8	14 x 17	200, 220
52-53	72"	30 KR	T-T	14 x 17	(2)50
53-54	72"	30 KR	T-T	14 x 17	(2)50
54-55	72"	30 KR	T-T	14 x 17	(2)50
55-56	72"	30 KR	T-T	14 x 17	(2)50
56-57	72"	30 KR	T-T	14 x 17	(2)50
58-59	90"	50 KR	M100-M125	14 x 17	(2)30, 40
59-60	90"	60 KR	T-M100-M125	14 x 17	(2)30, 40, 50
60-61	90"	75KR	D8-M100-D8	14 x 17	(2)30, (2)100
61-62	90"	50 KR	M100-M125	14 x 17	(2)30, 40
62-63	90"	50 KR	M100-M125	14 x 17	(2)30, 40
V64	90"	75 KR	D8-M100-D8	14 x 17	(2)30, 80, 100
63-65	90"	50 KR	M100-M125	14 x 17	(2)30, 40
65-66	90"	50 KR	M100-M125	14 x 17	(2)30, 40
66-67	90"	50 KR	M100-M125	14 x 17	(2)30, 40
67-68	90"	50 KR	M100-M125	14 x 17	(2)30, 40
V69	80"	35 KR	T-M125	14 x 17	(2)30, 40
70-71	80"	85 KR	AA-M100-T	14 x 17	30, 40, 50, 60, 80, 100
71-72	80"	115 KR	/D8-D8//T-DR-M100/	14 x 17	30, 40, 60, 80, (2)140, 160
73-74	72"	105 KR	/D8-AA//T-DR-M100/	14 x 17	30, 40, 50, 60, 100, 120, 140, 160
74-75	72"	95 KR	/AA//T-DR-M100	14 x 17	30, 40, 50, 60, 80, 100
75-76	72"	25 KR	/D8-AA//T-M100/	14 x 17	50, 100, 120, 160, 200
77-78	72"	25 KR	AA-M125-T	14 x 17	30, 100
78-79	72"	25 KR	AA-T	14 x 17	80, 120
80-81	72"	25 KR	T-T	14 x 17	(2)50
81-82	72"	25 KR	T-T	14 x 17	(2)50
82-83	72"	25 KR	T-T	14 x 17	(2)50
84-85	72"	25 KR	T-T	14 x 17	(2)50
85-86	72"	25 KR	T-T	14 x 17	(2)50
86-87	72"	25 KR	T-T	14 x 17	(2)50
87-88	72"	25 KR	T-T	14 x 17	(2)50
88-89	72"	25 KR	T-T	14 x 17	(2)50
89-90	72"	25 KR	T-T	14 x 17	(2)50
90-91	72"	25 KR	T-T	14 x 17	(2)50
91-92	72"	25 KR	T-T	14 x 17	(2)50
93-94	72"	25 KR	T-T	14 x 17	(2)50
94-95	72"	25 KR	T-T	14 x 17	(2)50
96-97	70"	150 KR	AA-T	14 x 17	100, 140, 160
97-98	70"	165 KR	AA-T	14 x 17	100, 140, 160
98-99	70"	195 KR	AA-DR-M125-T	14 x 17	50, 100, (2)160
99-100	70"	195 KR	D8-DR-M125-AA	14 x 17	50, 100, 160, 180

View	SFD	Exposure Time	Film Type	Film Size	IQI
101-102	90"	95 KR	AA-M100-T	14 x 17	30, 70, 90
102-103	90"	50 KR	M100-M125	14 x 17	(2)30, 40
103-104	90"	130 KR	AA-DR50-T	14 x 17	30, 80, 100, 120
104-105	90"	50 KR	M100-M125	14 x 17	(2)30
106-107	90"	55 KR	M100-M125	14 x 17	(2)30, 40, 60
107-108	90"	50 KR	M100-M125	14 x 17	(2)30, 40
108-109	90"	50KR	M100-M125	14 x 17	(2)30, 40
109-110	90"	50 KR	M100-M125	14 x 17	(2)30, 40
110-111	90"	50 KR	M100-M125	14 x 17	(2)30, 40
111-112	90"	130 KR	AA-DR-T	14 x 17	(2)30, 120
112-113	90"	50 KR	M100-M125	14 x 17	(2)30, 40
113A-114	90"	130 KR	AA-DR-T	14 x 17	30, 40, 120
115-116	90"	50 KR	M100-M125	14 x 17	30
117-118	90"	120 KR	AA-M100-DR-T	14 x 17	30, 40, 60, 80, 100
118-119	90"	50 KR	M100-M125	14 x 17	(2)30, 40
119-120	90"	50 KR	M100-M125	14 x 17	(2)30, 40
120-121	90"	50 KR	M100-M125	14 x 17	(2)30, 40
121-122	90"	60 KR	T-M125	14 x 17	50. 60
123-124	90"	115 KR	AA-DR-M100-T	14 x 17	40, 60, 80
124-125	90"	115 KR	AA-DR-M100-T	14 x 17	30, 40, 60, 80
126-127	90"	50 KR	M100-M125	14 x 17	30, 40
127-128	90"	50 KR	M100-M125	14 X 17	30, 40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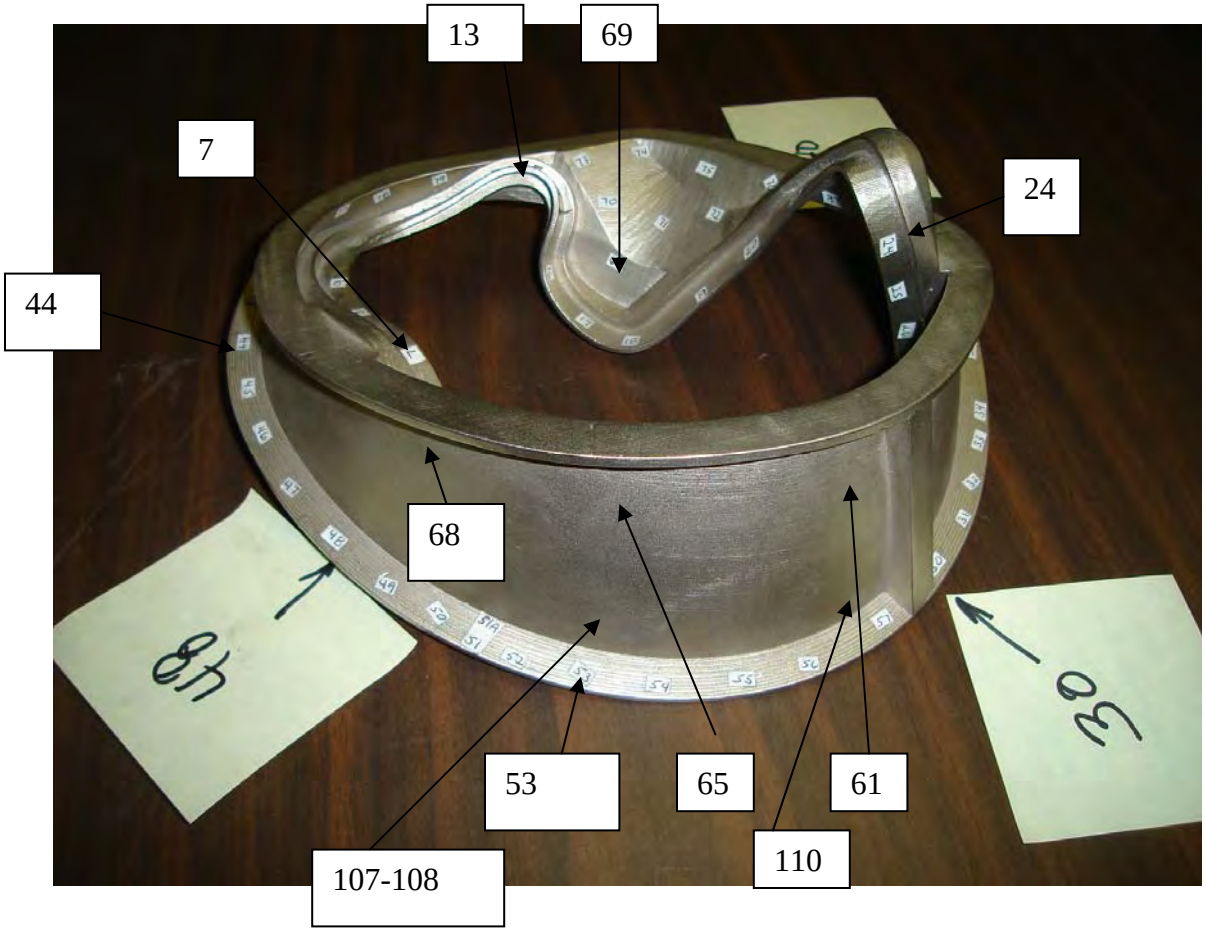
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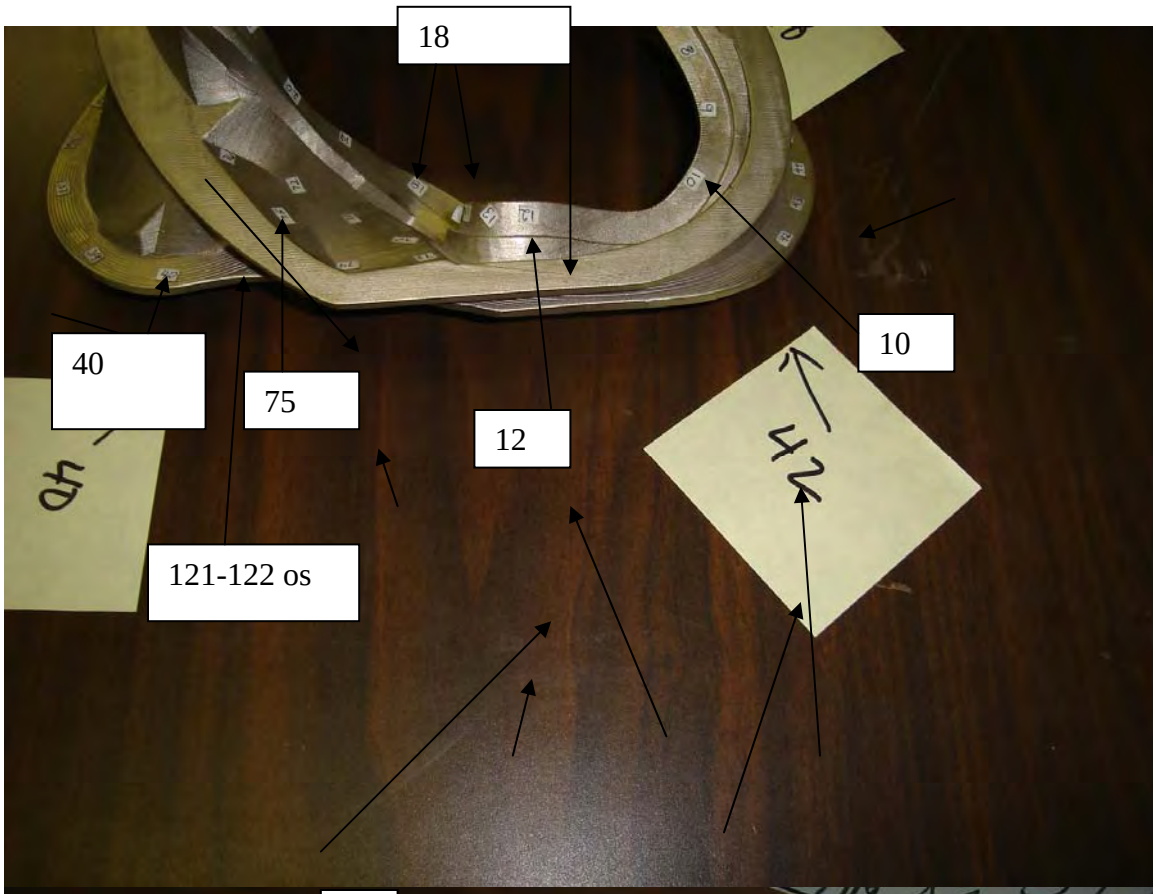
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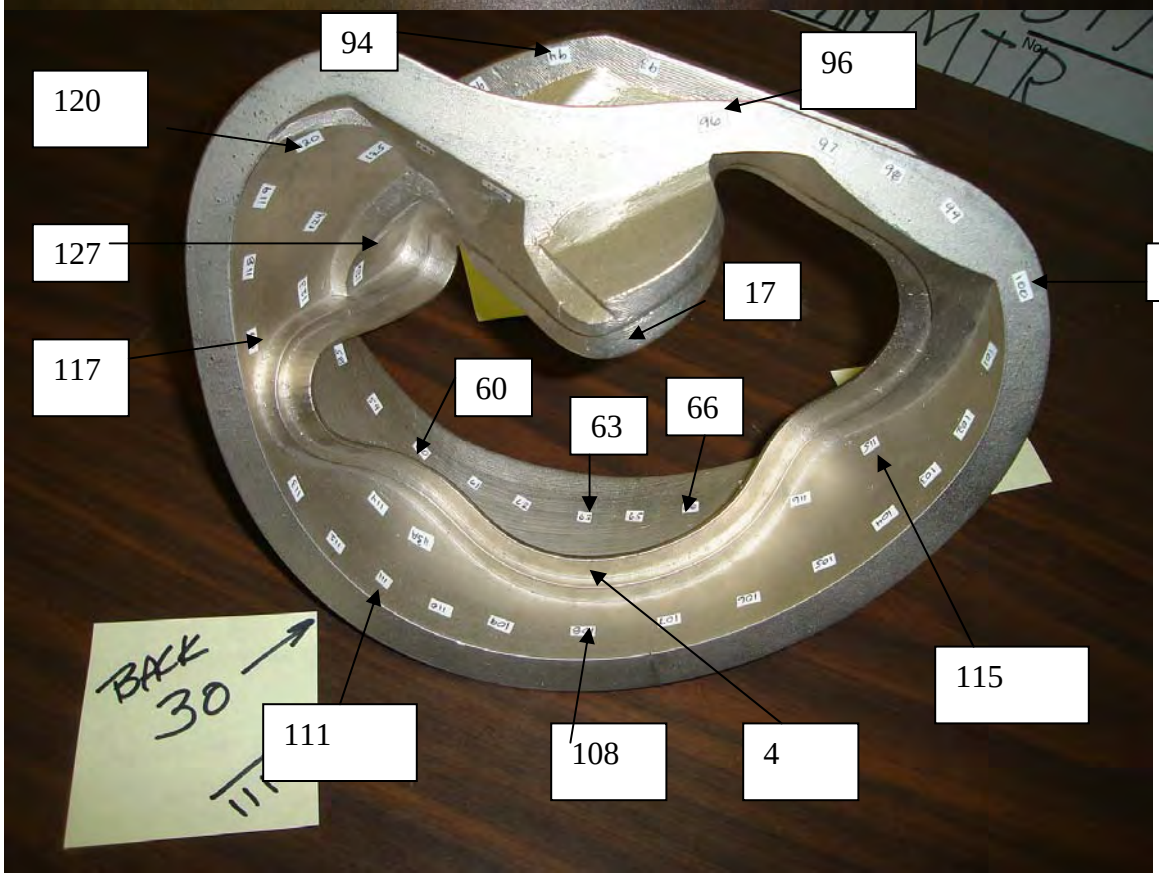
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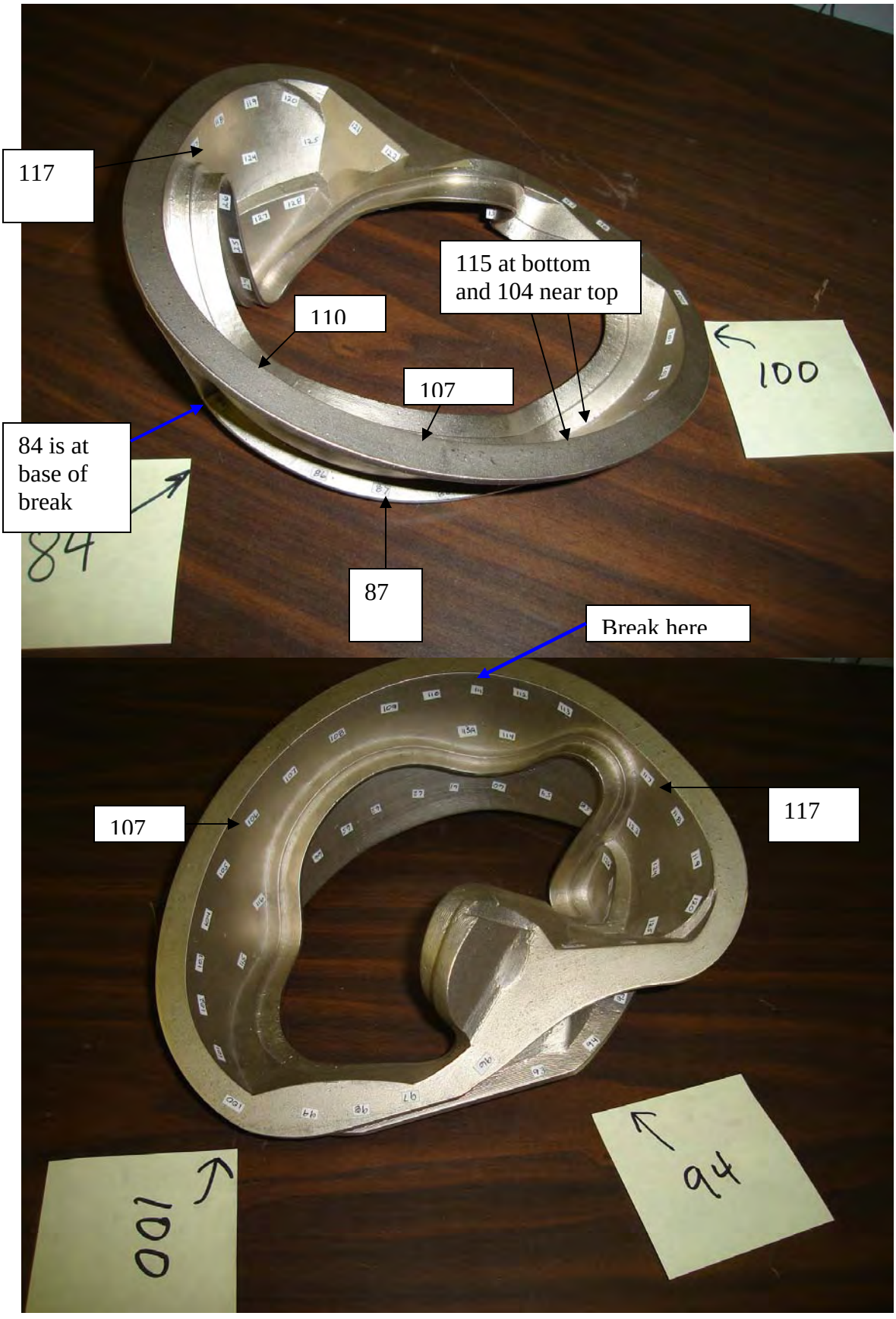
115


117
115 at bottom
and 104 near top
110
107
100
84 is at
base of
break
84
87
Break here
107
117
94
100

TEAM COOPERHEAT-MQS, INC.

CERTIFIED RADIOGRAPHIC INSPECTION REPORT

FORM 6061-RT- 002 Rev.2

5512 W. State St. Milwaukee, WI 53208 Tel:(414)771-3060 Fax:(414)771-9481 (800)818-6403 www.cooperheat-mqs.com

CUSTOMER

NAME METAL TEK INTERNATIONAL

ADDRESS 8600 COMMERCIAL BLVD

CITY PEVELY STATE MO ZIP 63070

DATE 1/11/2006

P.O. NUMBER Chuck Rudd

WORK ORDER NO. 361-02763-2

XRAY X

GAMMA

PROCEDURE SPECIFICATION ASTM E94-93

ACCEPTANCE CRITERIA MSS-SP-54-1999

SHEET ____ OF ____

PART NUMBER	Serial No	View	No Apparent Indications: Accep-table	Rejected	Inclusion	Dross or Slag	Incomplete Penetration: Porosity	Lack of Fusion	Shrinkage: Gas	Cracks	Hot Tears	Under cut	Film Artifacts: Surface		REMARKS
MCWF-B-1		1-2	✓												
		2-3	✓							2-3					
E.I.O. C040851		3-4	✓							2					
		4-5		R						4-5					
M177210		5-6	✓							2					
		6-7	✓							2					
Z103989		7-8		R						4-5				✓	
		8-9	✓							2					
		9-10	✓							1-2				✓	
		10-11	✓										✓		
		11-12		R						5					
		12-13		R						5					
		13-14	✓							2-3					
		14-15	✓							2					
		15-16	✓												
		16-17	✓												
		17-18	✓												
		18-19	✓												
		19-20	✓												
		20-21	✓							1-2					
		21-22	✓												
		22-23	✓												
		23-24	✓										✓		
		24-25	✓												
		25-26	✓		1-3					2-3			✓	✓	

NO. ACCEPTED 26 NO. REJECTED 1

COMMENTS

MQS TECH. NO. SHT. REV. 1

CUST. RSS NO. SHT. REV.

REVIEWER John Petroske

CERTIFIED NDT LEVEL (RT)

John Petroske RT II Exp. 01/08

TEAM COOPERHEAT-MQS, INC.

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P.O. NUMBER Chuck Rudd

XRAY X

GAMMA

PROCEDURE SPECIFICATION ASTM E94-93

ACCEPTANCE CRITERIA MSS-SP-54-1999

SHEET ____ OF ____

PART NUMBER	Serial No	View	No Apparent Indications: Acceptable	Rejected	Incomplete Penetration: Inclusion	Dross or Slag	Porosity	Lack of Fusion	Shrinkage: Gas	Cracks	Hot Tears	Under cut	Surface	Film Artifacts	REMARKS
MCWF-B-1		2627	✓												
		2728	✓												
E.I.O. C040851		2829	✓						2						
		29-1	✓												
M177210															
Z103989															

NO. ACCEPTED 4 NO. REJECTED 1

COMMENTS

MQS TECH. NO. SHT. REV. 1

CUST. RSS NO. SHT. REV.

REVIEWER John Petroske

CERTIFIED NDT LEVEL (RT)

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WORK ORDER NO. 361-02763-2

P.O. NUMBER Chuck Rudd

XRAY X

GAMMA

PROCEDURE SPECIFICATION ASTM E94-93

ACCEPTANCE CRITERIA MSS-SP-54-1999

SHEET ____ OF ____

PART NUMBER	Serial No	View	No Apparent Indications: Acceptable	Rejected	Inclusion	Dross or Slag	Porosity	Incomplete Penetration: Lack of Fusion	Gas	Shrinkage: Cracks	Hot Tears	Under cut	Surface	Film Artifacts	REMARKS
MCWF-B-1		30-31	✓										✓		
		31-32	✓												
E.I.O. C040851		V33	✓												
		34-35	✓												
M177210		36-37	✓												
		V38	✓											✓	
Z103989		39-40	✓										✓		
		40-41	✓												
		42-43	✓												
		43-44	✓											✓	
		V45	✓												
		46-47	✓												
		48-49		R					5						
		49-50		R					3			R			
		V51	✓												
		V51A	✓												
		52-53	✓												
		53-54	✓												
		54-55	✓												
		55-56	✓												
		56-57	✓												
		58-59	✓										✓		
		59-60		R								R			
		60-61		R							5	R			
		61-62		R								R			

NO. ACCEPTED 0

NO. REJECTED 1

COMMENTS

MQS TECH. NO. SHT. REV. 1

CUST. RSS NO. SHT. REV.

REVIEWER John Petroske

CERTIFIED NDT LEVEL (RT)

John Petroske RT II Exp. 01/08

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XRAY X

GAMMA

PROCEDURE SPECIFICATION ASTM E94-93

ACCEPTANCE CRITERIA MSS-SP-54-1999

SHEET ____ OF ____

PART NUMBER	Serial No	View	No Apparent Indications: Acceptable	No Apparent Indications: Rejected	Inclusion	Dross or Slag	Incomplete Penetration: Porosity	Lack of Fusion	Shrinkage: Gas	Shrinkage: Cracks	Hot Tears	Under cut	Film Artifacts: Surface	REMARKS
MCWF-B-1		G2-G3		R							R			
		V64	✓											
E.I.O. C040851		G3-G5	✓						1				✓	
		G5-G6	✓						1				✓	
M177210		G6-G7	✓						2					
		G7-G8	✓						2					
Z103989		V69		R						R				
		70-71		R						R				
		71-72	✓											
		73-74	✓											
		74-75	✓	R RBK					1 RBK				✓	
		75-76	✓	R RBK					1 RBK				✓	
		77-78	✓											
		78-79	✓											
		80-81	✓										✓	
		81-82	✓								3			
		82-83		R							4			
		84-85		R					5					
		85-86		R					5		4-5			
		86-87		R							4-5			
		87-88	✓								3			
		88-89	✓								2			
		89-90		R								R		
		90-91	✓						2					
		91-92	✓						2					

NO. ACCEPTED 4 NO. REJECTED 1

COMMENTS

MQS TECH. NO. SHT. REV. 1

CUST. RSS NO. SHT. REV.

REVIEWER John Petroske

CERTIFIED NDT LEVEL (RT)

John Petroske RT II Exp. 01/08

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DATE 1/11/2006

WORK ORDER NO. 361-02763-2

P.O. NUMBER Chuck Rudd

XRAY X

GAMMA

PROCEDURE SPECIFICATION ASTM E94-93

ACCEPTANCE CRITERIA MSS-SP-54-1999

SHEET ____ OF ____

PART NUMBER	Serial No	View	No Apparent Indications: Acceptable	No Apparent Indications: Rejected	Incomplete Penetration: Inclusion	Dross or Slag	Porosity	Lack of Fusion	Shrinkage: Gas	Shrinkage: Cracks	Hot Tears	Under cut	Surface	Film Artifacts	REMARKS
MCWF-B-1		93-94	✓												
		94-95	✓		X				2				R		
E.I.O. C040851		96-97	✓												
		97-98	✓												
M177210		98-99	✓												
		99-100	✓												
Z103989		101-102	✓												
		102-103	✓												
		103-104	✓								2				
		104-105			R					R					
		106-107	✓												
		107-108	✓												
		108-109	✓										✓		
		109-110	✓												
		110-111	✓												
		111-112	✓										✓		
		112-113	✓											✓	
		113-114	✓												
		115-116			R				5			R			
		117-118	✓											✓	
		118-119	✓								1				
		119-120	✓										✓	✓	
		120-121	✓			1			1						
		121-122	✓												

NO. ACCEPTED 0 NO. REJECTED 1

COMMENTS

MQS TECH. NO. SHT. REV. 1

CUST. RSS NO. SHT. REV.

REVIEWER John Petroske

CERTIFIED NDT LEVEL (RT)

John Petroske RT II Exp. 01/08

TEAM COOPERHEAT-MQS, INC.

CERTIFIED RADIOGRAPHIC INSPECTION REPORT

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CUSTOMER

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CITY PEVELY STATE MO ZIP 63070

DATE 1/11/2006

WORK ORDER NO. 361-02763-2

P.O. NUMBER Chuck Rudd

XRAY X

GAMMA

PROCEDURE SPECIFICATION ASTM E94-93

ACCEPTANCE CRITERIA MSS-SP-54-1999

SHEET ____ OF ____

PART NUMBER	Serial No	View	No Apparent Indications: Accep-table	Rejected	Incomplete Penetration: Inclusion	Dross or Slag	Porosity	Lack of Fusion	Gas	Shrinkage: Cracks	Hot Tears	Under cut	Film Artifacts: Surface		REMARKS
MCWF-B-1	123-124			R					3						E446
	124-125	✓			2-3								✓		
E.I.O. C040851	126-127	✓											✓	✓	
	127-128			R						R			✓	✓	
M177210															
Z103989															

NO. ACCEPTED 0

NO. REJECTED 1

COMMENTS

MQS TECH. NO. SHT. REV. 1

CUST. RSS NO. SHT. REV.

REVIEWER John Petroske

CERTIFIED NDT LEVEL (RT)

John Petroske RT II Exp. 01/08

MetalTek INTERNATIONAL

RADIOGRAPHIC INTERPRETATION REPORT

CUSTOMER	PURCHASE ORDER NUMBER	DATE	CONTROL NO.	PAGE
E.I.O	PPPL-FP-LTS-2	2-11-06	40851	1 of 2

PART NO.	SPECIFICATION	CLASS	TOTAL PIECES	PIECES ACCEPTED
MCWFB-1	E446/E186/E280	SeeSpec	1	

RADIOGRAPHED BY:	INTERPRETED BY:	ASNT LEVEL
Kelley	Kelley	II

FILM TYPE	MATERIAL	ISOTOPE	CODE
29/59/80	CF8M/MN/MN MOD	IRIDIUM 192 COBALT 60 ✓	ASTM E94 ✓ ASME MIL-STD-453

M177210-1	VIEW	PENE	ACCEPT	REJECT	SHRINK	INCLUSION	POROSITY	LINEAR	SURFACE	LOF/LOP	COMMENTS
R1	4-5	50 80 100		X			4				
	7-8	↓	✓				1		✓		
	11-12		✓				1		✓		
	12-13		✓				2		✓		
	48-49	50	✓			1	1		✓		
	49-50	↓		X						X	
	59-60	30 40 50	✓				2		✓		
	60-61	30/100		X				X			
	61-62	30/40		X	4						
	62-63	↓	✓		2				✓		
	69	↓		X				X			
	70-71	30 60 40 80 50 100	✓			2	2				
	82-83	50	✓				1		✓		
	84-85	↓	✓		2						
	85-86		✓		2		2		✓		
	86-87		✓				1		✓		
	89-90		✓						✓		
	94-95	↓	✓				2		✓		
	104-105	30	✓			1	2		✓		
↓	115-116	↓	✓			2	1		✓		

MetalTek INTERNATIONAL

RADIOGRAPHIC INTERPRETATION REPORT

CUSTOMER	PURCHASE ORDER NUMBER	DATE	CONTROL NO.	PAGE
E.I.O	PPPL-FP-LTS-2	2-11-06	40851	2 of 2

PART NO.	SPECIFICATION	CLASS	TOTAL PIECES	PIECES ACCEPTED
MCWFB-1	E446/E186/E280	See Spec	1	1

RADIOGRAPHED BY:	INTERPRETED BY:	ASNT LEVEL
Kelley / Midgett	Kelley / Midgett	II

FILM TYPE	MATERIAL	ISOTOPE	CODE
29/59/80	CF8MNMN MOD	IRIDIUM 192 COBALT 60 /	ASTM E94 / ASME MIL-STD-453

	VIEW	PENE	ACCEPT	REJECT	SHRINK	INCLUSION	POROSITY	LINEAR	SURFACE	LOF/LOP	COMMENTS
M177210-1											
R1	123-124	40 60 80		X			4			X	
↓	127-128	30/40	/				1				
R2	4-5	50 80 100	/				1		/		
	49-50	50		X						X	
	60-61	30/100	/			1	1		/		
	61-62	30/40	/			2	1		/		
	69	↓	/						/		
↓	123-124	40 60 80	/		1	1	2				
R3	49-50	50	/			2	1		/		

Metalek INTERNATIONAL

RADIOGRAPHIC STANDARD SHOOTING SKETCH

Customer	E.I.O	Pattern Number	MCWFB-1
Material	CF8MNMN MOD	Traceability Number	
Film Manufactuer	FUJI	Source Number	C060 22 CI
IQI LEVEL 2-2T From CQP 401 X Other (Specify, E.G. 2-4T, 2-1T) N/A			

Exposures (views)	4-5	7-8	11-12	12-13	48-49	49-50	59-60	6061	6162	62-63	69	70-71
Thickness (IN.)	2 3/4 - 3 1/2	→	→	→	3"	→	1 3/4 - 4"	1 3/4 →	1 3/4 - 2"	→	1 1/2"	1 1/2 - 3"
S/F Distance (IN.)	20"	→	→	→	→	→	→	→	→	→	→	→
Penetrameter	50/80/100	→	→	→	50	→	30/40/50	30/100	30/40	→	→	30/40/50/80/30/100
Time (MIN.)	1hr 55min	→	→	→	17min	→	16min	17min + 1hr 45min	16min	→	15min	20min
Focal Spot (IN.)	.1	→	→	→	→	→	→	→	→	→	→	→
Film Size (IN.)	14X17	→	→	→	→	→	→	→	→	→	→	→
Screen Size (Pb) Front/Back	.01	→	→	→	→	→	→	→	→	→	→	→
S.W.E./D.W.E.	SWE	→	→	→	→	→	→	→	→	→	→	→
S.W.V/D.W.V.	SWV	→	→	→	→	→	→	→	→	→	→	→
Film Type	29X2/80X2/59	→	→	→	80X2	→	29/80/59	29/80	29/59	→	→	29X2/80X2/59
Acceptance Standard	E186/E280	→	→	→	E186	→	E446	E446/E280	E446	→	→	E446/E186
Severity Level	See	SPEC.	→	→	→	→	→	→	→	→	→	→

Shooting Sketch (Use Additional Pages as Needed)

See Original Technique

Technique Prepared By: Ron Kelley Level: II Date: 2-11-06

Technique Approved By: _____ Level: _____ Date: _____

Metal Tek INTERNATIONAL

RADIOGRAPHIC STANDARD SHOOTING SKETCH

Customer	E.I.O	Pattern Number	McWFB-1
Material	CF8MNMN Mod	Traceability Number	
Film Manufactuer	FUJI	Source Number	C060 22.CI
IQI LEVEL 2-2T From CQP 401 X Other (Specify, E.G. 2-4T, 2-1T) N/A			

Exposures (views)	82-83	84-85	85-86	86-87	89-90	94-95	104-105	115-116	123-124	127-128		
Thickness (IN.)	2 1/4"	→				→	1 3/4"	→		1 3/4"		
S/F Distance (IN.)	20"	→								→		
Penetrameter	50	→				→	30	→	40 80 60	30/40		
Time (MIN.)	9min	→				→	16min	→	20min	16min		
Focal Spot (IN.)	.1	→								→		
Film Size (IN.)	14X17	→								→		
Screen Size (Pb) Front/Back	.01	→								→		
S.W.E./D.W.E.	SWE	→								→		
S.W.V/D.W.V.	SWV	→								→		
Film Type	80K2	→				→	29/59	→	29X2 59 80X2	29/59		
Acceptance Standard	E186	→				→	E446	→	E446 E186	E446		
Severity Level	See	Spec.	→							→		

Shooting Sketch (Use Additional Pages as Needed)

See Original Technique

Technique Prepared By: RonKelley Level: II Date: 2-11-06

Technique Approved By: _____ Level: _____ Date: _____

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MetalTek INTERNATIONAL

RADIOGRAPHIC INTERPRETATION REPORT

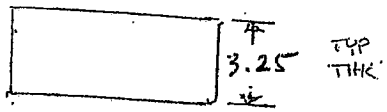
CUSTOMER	PURCHASE ORDER NUMBER	DATE	CONTROL NO.	PAGE
E.I.O.	PPPL-FP-LTS-2	2-24-06	40851	1 of 1

PART NO.	SPECIFICATION	CLASS	TOTAL PIECES	PIECES ACCEPTED
SE-141-058 Bshim	E186	SeeSpec	1	1

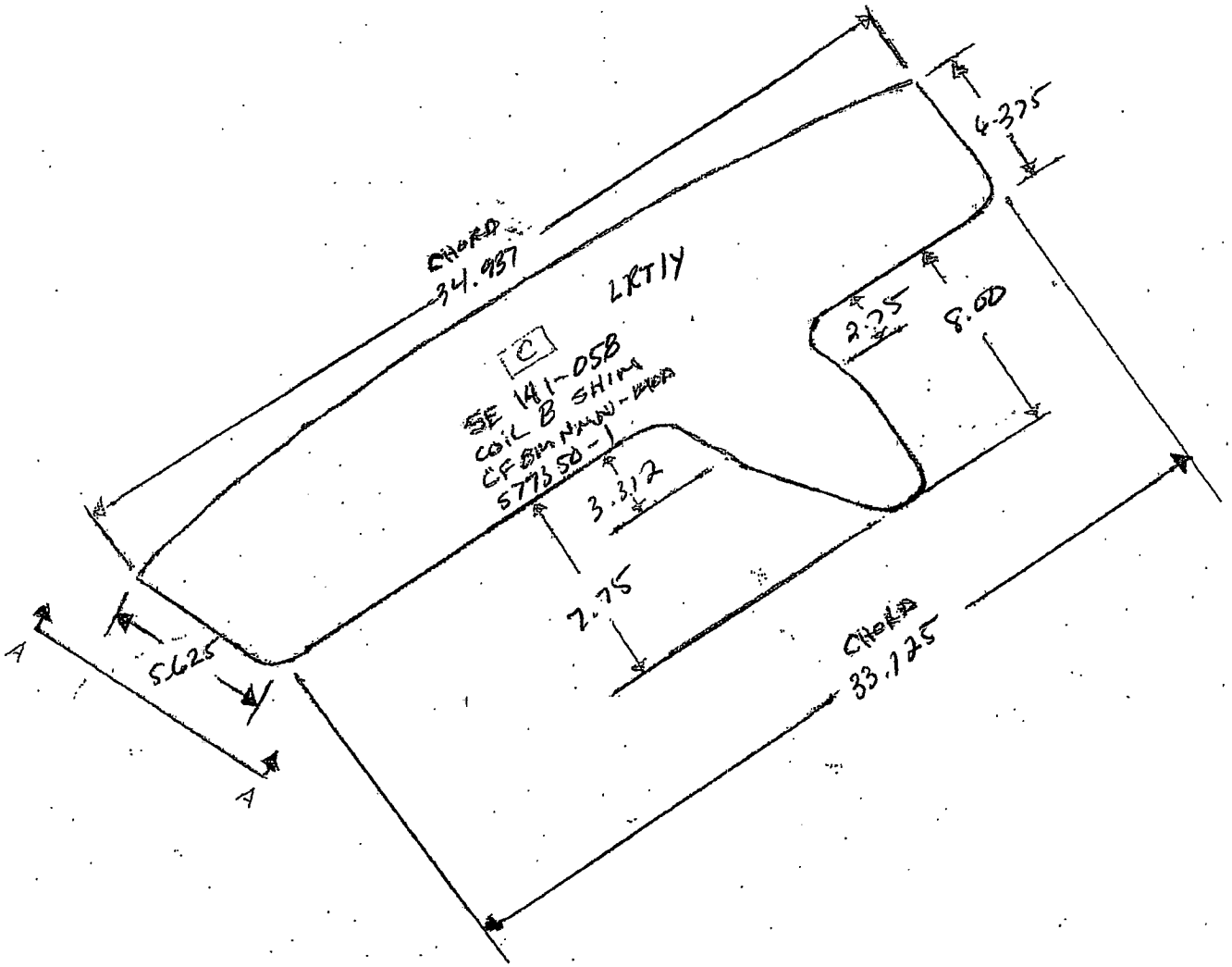
RADIOGRAPHED BY:	INTERPRETED BY:	ASNT LEVEL
Kelley	Kelley	II

FILM TYPE	MATERIAL	ISOTOPE	CODE
80	CF8M/N/MN/MA	IRIDIUM 192 COBALT 60 ✓	ASTM E94 ASME MIL-STD-453

M177360-1	VIEW	PENE	ACCEPT	REJECT	SHRINK	INCLUSION	POROSITY	LINEAR	SURFACE	LOF/LOP	COMMENTS
RT.1	A	50	✓						✓		
	B	↓	✓		3	2			✓		
	C		✓						✓		
	D		✓						✓		

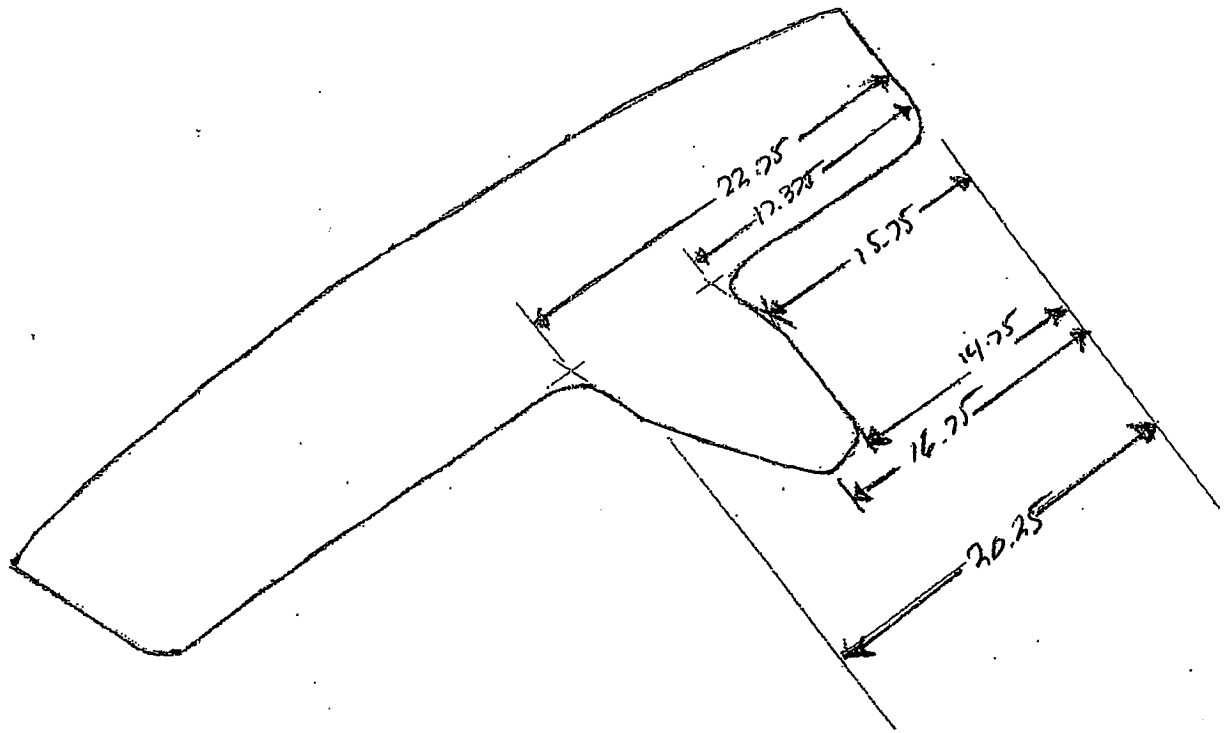


SECT A-A



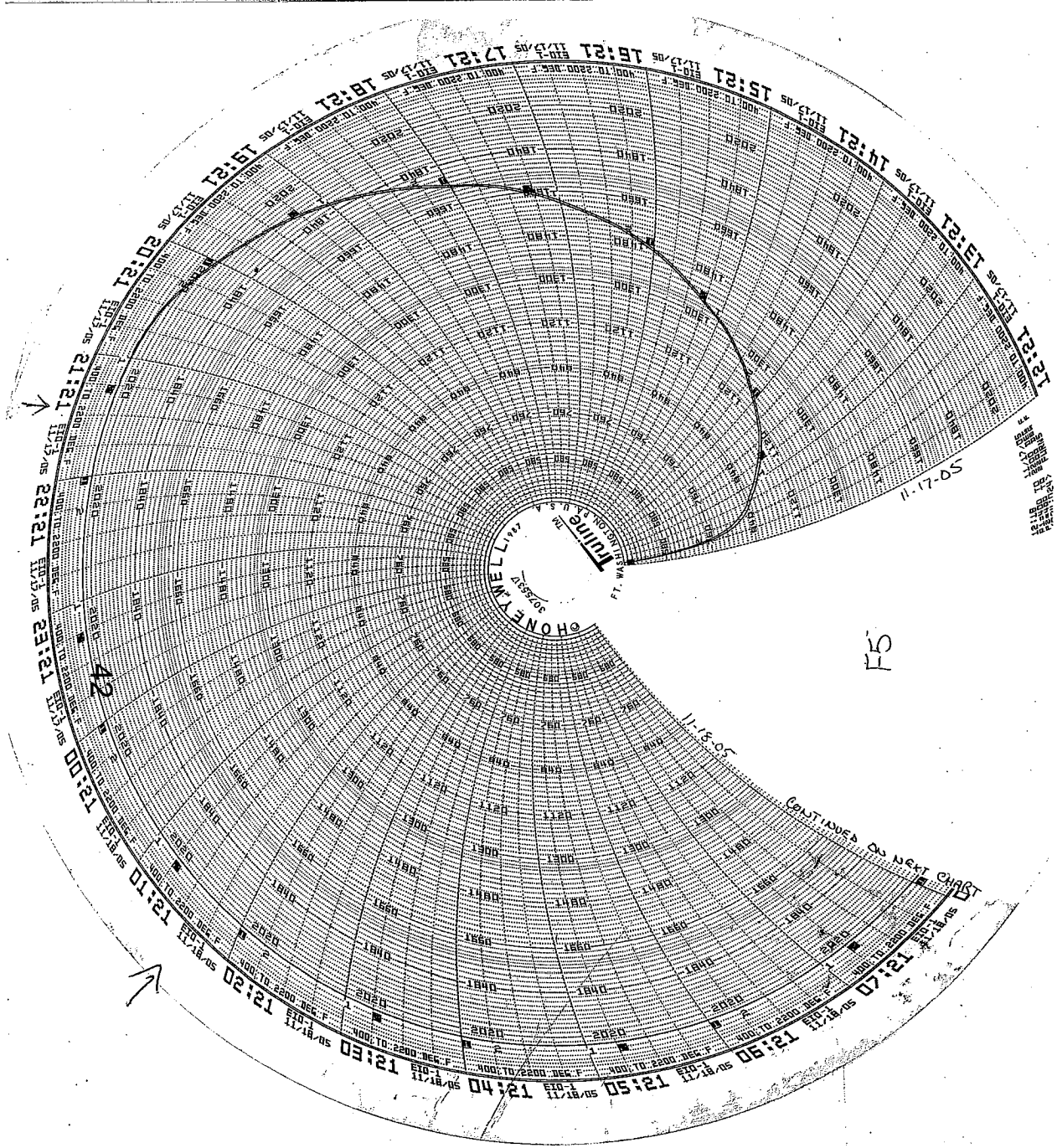
HIM SE 141-058
SKETCH 2/27/06

PAGE 1 OF 2



PAGE 2 OF 2

SHIM SE 141-058
SKETCH 2/22/06

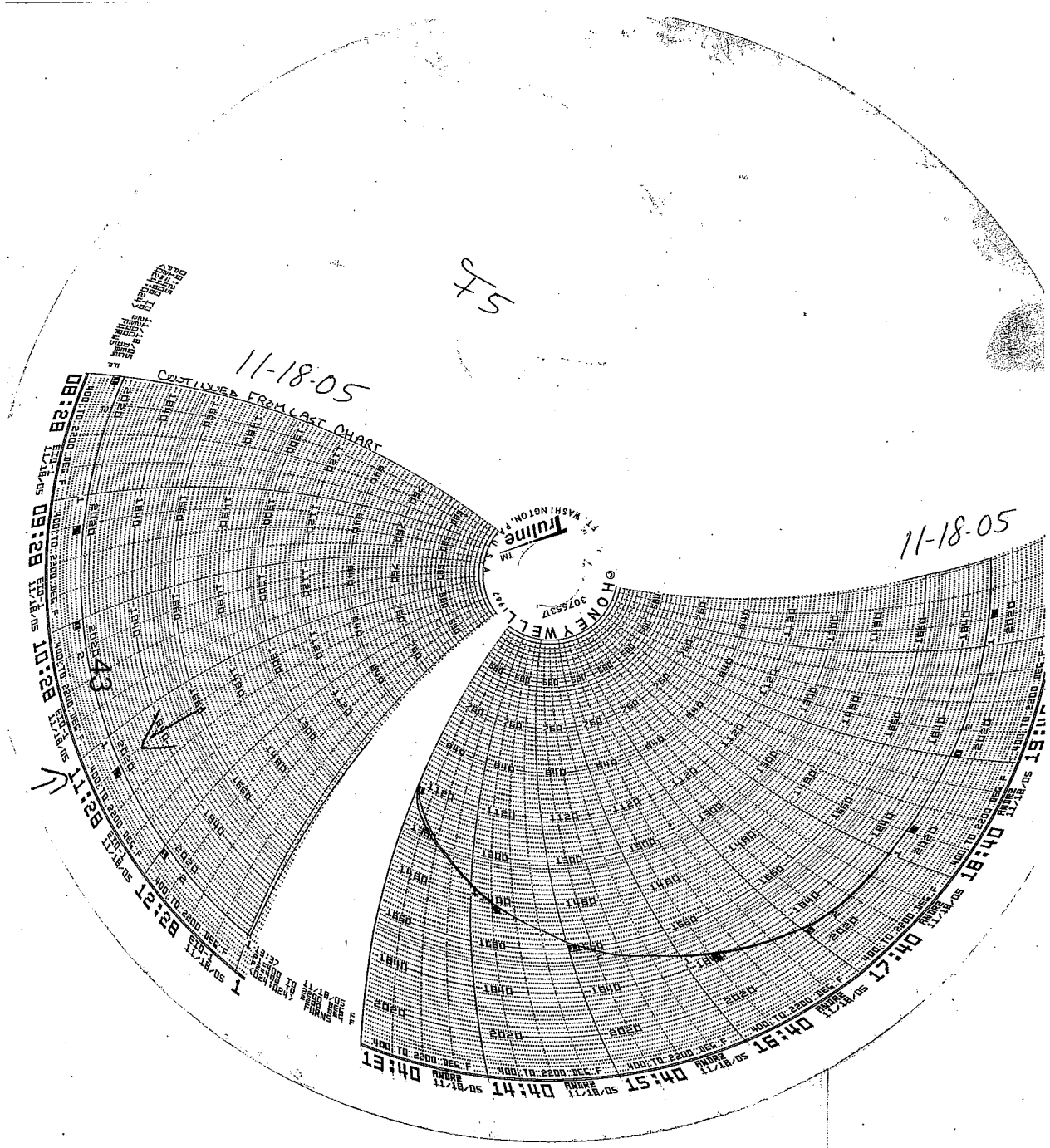


E10 11-17-05

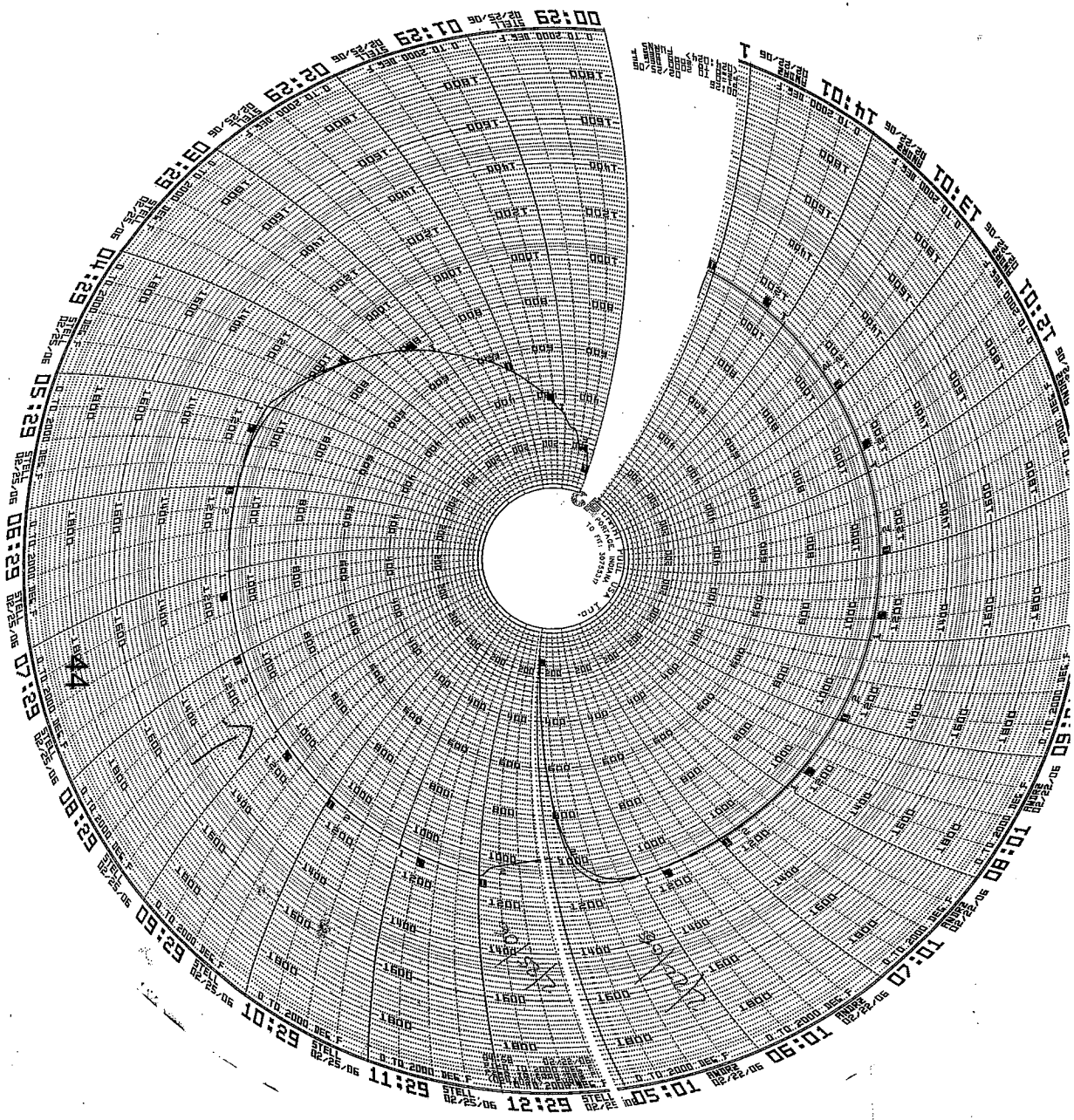
B1 177210-1

E10 11-17-05

B1 177210-1



E10 2-25-06
STRESS RELIEVR
B1 1M7210-1



6

E10 1-22-06

A4
176190-1 1Pc

B SHIMS
177360-1 6Pcs.
SERIAL #'S 1 THRU 6

Energy Industries of Ohio
Manufacturing and Test Sequence (MTS) B-1 COIL
1 OF 11 **CO# 40851 Dated 3-9-05 Revision: Rev 9 Dated Issued:8/30/05**

OPER. #	STATION	DESCRIPTION OF PROCESS	Name	Date
10	QUALITY RELEASE	REVIEW AND APPROVE MTS. RECEIVED APPROVAL FROM EIO FROM _Pete D._ SIGNED QUALITY MANAGER		10/27/05
15	PATTERN NPAT SOP 0100REV2	APPLY APPROPRIATE PART NUMBER, SERIAL NUMBER, AND FOUNDRY MARK, TO THE PATTERN. CAST ON TEST BARS AND CAST ON BLOCKS (extra 3"x3"x1" specimens) REQUIRED, ID AS TO COIL NUMBER AND ZONE LOCATION.		
20	COREMAKE CORE SOP 0100 REV 6 CALIBRATION PER CORE SOP 0200R4/0300R6	MAKE CORES IN SAND MIXTURES AS DESCRIBED BY METALTEK ENGINEERING AND VERIFIED IN MODELING TRIALS. METALTEK CORE SOP 0100 REV 6) CORE WASH WITH ZIRCONIUM CORE WASH. (CALIBRATION OF EQUIPMENT REQUIRED PER CORE SOP 0200,R4 / 0300,R6) VERIFY COUNT AND INSPECT.		11/1/05
30	MOLD MOLD SOP 0400 REV 8 CALIBRATION PER MOLD SOP 0900 REV 5 PREPARATION PER MOLD SOP 1100R2/1200R2/1300R1 SAND TESTING PER MOLD SOP 1400R2/1500R3/1600R2	MOLD PER WORK INSTRUCTIONS IN MAPICS ROUTING AND SOPS REFERENCED. ENGINEER OF RECORD – ROGER BROMAN, CONSULT ON MOLD-RELATED CONCERNS. MOLD MATERIALS REQUIRED PER MAPICS BOM. NOTIFY ENGINEER OF ANY SUBSTITUTIONS.		11/6/05
40	POUR MELT SOP 0100R5 MELT SOP 0700R2 MELT SOP 0600R2	METAL MUST BE AOD REFINED OR AOD INGOT. VIRGIN METAL ADDITIONS ALLOWED. RECORD POURING TEMPERATURE: 2750 CASTING POURED AT: 2750 DATE: 11-11-05 HEAT #"s: 3576-3579 ELAPSED POUR TIME KEEL BLOCKS POURED: NA Yes Sample from ladle to be analyzed for final chemical analysis and reported on material certifications. Sample Taken by: IW GH Analyzed: GH Date: 11-11-05	RC LT JQ CW CS SK IW	11-11-05
50	MELT SOP 0800R2	SHAKEOUT		11/20/05
60	ARC RISE SOP 0100R1	REMOVE RISERS AS DIRECTED BY SUPERVISOR.	TW	11-22-05

70	HEAT TREAT HEAT SOP 0103R5	SOLUTION ANNEAL. MAKE SURE TO BLOCK ALL FLANGES OF FORM AND RACETRACK TO MINIMIZE CREEP DISTORTION. Soak Temp: 2050F, Soak Time: At least 7 hours , Quench Type: Air Cool MAKE SURE TEST MATERIAL IS PLACED IN THE CORRECT ZONE.	FS 1	11/17/05
80	PHYSICAL TESTING	OBTAIN TEST SPECIMENS AND SUBMIT FOR PHYSICAL TESTING. REPORT RESULTS AS PART OF STEP 530. DCMA IS TO WITNESS CHARPY TESTING AT LAB.	WH	11/18
NOTE		**THE ORDER OF CLEANING PROCESSES MAY BE ALTERED DUE TO CAPACITY CONSTRAINTS. HOLD POINTS AND COMPLIANCE WILL NOT BE COMPROMISED. EIO WILL BE ADVISED OF ALL CHANGES THAT MAY RESULT IN A REQUEST FOR DEVIATION FROM REQUIREMENTS.**		
90	GRIND GSWA SOP 0100R3	SWING GRIND TO REMOVE RISER REMAINS AND FLASH IF REQUIRED.		11-23-05
100	GRIND GCHI SOP 0100R2	CHIP AND HAD GRIND SURFACE OF PART AS REQUIRED FOR CONTOUR.		11-24-06 A.B
110	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.		CS 11-24
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF X-RAY . EIO NOTIFIED ON 11/30 DCMA NOTIFIED ON 11/30	Q ENG OR QA MGR	
120	X-RAY AT MQS MQS PROCEDURE 20.H.010 REV 0	X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. WHEN MARKING USE BLACK MARKERS. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.	RT – LEVEL II	RBK 1-13-06
130	X-RAY CQP 401 REV 5	X-RAY INTERPRETATION. ACCEPTANCE MSS SP 54. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET. IF OK CHECK HERE _____ AND SEND TO STEP 160. REJECTED CHECK HERE ✓ MARK UP DEFECTS AND SEND THE CASTING TO STEP 140.	RT – LEVEL II	RBK 1-18-06
140	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING 100% RT INSPECTION. ✓		140 1-31-06
150	GRIND GCHI SOP 0100R2	CHIP AND HAND GRIND EXCAVATION AS REQUIRED.		DWP 2-1-06

160	INTERIM VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM A802 LEVEL 3 IN NON MACHINED AREAS AND LEVEL 2 IN MACHINED AREAS. IF OK CHECK HERE _____ . IF REJECTED CHECK HERE ✓. MARK AND REPAIR AT STEP 190.	VT - LEVEL II KLA	2/2/06
170	INTERIM 100% L.P. CQP 0300 REV 10	L.P. 100% OF COMPONENT. ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE _____GO TO 190. IF REJECTED CHECK HERE ___1_____	LP - LEVEL II MFP 2-2	
180	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING 100% VISUAL AND LP INSPECTION.	TAD	2/2/06
190	GRIND GCHI SOP 0100R2	CHIP AND HAND GRIND EXCAVATION OR VISUAL DEFECTS AS REQUIRED.	KB/DB	2/5/06
200	L.P. EXCAVATION CQP-300 REV 10	L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE _____ IF REJECTED SEND BACK TO STEP 190	LP - LEVEL II TRC	2-6-06
210	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.	CA	2/6/06
220	WELD MAP	MAP ALL MAJOR WELDS WITH DIGITAL PHOTO/MAPS INDICATING LOCATION. SERIALIZE DEFECTS ON CASTING, USE SCALE IN PHOTOS AND DOCUMENT SIZE. THIS IS TO BE PERFORMED BY SUPERVISOR, INSPECTION LEAD MAN OR THEIR DESIGNEE, FILE WITH QA. USE YELLOW MARKER. SUBMIT MAP WITHIN 24 HOURS OF START OF WELDING. MUST INDICATE ON MAP ALL MAJOR WELDS, DEFINED AS GREATER THAN 20% OF THE WALL OR 1 INCH WHICHEVER IS LESS OR 10 SQUARE INCHES APPROXIMATLY 3.3"X3.3".	JB	2-7
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF WELD STEP. EIO NOTIFIED ON 2/1 DCMA NOTIFIED ON 2/1	Q ENG OR QA MGR	BC
230	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: _____, _____, _____ LIST ALL MATERIAL/LOTS USED: 18308, _____, _____ QUALITY ENG. Name: CR Date: 2/1		
240	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1(Flat) or 25 SMAW-CF8MNMN MOD	JB/1	

		REV 0 (Vertical) FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2						
250	GRIND GCHI SOP 0100R2	HAND GRIND WELDS.					CA	2/9
260	L.P. WELD CQP 0300 REV 10	L.P. WELD REPAIRS ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE ___ WASH AND SEND TO STEP 280. IF REJECTED CHECK HERE ___V___ Hold weld til after XRAY					LP - LEVEL II CC	2/10/06
270	REPEAT	REPEAT STEPS S180 TO S250AS REQUIRED TILL CLEAR THROUGH VISUAL INSPECTION & PENETRANT INSPECTION. IF OK CHECK HERE ___ AND PROCEED TO STEP 280.					SK LP to	
280	REPEAT STEPS	SUPPLEMENTAL REPAIR STEPS	1ST	2ND	3RD	4TH	5TH	
S180	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING RADIOGRAPHY.						
S190	GRIND GCHI SOP 0100R2	CHIP AND HAND GRIND EXCAVATION OR VISUAL DEFECTS AS REQUIRED.						
S200	L.P. EXCAVATION CQP-300 REV 10	L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING.	LP - LEVEL II					
S210	WELD MAP	MAP ALL MAJOR WELDS WITH DIGITAL PHOTO/MAPS INDICATING LOCATION. SERIALIZE DEFECTS ON CASTING, USE SCALE IN PHOTOS AND DOCUMENT SIZE. THIS IS TO BE PERFORMED BY SUPERVISOR, INSPECTION LEAD MAN OR THEIR DESIGNEE, FILE WITH QA. USE YELLOW MARKER. MUST INDICATE ON MAP ALL MAJOR WELDS, DEFINED AS GREATER THAN 20% OF THE WALL OR 1 INCH WHICHEVER IS LESS OR 10 SQUARE INCHES APPROXIMATLY 3.3"X3.3". SUBMIT MAP WITHIN 24 HOURS OF START OF WELDING.						
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF WELD STEP. EIO NOTIFIED ON ___ DCMA NOTIFIED ON ___	Q ENG OR QA MGR					
S220	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: ___, ___, ___ MATERIAL /LOT USED :___, ___, ___ QUALITY ENG. Name: ___ Date: ___						
S230	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1(Flat) or 25 SMAW-CF8MNMN MOD REV 0 (Vertical)						

After RT

		FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2		SKID			
S240	GRIND GCHI SOP 0100R2	HAND GRIND WELDS.					
S250	L.P. WELD CQP 0300 REV 10	L.P. WELD REPAIRS ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE _____ WASH AND SEND TO STEP 280. IF REJECTED CHECK HERE _____AND RETURN TO STEP S180.	LP - LEVEL II	OK REJ	OK REJ	OK REJ	OK REJ
	REPEAT	REPEAT STEPS S180 TO S250 AS REQUIRED TILL CLEAR THROUGH VISUAL INSPECTION & PENETRANT INSPECTION.	QA ENG.				
280	TEST MAG PERM SOP MAG PERM 100, REV 1	TEST MAG PERMEABILITY REPAIR AREAS TEST AT LEAST EVERY 2 INCH SQUARE OF WELD. ACCEPTANCE 1.02. IF OK CHECK HERE _____AND GO TO STEP 300. IF REJECTED CHECK HERE _____.		NA			
290	GRIND GCHI SOP 0100R2	GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 280. REPEAT UNTIL COMPLIANCE IS ACHIEVED.					
300	X-RAY (NOTE)	IF RADIO GRAPHED AREAS ARE GREATER THAN FOUR TO FIVE INCHES THE CASTING WILL BE SENT TO MQS. SEND TO MQS CHECK HERE_____. RADIOGRAPH AT CAF CHECK HERE ✓.		QA ENGINEER			ABK 2-11-06
310 A	MQS X-RAY DEFECTS REPAIRED BY WELDING	X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. **ALL RT REJECTS, INCLUDING SURFACE DEFECTS WILL BE VERIFIED BY RT.** ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.		LEVEL II			ABK 2-11-06
310 B	CAF X-RAY DEFECTS REPAIRED BY WELDING CQP 401 REV 5	X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. **ALL RT REJECTS, INCLUDING SURFACE DEFECTS WILL BE VERIFIED BY RT.** ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.		RT - LEVEL II			ABK 2-11-06
320	X-RAY CQP 401 REV 5	X-RAY INTERPRETATION. ACCEPTANCE MSS SP 54. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET. IF OK CHECK HERE _____ AND SEND TO STEP 340. REJECTED CHECK HERE ___X___ MARK UP DEFECTS AND SEND THE CASTING TO STEP S321.		RT - LEVEL II			ABK 2-11-06
	REPEAT STEPS	SUPPLEMENTAL REPAIR STEPS	1ST XRAY Reject 2-20-06	2ND Accept 2-20-06	3RD	4TH	5TH

30/8/06

2-20-06 pm SBat 3284

S321	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING RADIOGRAPHY.	TD	TD			
S322	L.P. EXCAVATION CQP-300 REV 10	L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING.	LP - LEVEL II cc	cc			
S323	WELD MAP	MAP ALL MAJOR WELDS WITH DIGITAL PHOTO/MAPS INDICATING LOCATION. SERIALIZE DEFECTS ON CASTING, USE SCALE IN PHOTOS AND DOCUMENT SIZE. THIS IS TO BE PERFORMED BY SUPERVISOR, INSPECTION LEAD MAN OR THEIR DESIGNEE, FILE WITH QA. USE YELLOW MARKER. MUST INDICATE ON MAP ALL MAJOR WELDS, DEFINED AS GREATER THAN 20% OF THE WALL OR 1 INCH WHICHEVER IS LESS OR 10 SQUARE INCHES APPROXIMATLY 3.3"X3.3". SUBMIT MAP WITHIN 24 HOURS OF START OF WELDING. SUBMIT MAP WITHIN 24 HOURS OF START OF WELDING.	N/A	NA			
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF WELD STEP. EIO NOTIFIED ON 2/5 DCMA NOTIFIED ON 2/5	Q ENG OR QA MGR DC				
S324	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: _____, _____, _____ MATERIAL /LOT USED : 7830, _____, _____, _____ QUALITY ENG. Name: _____ Date: _____					
S325	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1(Flat) or 25 SMAW-CF8MNMN MOD REV 0 (Vertical) FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2	JC WP				
S326	GRIND GCHI SOP 0100R2	HAND GRIND WELDS.					
S327	L.P. WELD CQP 0300 REV 10	L.P. WELD REPAIRS ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE _____ WASH AND SEND TO STEP S328. IF REJECTED CHECK HERE _____AND RETURN TO STEP S321.	LP - LEVEL II CC	OK cc REJ	OK REJ	OK REJ	OK REJ
S 328 A	MQS X-RAY DEFECTS REPAIRED BY WELDING	X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. **ALL RT REJECTS, INCLUDING SURFACE DEFECTS WILL BE VERIFIED BY RT.** ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.	RT-LEVE L II RSed	Acc 2/20/06			

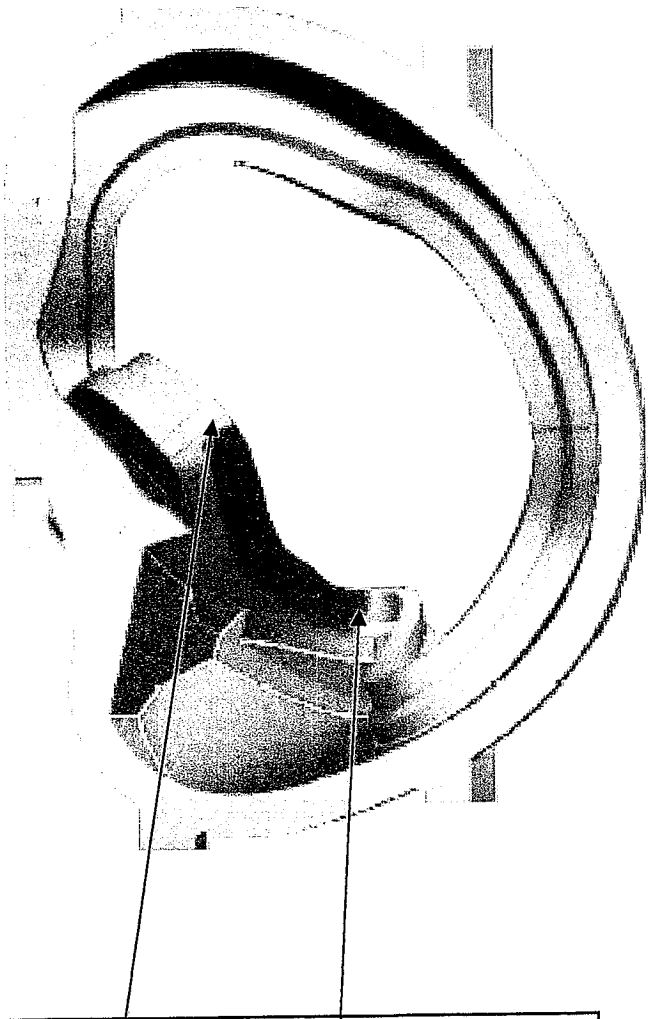
w/ CAR

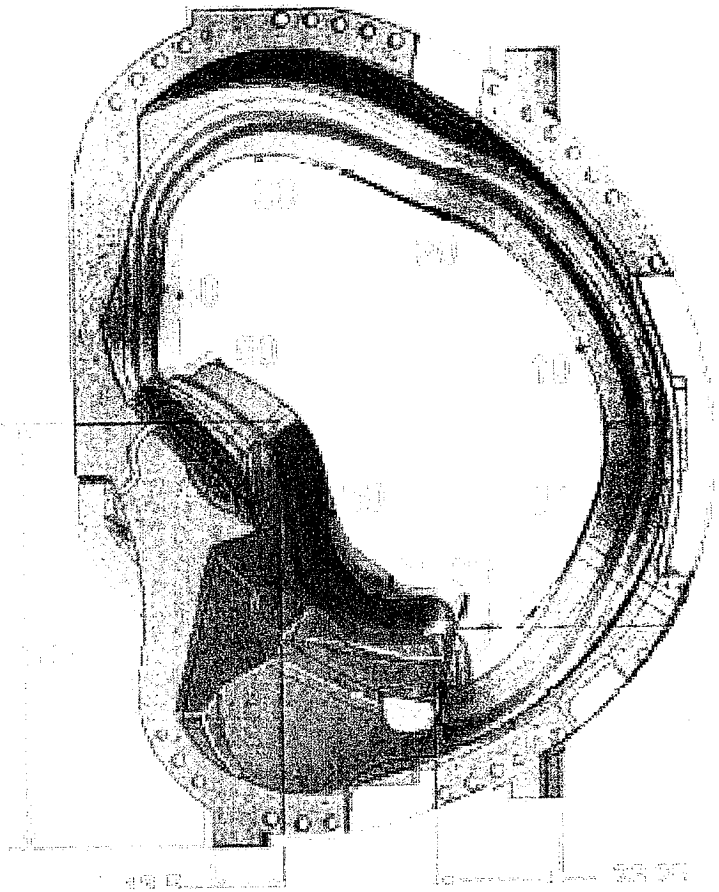
S 328 B	CAF X-RAY DEFECTS REPAIRED BY WELDING CQP 401 REV 5	X-RAY PER TECHNIQUE # 12726 USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. **ALL RT REJECTS, INCLUDING SURFACE DEFECTS WILL BE VERIFIED BY RT.** ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.	RT - LEVEL II	N/A				
S 329	X-RAY CQP 401 REV 5	X-RAY INTERPRETATION. ACCEPTANCE MSS SP 54. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET. IF OK CHECK HERE ✓ AND SEND TO STEP 340. REJECTED CHECK HERE _____ MARK UP DEFECTS AND SEND THE CASTING TO STEP S321.	RT - LEVEL II	OK DWH				
	REPEAT	REPEAT STEPS S321 TO S329 AS REQUIRED TILL CLEAR THROUGH VISUAL, PENETRANT AND RT INSPECTION.	QA ENG.	NA				
340	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.					CGD	2-28-06
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF VISUAL AND LP STEPS. EIO NOTIFIED ON _____ DCMA NOTIFIED ON _____ NA					Q ENG OR QA MGR	
350	FINAL VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM A802 LEVEL 3 IN NON MACHINED AREAS AND LEVEL 2 IN MACHINED AREAS. IF OK CHECK HERE ✓. SEND TO STEP 453. IF REJECTED CHECK HERE _____. MARK AND REPAIR. INITIAL WHEN COMPLETE. MUST BE PERFORMED BY LEVEL II in VT.					VT - LEVEL II KLA	2/28
360	FINAL L.P. CQP 0300 REV 10	FINAL L.P. 100% OF COMPONENT. ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. IF OK CHECK HERE ✓ WASH AND SEND TO STEP 453. IF REJECTED CHECK HERE _____					LP - LEVEL II KLA	2/28
380	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS FOUND DURING FINAL PENETRANT INSPECTION.					N/A	
385	GRIND GCHI SOP 0100R2	CHIP AND HAD GRIND EXCAVATION AS REQUIRED.					✓	

390	L.P. EXCAVATION CQP-300 REV 10	L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903. IF OK CHECK HERE _____ IF REJECTED SEND BACK TO STEP 385.	LP - LEVEL II	N.A
400	WELD MAP	MAP ALL MAJOR WELDS WITH DIGITAL PHOTO/MAPS INDICATING LOCATION. SERIALIZE DEFECTS ON CASTING, USE SCALE IN PHOTOS AND DOCUMENT SIZE. THIS IS TO BE PERFORMED BY SUPERVISOR, INSPECTION LEAD MAN OR THEIR DESIGNEE, FILE WITH QA. USE YELLOW MARKER. SEND MAPS WITHIN 24 HOURS OF WELDING. MUST INDICATE ON MAP ALL MAJOR WELDS, DEFINED AS GREATER THAN 20% OF THE WALL OR 1 INCH WHICHEVER IS LESS OR 10 SQUARE INCHES APPROXIMATLY 3.3"X3.3".		
420	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: _____ MATERIAL/LOT USED:_____ QUALITY ENG. Name: _____ Date: _____		
430	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1(Flat) or 25 SMAW-CF8MNMN MOD REV 0 (Vertical) FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2		
440	GRIND GCHI SOP 0100 REV 2	HAND GRIND WELDS.		
450	L.P. WELDS CQP 0300 REV 10	L.P. WELD REPAIRS ACCEPTANCE PER ASTM A903. IF OK CHECK HERE _____ WASH AND SEND TO STEP 453. IF REJECTED CHECK HERE _____AND RETURN TO STEP 440.	LP - LEVEL II	
	REPEAT	REPEAT STEPS ___350 TO 450____AS REQUIRED TILL WELDS CLEAR FINAL LIQUID PENETRANT INSPECTION. DOCUMENT REWORK ON A SUPPLEMENTAL MTS	QA ENG.	
451	TEST MAG PERM SOP MAG PERM 100, REV 1	TEST MAG PERMEABILITY REPAIR AREAS. RECORD ON WELD MAP LIST. TEST AT LEAST EVERY 2" SQUARE OF WELD. ACCEPTANCE 1.02. IF OK CHECK HERE _____AND GO TO STEP 430. IF REJECTED CHECK HERE _____.		
452	GRIND GCHI SOP 0100R2	GRIND AREAS OF NON COMPLIANCE AND RETURN TO STEP 451. REPEAT UNTIL COMPLIANCE IS ACHIEVED.		
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF LAYOUT. EIO NOTIFIED ON 11/29/05 DCMA NOTIFIED ON 11/29/05 APPROVAL ~~RECEIVED~~ ON N/A	Q ENG OR QA MGR	Cfn

453	INTERIM LAYOUT SOP LAYOUT 0100	INSPECT CASTING TO VERIFY DIMENSIONS. THIS STEP MAY BE MOVED. NOTE: THE FIRST PART PRODUCED OF EACH TYPE A, B AND C WILL BE DIMENSIONED BY LAWTON PATTERN. IF DIMENSIONED BY LAWTON IT WILL BE DOCUMENTED HERE. Subsequent casting done internally per Romer Arm.	Lawton CAR	12/5/05
455	HEAT TREAT	STRESS RELIEF. Load casting into cold furnace. Ramp up to 1100 F at rate of 200 F per hour. Hold at temp 4 hours. Furnace cool to 500 F at 50 F per hour. Air cool. Submit furnace charts to QA.	F5-1	DLS 2-25-06
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF VISUAL AND LP STEPS. EIO NOTIFIED ON 2/15 DCMA NOTIFIED ON 2/15	Q ENG OR QA MGR	
460	FINAL VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM A802 LEVEL 3 ALL CONDITIONS. THIS STEP MAY BE UNNECESSARY IF OK AT STEP 350. IF OK CHECK HERE ✓. IF REJECTED CHECK HERE _____. MARK AND REPAIR AT STEP 510. MUST BE PERFORMED BY LEVEL II in VT.	VT - LEVEL II KLA	2-28-06
470	FINAL L.P. CQP 0300 REV 10	FINAL L.P. 100% OF COMPONENT. ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 1 FOR HIGH STRESSED AREAS, LEVEL 2 FOR ALL OTHER AREAS. SEE LP DRAWING. THIS STEP MAY BE UNNECESSARY IF OK AT STEP 360. IF OK CHECK HERE ✓ WASH AND SEND TO STEP 500. IF REJECTED CHECK HERE _____. DOCUMENT REPAIRS USING A SUPPLEMENTAL MTS.	LP - LEVEL II KLA 2-28-06	2080 2/28/06
NOTICE	WITNESS NOTIFICATION	PROVIDE NOTICE TO EIO AND DCMA AT LEAST FIVE DAYS IN ADVANCE OF MAG PERM STEPS. EIO NOTIFIED ON 2/15 DCMA NOTIFIED ON 2/15	Q ENG OR QA MGR	
500	FINAL MAG PERM INSPECTION SOP MAG PERM 100, REV 1	PERFORM MAG PERM TESTING WITH SEVRIN GAUGE. ACCEPTANCE 1.02. CHECK THE ENTIRE SURFACE ON A 6"BY6" GRID. REPORT RESULTS. USE A 6" SQUARE BLOCK TO INDICATE TEST LOCATIONS AND RECORD RESULTS. COMPLIANT AREAS WILL NOT BE MARKED. MARK NONCOMPLIANT AREAS WITH AN "X" FOR REPAIR. OK CHECK HERE ✓ AND GO TO STEP 530. IF REJECTED CHECK HERE _____.	TLC	2-28-06
510	GRIND GCHI SOP 0100 REV 2	HAND GRIND WITH SUITABLE CONE OR OTHER SIMILAR GRINDER AS REQUIRED TO ENSURE REMOVAL OF MATERIAL TO ACHIEVE MAG PERM REQUIREMENT. CIRCLE AREA REMEDIATE FOR RETEST.	NA	
520	RETEST MAG PERM SOP MAG PERM 100, REV 1	RETEST MAG PERMEABILITY AT FAILED TEST POINTS. MARK NONCOMPLIANT AREAS WITH AN "X" FOR REPAIR. ACCEPTANCE 1.02. IF OK CHECK HERE _____. IF REJECTED CHECK HERE _____ RETURN TO STEP 510.		
530	DOC. REVIEW	REVIEW DOCUMENTS AS REQUIRED IN CAF CHECKLIST, ALL DOCUMENTS NOTED TO BE ACCESSIBLE FOR AUDITING. (SHIPPER, C OF C, M.T.R., M.T.S., INSPECTION REPORT, X-RAY READER SHEETS AND HEAT TREAT CHARTS)		

NOTICE	RELEASE FROM EIO	PROVIDE DOCUMENTS TO EIO. SENT ON 2/28 BY CAR. RECEIVED RELEASE FROM EIO ON 2/28.	Q ENG OR QA MGR	CAR
540	PACK AND SHIP	PACKAGE AND SHIP TO MAJOR TOOL. Changed 1-9-06 **MARK ON CASTING THE COIL NUMBER "B-1"**	CAR	
1000	REVISION HISTORY	ORIGINAL 12-14-04. Approved 12-14-04. Revision level 1- Revised 1-26-05 new page 8, correct High stress areas, Revision level 2 3-16-05, delete LO step 455. Revision 3 3-28-05 Added note regarding hold point at weld step 400. Revision level 4 written for C-2 casting 4-18-05. Rev 5 added Layout SOP# and note regarding first casting layout responsibility. 5-10-05. Rev 6 added word LOT to weld material steps. 5-29-05. Rev 7 6-14-05 added "LOT" to weld step on supplement page. Rev. 8 7-29-05 added stress relief , deleted weld hold points, added vertical weld procedure, and several editorial changes. REV 9 8-28-05 – MODIFIED RT STEPS AND ADDED REQUIREMENT TO RT ALL RT DEFECTS INCLUDING SURFACE.	CARUUD	





High Stressed Area as seen from the drag side.

MetalTek International – Carondelet Division
Manufacturing and Test Sequence (MTS) B Coil Shim SN -1
Dated 12-14-04 Revision:1 Dated Issued:10-25-05

OPER. #	STATION	DESCRIPTION OF PROCESS	Name	Date
10	QUALITY RELEASE	REVIEW AND APPROVE MTS. RECEIVED APPROVAL FROM EIO ON 11-1-05 FROM Pete D. SIGNED QUALITY MANAGER. **SHADED BOXES NEED NOT BE SIGNED.**	CAR	11-1-05
20	PATTERN NPAT SOP 0100REV2	APPLY APPROPRIATE PART NUMBER, SERIAL NUMBER, FOUNDRY MARK, TO THE PATTERN.		
30	MOLD	MOLD PER WORK INSTRUCTIONS IN MAPICS ROUTING AND SOPS REFERENCED. MOLD MATERIALS REQUIRED PER MAPICS BOM. NOTIFY ENGINEER OF ANY SUBSTITUTIONS. MOLD SOP 0400 REV 8 CALIBRATION PER MOLD SOP 0900 REV 5 PREPARATION PER MOLD SOP 1100R2/1200R2/1300R1 SAND TESTING PER MOLD SOP 1400R2/1500R3/1600R2		
40	POUR MELT SOP 0100R5 MELT SOP 0700R2 MELT SOP 0600R2	METAL MUST BE AOD REFINED OR AOD INGOT. VIRGIN METAL ADDITIONS ALLOWED. HEAT #: 31455 Sample from ladle to be analyzed for final chemical analysis and reported on material certifications. Sample Taken by: I. Winston Analyzed: G. Hunt	J. Golaske	11-3-05
50	MELT SOP 0800R2	SHAKEOUT	CA	11/4/05
60	ARC RISE SOP 0100R1	REMOVE RISERS AS DIRECTED BY SUPERVISOR.	Jcoleman	2-23-06
70	HEAT TREAT HEAT SOP 0103R5	SOLUTION ANNEAL. MINIMUM 4 HOURS AT 2050 F. AIR COOL.	KMR	FS-1 1-22-06
80	GRIND GSWA SOP 0100R3 GCHI SOP 0100R2	SWING GRIND TO REMOVE RISER REMAINS AND FLASH IF REQUIRED. CHIP AND HAND GRIND SURFACE OF PART AS REQUIRED.	JQ 1-23-06	
90	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.	CS	2/23
100	VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM A802 LEVEL 3 ALL CONDITIONS. IF OK CHECK HERE ✓ . IF REJECTED CHECK HERE ____ . MARK AND REPAIR AT STEP 130OR 140 IF WELDING IS REQUIRED. MAY PERFORM STEPS 110 AND 120 TOGETHER.	VT - LEVEL II	JDR 2/24

120	100% L.P. CQP 0300 REV 10	L.P. 100% OF COMPONENT. ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA- LEVEL 2. IF OK CHECK HERE ✓ GO TO 150. IF REJECTED CHECK HERE _____ MARK AND REPAIR AT STEP 130 OR 140 IF WELDING IS REQUIRED.	LP - LEVEL II CC	2/24/06
130	GRIND GCHI SOP 0100R2	HAND GRIND DEFECTS. CONFIRM REPAIRS VISUALL AND BY LP. ACCEPTANCE AS NOTED ABOVE. IF OK, CHECK HERE _____ AND GO TO STEP 170. IF WELDING IS NEEDED GO TO STEP 130.	N/A	
140 IF NEEDED		IF REPAIRS BY WELDING ARE REQUIRED DOCUMENT ON SUPPLEMENTAL MTS ON LAST PAGE.		
150	CAF X-RAY DEFECTS REPAIRED BY WELDING CQP 401 REV 5	X-RAY PER TECHNIQUE: SE-141-073-C SHIM. USE CALIBRATED DENSITOMETER FOR DENSITY VERIFICATION. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET.	RT - LEVEL II RDK 2-24-06	
160	X-RAY CQP 401 REV 5	X-RAY INTERPRETATION. ACCEPTANCE MSS SP 54. ATTACH TECHNIQUE, READER SHEET FOR ALL RADIOGRAPHS. MUST INDICATE RADIOGRAPHER AND ASNT CERTIFICATION LEVEL ON READER SHEET. IF OK CHECK HERE ✓ AND SEND TO STEP 200. REJECTED CHECK HERE _____ MARK UP DEFECTS. DOCUMENT REPAIRS ON S10 TO S70.	RT - LEVEL II RDK 2-24-06	
	REPEAT	REPEAT STEPS S10 TO S70 AS REQUIRED TILL WELDS CLEAR X-RAY.	QA ENG.	
170	SAND BLAST BLAS SOP 0100R6	SANDBLAST (REMOVE ALL BLAST MATERIAL FROM CASTING) SANDBLASTING WILL BE DONE USING RECYCLED SHARP ANGULAR AGGREGATE.		
180	LAYOUT SOP 0100 ORIGINAL	INSPECT CASTING TO VERIFY DIMENSIONS. THIS MAY BE PERFORMED EARLIER IF DESIRED. SUBMIT RPORT TO QA.	2-27-06	
190	FINAL VISUAL INSPECTION CQP-500 REV 4	VISUALLY INSPECT 100% of COMPONENT ACCORDING TO ASTM A802 LEVEL 2 ALL CONDITIONS. IF OK CHECK HERE ✓. IF REJECTED CHECK HERE _____. MARK AND REPAIR DOCUMENT REWORK ON A SUPPLEMENTAL MTS	VT LEVEL II JDR	2/24 2-28-06
200	FINAL L.P. CQP 0300 REV 10	FINAL L.P. 100% OF COMPONENT. ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA- LEVEL 2 ALL AREAS. IF OK CHECK HERE ✓ WASH AND SEND TO NEXT STEP. IF REJECTED CHECK HERE ___ MAKE REPAIRS AND DOCUMENT ON SUPPLEMENTL MTS.	LP - LEVEL II JDR	2/27/06
210	FINAL MAG PERM INSPECTION SOP MAG PERM 100, REV 1 GRIND GCHI SOP 0100 REV 2	PERFORM MAG PERM TESTING WITH SEVRIN GAUGE. ACCEPTANCE 1.02. CHECK THE ENTIRE SURFACE ON A 6"BY6" GRID. REPORT RESULTS. HAND GRIND WITH SUITABLE CONE OR OTHER SIMILAR GRINDER AS REQUIRED TO ENSURE REMOVAL OF MATERIAL TO ACHIEVE MAG PERM REQUIREMENT.	JDR	2/28/06
220	DOC. REVIEW	REVIEW DOCUMENTS ALL DOCUMENTS NOTED TO BE ACCESSIBLE FOR AUDITING. (C OF C, M.T.R., SIGNED M.T.S., LAYOUT INSPECTION REPORT, X-RAY READER SHEETS AND HEAT TREAT CHARTS)		

NOTICE	RELEASE FROM EIO	PROVIDE DOCUMENTS TO EIO. SENT ON 2/28 BY CAR. RECEIVED RELEASE FROM EIO ON 2/28.	Q ENG OR QA MGR	CAR
	PACK AND SHIP	PACKAGE AND SHIP TO MAJOR TOOL.	CAR	
1000	REVISION HISTORY	ORIGINAL DRAFT 10-25-05	CARHUD	CAR

SUPPLEMENTAL MTS FOR WELD REPAIRS. FOR VT&LP/ FOR RT

S10	WELD SOP 0100 REV 7	EXCAVATE ANY DEFECTS.		
S20	L.P. EXCAVATION CQP-300 REV 10	L.P. ALL EXCAVATIONS PRIOR TO WELDING TO ENSURE REMOVAL OF DEFECT. ACCEPTANCE PER A903. ACCEPTANCE CRITERIA- LEVEL 2.	LP - LEVEL II	LP - LEVEL II
S30	WELD MAP	MAP ALL MAJOR WELDS. FILE WITH QA. MUST SEND REPORT ON ALL AJOR WELDS, DEFINED AS OVER 20% OF WALL THICKNESS OR 1 INCH WHICHEVER IS LESS OR 10 SQUARE INCHES TO CUSTOMER. MAJOR WELDS YES _____, REPORT SENT BY _____ DATE_____ NO MAJOR WELDS CHECK HERE_____ AND GO TO STEP 170.		
S40	QA APPROVAL HOLD POINT	QA TO APPROVE ELECTRODE PRIOR TO USE. PROCEDURE USED: _____ MATERIAL USED:_____ QUALITY ENG. Name: _____ Date: _____		
S50	WELD SOP 0100 REV 7	WELD REPAIR DEFECTS AS MARKED. FOR WELDS <2" - WPS 10-SMAW-CF8MNMN MOD REV 1 FOR WELDS <8" - WPS 15-GMAW-CF8MNMN MOD REV 2 WELDER CERTS MUST BE SENT TO EIO/PPPL.		
S60	GRIND GCHI SOP 0100R2	HAND GRIND WELDS.		
S70	L.P. WELD CQP 0300 REV 10	L.P. WELD REPAIRS ACCEPTANCE PER ASTM A903. ACCEPTANCE CRITERIA-LEVEL 2. IF OK CHECK HERE _____ WASH AND SEND TO STEP 300. IF REJECTED CHECK HERE _____AND RETURN TO STEP 220.	LP - LEVEL II	LP - LEVEL II
	REPEAT	REPEAT STEPSS10 TO S70 AS REQUIRED TILL CLEAR THROUGH VISUAL INSPECTION & PENETRANT INSPECTION.	QA ENG.	QA ENG.
S80	TEST MAG PERM SOP MAG PERM 100, REV 1	TEST MAG PERMEABILITY REPAIR AREAS RECORD ON WELD MAP LIST. TEST AT LEAST 5 POINTS PER WELD. ACCEPTANCE 1.02. IF OK CHECK HERE _____AND GO TO STEP 170. GRIND AS NEEDED TO REMEDIATE.		

NA

Disposition of NCR 1537 February 10, 2006

The 0.001% over the maximum of 0.035% phosphorus and will be accepted for B1. However since the physical properties of the alloy is dependent upon consistent chemistry, NCSX requests that Metaltek do its best to conform to the chemistry as presently stated in the specification. Deviations will be considered on a case by case basis.

Approved by:

Phil Heitzenroeder

Digitally signed by Phil Heitzenroeder
DN: CN = Phil Heitzenroeder, C = US, O = PPPL, OU = Mech. Eng. Division
Reason: I am approving this document
Date: 2006.02.10 12:52:44 -05'00'

Technical representative

Brad Nelson

Digitally signed by Brad Nelson
DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED, email=nelsonbe@ornl.gov
Date: 2006.02.13 08:48:22 -05'00'

Responsible line manager

Corrective Action 1537
Carondelet Division
Corrective Action Type NCR
Date 1-13-06
CA Originator C. Ruud
Applies to: B-1 Coil

Description of Defect / Non-Conformance
Phosphorus levels in material produced for B-1 coil casting exceed specification limits in PPPL Specification NCSX-CSPEC-141-03-07 Rev 10. Phosphorus is 0.001% over the maximum of 0.035%.

Root Cause
We have no way to remove phosphorus from the melt and do not intentionally add phosphorus. These results are consistent with our charge material analysis.

Corrective Action
Pending.

Verification of Corrective Action
Chemistry analysis of next coil, A-4 and 5. Phosphorus levels were within the required specification.

Preventive Action
We will request a deviation for phosphorus in the subject parts and also request a permanent specification change to 0.040% maximum for both phosphorus and sulfur, to allow us to provide non-discrepant material.

Verification Of Preventative Action
Pending

Estimated Completion Date
1-20-06

Actual Completion Date
1-20-06

Signed: C. Ruud

CC: B. Craig, J. Edwards, E.J. Kubick, J. Markham, J. Galaske

NCSX Corrective Action Resolution Response

CA # 1538
Date: Feb. 6, 2006
NCSX Response: This CA addresses 7 areas on B1 which deviates from the model dimensions as detailed in the attached. NCSX agrees with EIO's planned action plan, as summarized below. Other than area 1, NCSX leaves the decision about the necessity of pattern changes up to EIO.
Area 1: Areas of the flange are outside of tolerance range. EIO proposes to add stock in low areas and grind high areas to bring into tolerance, as well as to add stock to cre box to prevent reoccurance. NCSX concurs- the casting stock addition should be handled as a weld repair.
Area 2: Opposite of area 1 but not related has excess stock. EIO will remove excess during processing. NCSX concurs.
Area 3: loss of machine stock ranging from 3/8-9/16". EIO feels that since 1" of machine stock was planned, sufficient remains. This is an EIO decision, but it appears reasonable to NCSX.
Area 4 is a thin shell wall condition similar to A1. NCSX reviewed the details and concurs with EIO's recommendation to use as is. This will be acceptable for future B's and NCSX will submit a RFD.
Area 5: Parts of the wing area interface may be high and it is not certain if other areas are out of tolerance. EIO will get better data during layout scans and may need to bring some areas into tolerances. NCR's may be needed if all areas are not brought into compliance.
Area 6: wing interface appears to be high, EIO plans to remove metal as required. NCSX concurs with this plan.
Area 7: wing interface appears to be high, but details need to be clarified in subsequent scans; EIO plans to remove metal as required. NCSX concurs with this plan.

Approved by:

Phil Heitzenroeder

Digitally signed by Phil Heitzenroeder
DN: CN = Phil Heitzenroeder, C = US, O = PPPL, OU = Mech. Eng. Division
Reason: I agree to the terms defined by the placement of my signature on this document
Date: 2006.02.07 14:38:54 -05'00'

Tech. Rep.

Brad Nelson

Digitally signed by Brad Nelson
DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED, email=nelsonbe@ornl.gov
Date: 2006.02.07 16:12:17 -05'00'

Responsible Line Manager

MetalTek INTERNATIONAL
Carondelet Division
8600 Commercial Blvd. • Pevely, MO 63070 USA
Phone: 636-479-4499 • Fax: 636-479-3399
E-Mail: Charles.Ruud@MetalTekInt.com

Corrective Action 1538
Carondelet Division
Corrective Action Type NCR
Date 1-13-06 **Revised 1-26-06**
CA Originator C. Ruud
Applies to: B-1 Coil

Description of Defect / Non-Conformance
Scan performed by 3D Scanco indicated that the coil deviates from the model in some areas.

Root Cause
Detailed analysis has been performed. See report below.

Corrective Action
Addressed in each area below.

Verification of Corrective Action
A scan will be performed with our equipment to verify dimesions.

Preventive Action
Pending.

Verification Of Preventative Action
Pending

Estimated Completion Date
Prior to shipment of B-1.

Actual Completion Date

Signed: C. Ruud

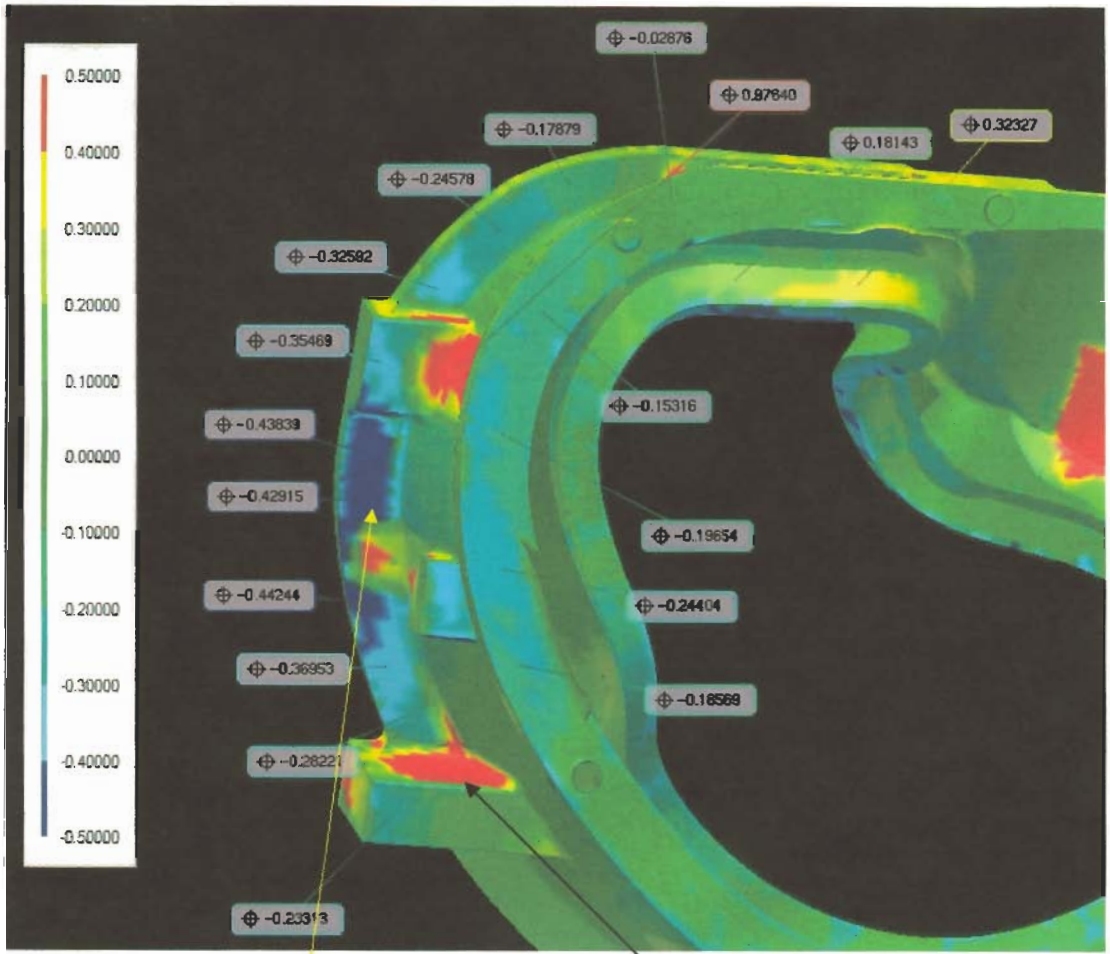
CC: B. Craig, J. Edwards, E.J. Kubick, J. Markham, R. Broman

Coil B-1 Layout Analysis

1-21-06 Roger Broman / MetalTekInt - Carondelet Div.

Areas of Note

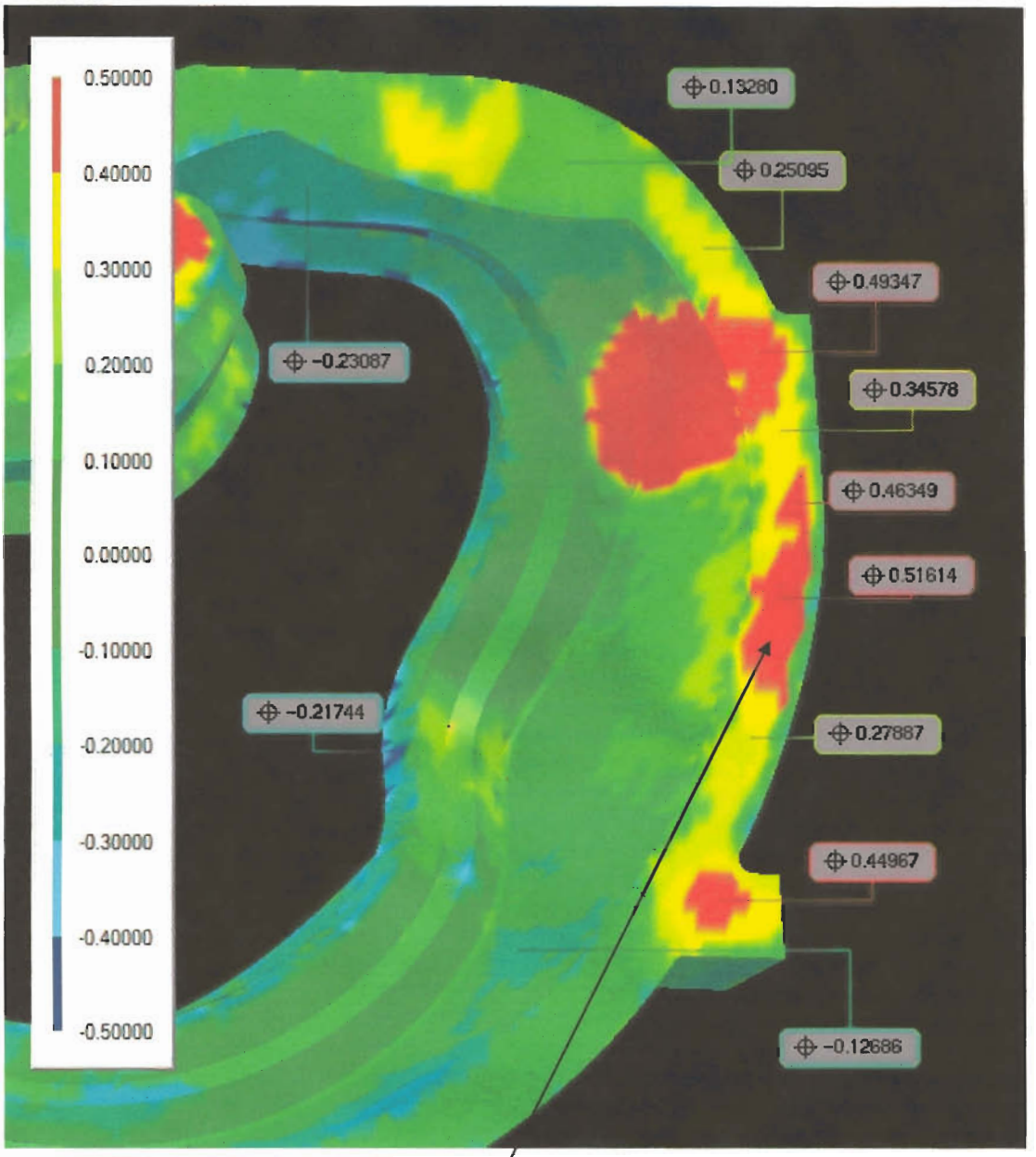
Area 1:



An area on the back-side of the cope flange is showing a surface profile approximately 7/16" below expected. This area will be addressed for Coil B-2 by adding approximately 7/16" stock into this area in corebox #9. On B-1 we will build up this are by welding. The opposite side will require additional machining to remove the excess.

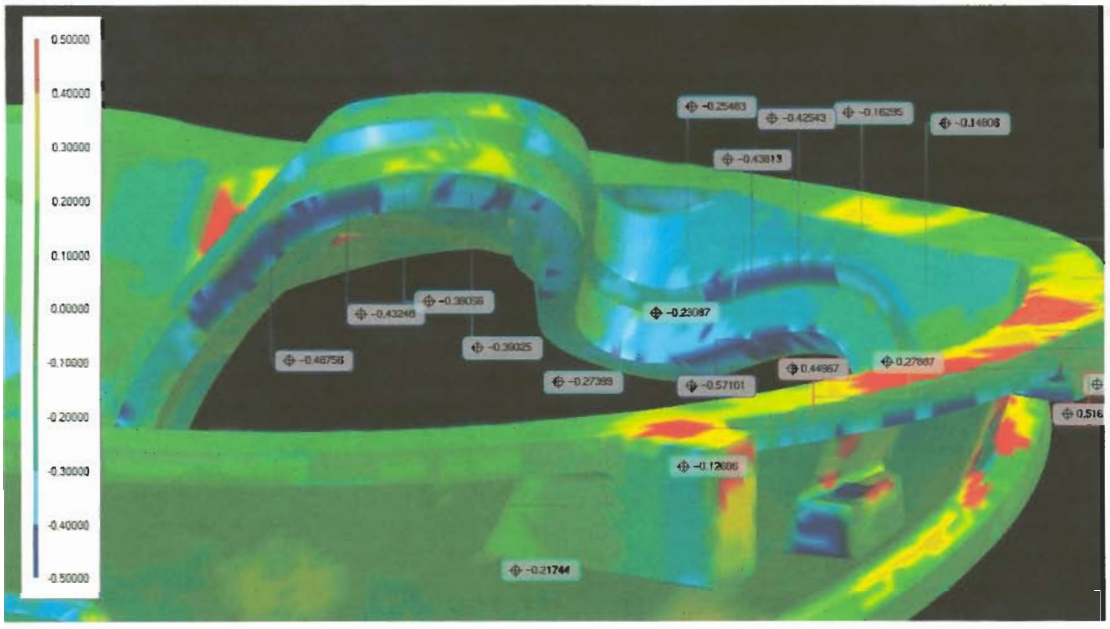
The red area on the side of the ear is not a riser pad or any other expected condition. This will need to be further analyzed with our scan

Area 2:



This area is on the opposite side of the flange of Area 1, but cannot be immediately related to Area 1. A riser sits directly over this spot and the excess stock could be a result of the riser contact not being cut down flush to the flange. At this point, as planned, all of the riser contact areas show the same excess stock condition. They will be worked down closer to the intended flange surface later in the process.

Area 3:

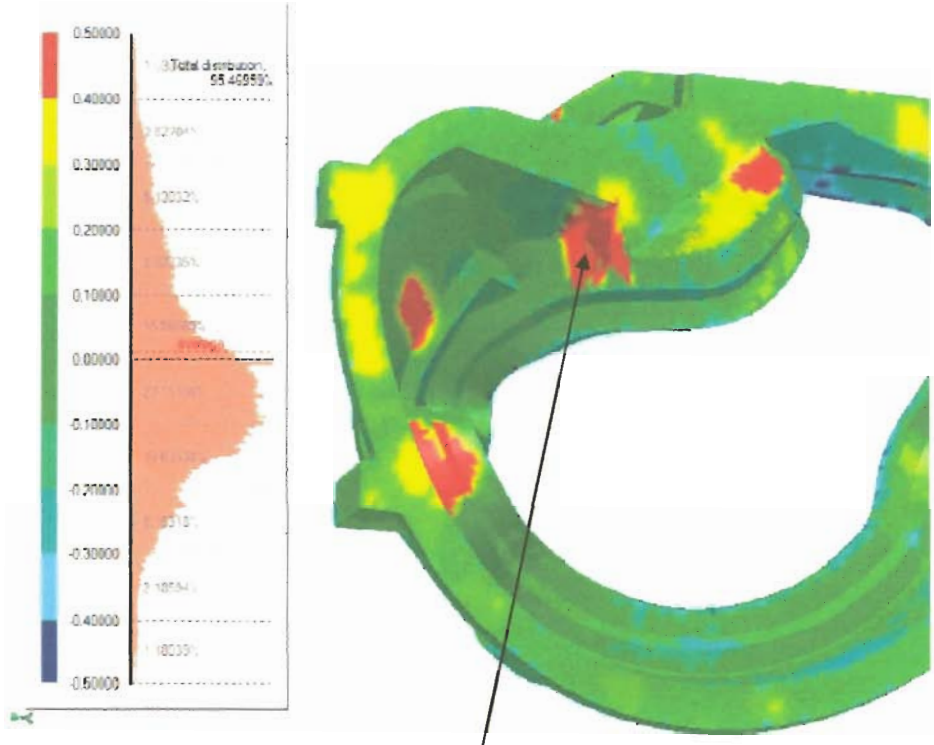


There are a few areas around the race track that display a loss of machine stock anywhere from 3/8" to 9/16". There was 1" machine stock planned in this area, so stock still remains, but the tooling will be inspected for flaws and repaired as needed.

Area 4: (see page 8 of the Scanco report)

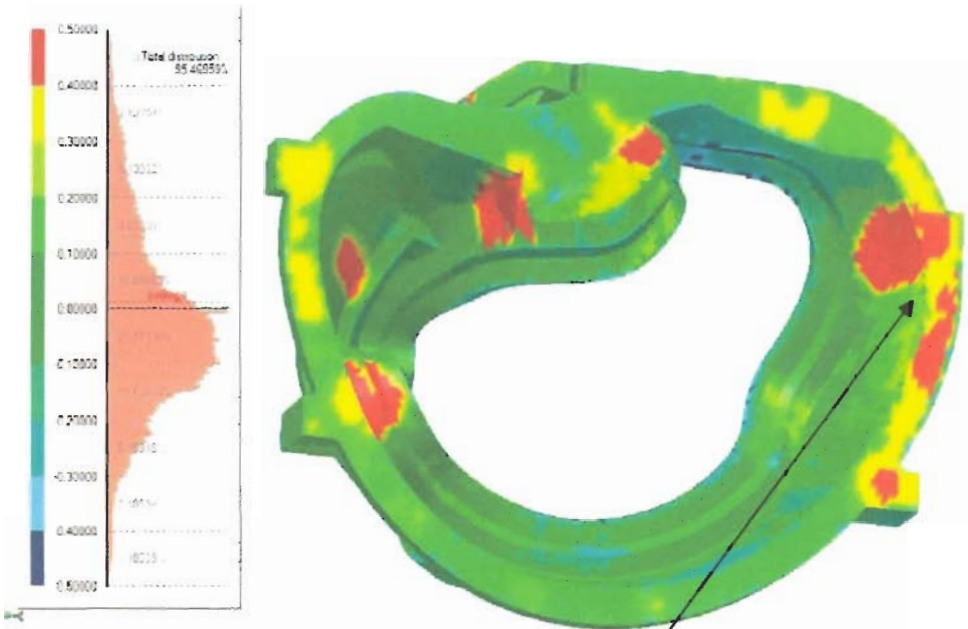
Overall wall thickness shows a condition very similar to the A coils we have processed. Scanco's analysis shows wall thicknesses in the range of 1.21" to 1.54" which is what we would have expected based on Coil A results. No action is planned for this condition. We recommend use as is.

Area 5:



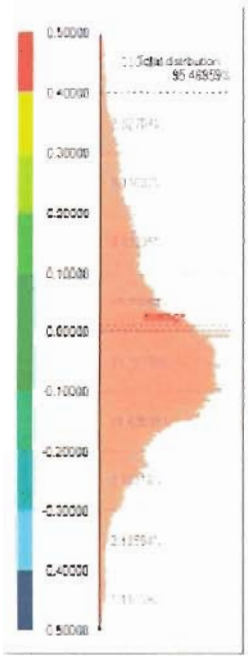
This wing area interface contains a riser pad that will require removal. The rest of the interface seems to be within a +/- 0.2" profile, but due to the color scheme used I cannot tell if it tends toward the plus or minus side of that tolerance. Our layout scan will be clearer in this regard.

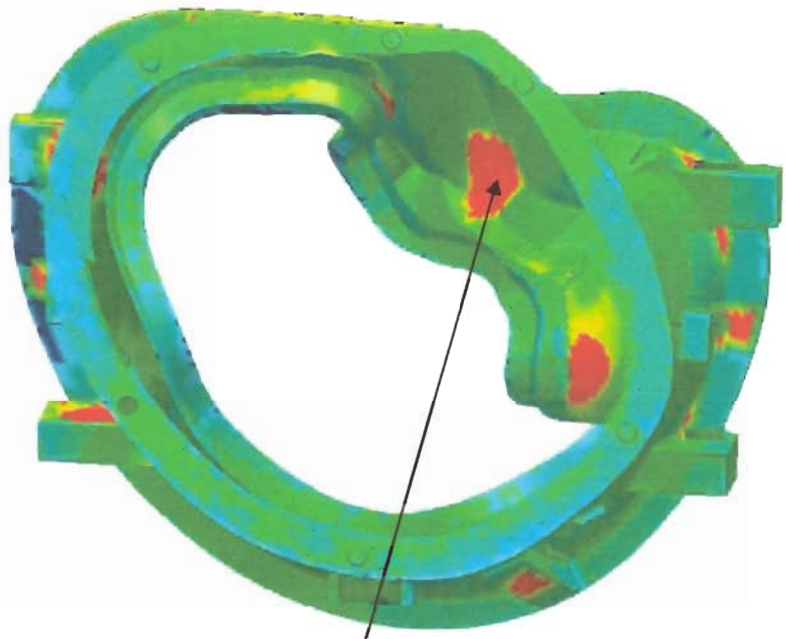
Area 6:



The narrow wing interface here is partially covered by a riser contact that will require removal. The balance of the area is 0.2-0.4" above the intended profile and will require material to be removed.

Area 7:





This wing area interface contains a riser pad that will require removal. The balance of the area is contained within the +/- 0.2" tolerance band, but once again due to the color scheme, I am not able to discern which side of the tolerance the part tends toward. Our scan will show this clearly.

MetalTek INTERNATIONAL

Carondelet Division

8600 Commericial Blvd. - Pevely, MO 63070 USA
Phone: 636-479-4499 - Fax: 636-479-3399

Final Inspection Report

Customer ENERGY INDUSTRIES OF OHIO

Pattern: MCWF-B1 COIL

Order PPPL-FP-LTS-2

ASTM Metal CF8MNMN MOD

Date 2/28/2006

Type Description	Cert Number	Procedure	Acceptance Criteria	Actual
Liquid Penetrant	177210-1	CQP - 300 Rev 9	SEE NOTE	Acceptable
Notes Acceptance per ASTM A903. Acceptance criteria - level 1 for high stressed areas, level 2 for all other areas.				
Mag Perm	177210-1	SOP Mag Perm 100 Rev 1	<1.02	Acceptable
Radiographic	177210-1	Technique # 12726	MSS SP 54	Acceptable
Visual	177210-1	CQP - 500 REV 4	ASTM A802 LEVEL 2	Acceptable

Liquid Penetrant
Technician: Kevin Anderson
ASNT Level II

Visual
Technician: Kevin Anderson
ASNT Level II

Respectfully Submitted,
Charles A. Ruud
Quality Assurance Manager

MetalTek INTERNATIONAL

Carondelet Division

8600 Commercial Blvd. - Pevely, MO 63070 USA
Phone: 636-479-4499 - Fax: 636-479-3399

Certificate of Conformance

ENERGY INDUSTRIES OF OHIO

Order Number PPPL-FP-LTS-2

Pattern MCWF-B1 COIL

ASTM CF8MNMN MOD

Date 2/28/2006

Cert Number

177210-1

We certify that we have complied in accordance with the drawings(s) and specifications(s) listed on the above purchase order. The articles furnished were made and/or processed from parts and/or materials in accordance with all applicable drawings(s) and specifications(s) pursuant to the afore mention purchase order.

Respectfully Submitted,
Charles A. Ruud
Quality Assurance Manager

MetalTek INTERNATIONAL

Carondelet Division

8600 Commericial Blvd. - Pevely, MO 63070 USA
Phone: 636-479-4499 - Fax: 636-479-3399

Final Inspection Report

Customer: ENERGY INDUSTRIES OF OHIO

Pattern: SE-141-058 COIL B SHIM

S/N 1

Order: PPPL-FP-LTS-2

ASTM Metal: CF8MNMN MOD

Date: 2/28/2006

Type Description	Cert Number	Procedure	Acceptance Criteria	Actual
Liquid Penetrant	177360-1	CQP - 300 Rev 9	ASTM A903 Level II	Acceptable
Mag Perm	177360-1	SOP Mag Perm 100 Rev 1	<1.02	Acceptable
Radiographic	177360-1	Technique # 12726	MSS SP 54	Acceptable
Visual	177360-1	CQP - 500 REV 4	ASTM A802 LEVEL 2	Acceptable

Liquid Penetrant
Technician: Kevin Anderson
ASNT Level II

Visual
Technician: Kevin Anderson
ASNT Level II

Respectfully Submitted,
Charles A. Ruud
Quality Assurance Manager

MetalTek INTERNATIONAL

Carondelet Division

8600 Commercial Blvd. - Pevely, MO 63070 USA
Phone: 636-479-4499 - Fax: 636-479-3399

Certificate of Conformance

ENERGY INDUSTRIES OF OHIO

Order Number	PPPL-FP-LTS-2		
Pattern	SE-141-058 COIL B SHIM	S/N 1	
ASTM	CF8MNMN MOD		Date 2/28/2006

Cert Number
177360-1

A shim for B-1 coil was poured from heat number 31455. No weld repairs were necessary.

We certify that we have complied in accordance with the drawings(s) and specifications(s) listed on the above purchase order. The articles furnished were made and/or processed from parts and/or materials in accordance with all applicable drawings(s) and specifications(s) pursuant to the afore mention purchase order.

Respectfully Submitted,
Charles A. Ruud
Quality Assurance Manager

Superior Quality Engineered Metal Products

www.MetalTekInt.Com

EIO
Energy Industries of Ohio
SUPPLIER QUALITY RELEASE

		Date: 2-28-06

I. General Information:			
Project Name:	Modular Coil Winding Form B1		
PO No:	NCSX-SOW-141-02-01	Rev.:	10
Supplier:	MetalTek		
Procurement Agent:	EIO		
Shipment:	☒ Partial ☐ Final		

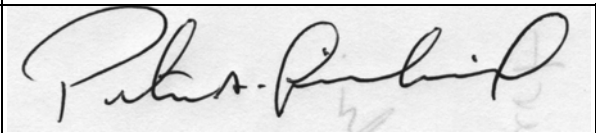
II. Material Description
Casting B1 Coil

III. Release Checklist	
Plan Requirements Complete?	☒ Yes ☐ No ☐ N/A (If identified "No" provide explanation in comments section below)
Variances?	☒ Yes ☐ No ☐ N/A (If identified "No" provide explanation in comments section below)
Princeton Notified of Shipment?	☒ Yes ☐ No ☐ N/A (If identified "No" provide explanation in comments section below)
DCMA Notified of Shipment?	☒ Yes ☐ No ☐ N/A (If identified "No" provide explanation in comments section below)
☒ Conditional ☐ Unconditional	Explain conditional releases in comments section.

IV. Comments
Variances – See attached package for CA's and deviations

By signing below you acknowledge that the casting has met all applicable standards and contractual requirements

V. Supplier Quality Representative Sign Off		
	X 	2-28-06
Supplier Quality Representative (SQR) Print/Type Name	Supplier Quality Representative (SQR) Signature	Date

VI. Supplier Approval For Shipment		
Procurement Agent Notified of Shipment	Date: 2-28-06	
Required Vendor Data Ready for Shipment	Date: 2-28-06	
Peter A Djordjevich	 X	2-28-06

EIO
Energy Industries of Ohio
SUPPLIER QUALITY RELEASE

		Date: 2-28-06

I. General Information:			
Project Name:	Modular Coil Winding Form B1		
PO No:	NCSX-SOW-141-02-01	Rev.:	10
Supplier:	MetalTek		
Procurement Agent:	EIO		
Shipment:	☒ Partial ☐ Final		

Supplier's Representative Print/Type Name	Supplier's Signature	Date

1. Enter:
   Project Name
   PO Number
   Supplier
   Procurement Agent

2. Enter a brief description of items being released, including applicable drawing number(s), dash or item number(s), drawing revision letter, specification(s), and serial number(s).

3. Self-Explanatory

4. Record any unusual circumstance, such as a conditional release.

5. The Supplier's representative shall sign and date.

7. Signature and date of the Supplier's authorized representative indicating shipping date.

8. In case of partial release, the supplier shall maintain copies of each sequential "Supplier Quality Release" and establish complete accountability of material release on final shipment.

9. Supplier shall include a copy of the completed form with each shipment.

Energy Industries of Ohio

Contract # S005242-F

Modular Coil Winding Form

B-1 Documentation Package

Part 2

Major Tool & Machine

10/11/2006

****Note – The table of contents that follows a supplemental EIO TOC as an aide to locating documents. Documents may be duplicated in this package; 1st as an attachment to a NC (not listed) & the 2nd time in the order noted in the MTM TOC.**

B-1 Documentation Package

List of Documents 10-11-2006

ENERGY INDUSTRIES OF OH

Purchase Order Number:
S005242-F

Part Number:
SE141-115

Part Name:
MCWF B-1

MTM Work Order Number:
65708/1.0

Major
Tool & Machine, Inc.

Customer: 8909 - ENERGY INDUSTRIES OF OHIO
Customer P.O.: S005242-F
Customer Part ID: SE141-115 - MCWF B-1

Customer: 8909 - ENERGY INDUSTRIES OF OHIO
Customer P.O.: S005242-F
Customer Part ID: SE141-115 - MCWF B-1

SE141-115 - MODULAR COIL, TYPE B

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
18	1	100		Nondestructive Liquid Penetrant Test Certification #17928
19	1	130		Inspection Data Checklist: 5 steps
20	1	132		Inspection Data Checklist: 101 steps
21	1	134		Map(s): RT MAP AND READER SHEET [mc122177.tif]
22	1	136		Inspection Data Checklist: 2 steps
23	1	160		Nondestructive Liquid Penetrant Test Certification #17994
24	1	170		Inspection Data Checklist: 1 steps

SE141-139 - SHORT BEARING PLATE TYPE "B"

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
25	12	30		Inspection Data Checklist: 1 steps

SE141-140 - LONG BEARING PLATE TYPE "B"

Item#	Sub	Op	Pc	Document Type: Document Description / Material - Material Description [File Name] (Heat Lot)
26	13	30		Inspection Data Checklist: 1 steps

CERTIFICATE OF CONFORMANCE

Date: 10/09/06
User ID: HOUK#

TO: ENERGY INDUSTRIES OF OHIO DATE: 10/09/2006

ATTENTION: Receiving Department

Seller certifies that:

Part Number: SE141-115 Purchase Order: S005242-F

Part Name: MCWF B-1 Workorder: 65708/1.0

Part Serial Number: B-1 Quantity: 1

1. These materials and/or parts were produced in conformance with all contractually applicable Government and/or Customer specifications referred in, or furnished with, the above Purchase Order.
2. The materials and/or parts furnished under the above Purchase Order were produced:

   [X] From materials furnished by Customer for the production of such parts.

   [X] From materials for which the seller has available for examination chemical and/or physical test reports or other evidence of conformance to applicable specifications.
3. All processes required in the production of these part and/or materials are listed below and were performed by a facility or personnel approved or certified by the Seller and the customer when such approval or certification is required by contract.

Certifications are on file at this plant.

Other Requirements:

Signature: _____ Title: Quality Mgr Date: 10/9/06

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
Manufacturing Planning- QA planning- Production Support	65708/1.0 -Sub:0 Op#:10	Closed	9/25/2006	744-P.Schumacher
PREPARE DOCUMENTATION TO PRESENT TO GOVERNMENT SOURCE INSPECTOR.	65708/1.0 -Sub:0 Op#:20	Closed	10/9/2006	840-G.Masood
REVIEW RESULTS FROM THE FOLLOWING INSEPCTIONS:--PENETRANT INSPECTION (PT)--RADIOGRAPHIC INSPECTION (RT)--FINAL DIMENSIONAL INSPECTION--MAG PERMEABILITY--ELECTRICAL RESISTANCE--	65708/1.0 -Sub:0 Op#:30	Closed	10/9/2006	840-G.Masood
ENUSURE PART SURFACES ARE CLEAN AND FREE OF GRIT AND DEBRIS. THE PART IS NOT TO BE OILED.--THE ENTIRE PART IS TO BE WRAPPED IN PLASTIC.--PLACE FOAM ON THE 4X6 BEAMS THAT THE FLANGE WILL BE SITTING ON. LOWER THE PART ONTO THE SKID. SECURE THE CASTING BY LAGGING THROUGH THE FLANGE HOLES INTO THE 4X6 BEAM. PROTECT THE HOLES FROM ANY POSSIBLE DAMAGE FROM THE BOLTS.----SEAL THE PART IN THE PLASTIC.----INSTALL BOX WALLS AND LID USING SCREWS FOR EASY DISASSEMBLY.----MARK THE FOLLOWING ON THE OUTSIDE OF THE CRATE:--MAJOR TOOL--(NAME OF SHIPPER)--P.O. S005242-F--MCWF TYPE B--GROSS WT. (XXXX) LBS.----	65708/1.0 -Sub:0 Op#:40	Closed	10/9/2006	567-R.Hupp
Receive customer supplied material. ----Customer material data package will not be received with the part. This record will be obtained and linked later.----Part Number: SE141-115 Rev: 6--Part Description: PRODUCTION WINDING FORM TYPE-C	65708/1.0 -Sub:1 Op#:10	Closed	3/3/2006	437-J.Hiatt
SETUP 1 - MTMFX -3101 WITH DATUM D SIDE OF PART AGAINST FIXTURE.--SETUP 2 - MTMFX-3100 WITH DATUM E SIDE OF PART AGAINST FIXTURE.----SETUP AND MACHINE THE FLANGE FACES AND FLANGE PERIPHERY TO WITHIN .100- STOCK. USE SCRIBING PROGRAM TO LAY OUT AREAS OF CASTING TO BE BURN OUT.----AFTER COMPLETION OF OPERATION 2- SET CASTING ON CART WITH DATUM E DOWN.	65708/1.0 -Sub:1 Op#:18	Closed	6/23/2006	182-J.Lewis

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
WELD BRACES OVER THE PRE-CUT POLOIDAL BREAK IN THE -T-. SEE RON BACK FOR LOCATION OF BRACES.----BURN OUT SECTIONS OF CASTING ALONG PROVIDED SCRIBE LINES.--PLACE PART ON RISERS OR TIMBERS WITH DATUM E FLANGE DOWN.--DO NOT FLIP PART-MACHINE SHOP WILL NEED IN THIS POSITION FOR NEXT OPERATION. CONNECT THE DOTS USING STRAIGHT EDGE BETWEEN EACH LOCATION TO MARK WHERE CUTTOUTS WILL BE PERFORMED. TORCH ANGLE MUST BE KEPT PERPENDICULAR TO THE HORIZONTAL FLANGE AND PARALLEL TO THE CUT THROUGH PORTION OF FLANGE WHICH WAS REMOVED ON THE MACHINE. THIS WILL BE A VISUAL AID FOR HELPING ALIGN THE TORCH ANGLE AND CONTROL THE KERF. THERE IS APROX 1- OF STOCK LEFT ON PROFILE IF CUT AT THE CONNECTED DOTS. ----PLACE CUTOUTS ON SKID AND MOVE TO SCRAP BIN. MATERIAL IS 300 SERIES STAINLESS.	65708/1.0 -Sub:1 Op#:19	Closed	6/24/2006	767-P.Sheridan
SET CASTING ON RISERS WITH DATUM -E- FLANGE DOWN. TAB DATUM -E- FLANGE TO THE RISER ON EITHER SIDE OF THE BREAK TO PREVENT MOVEMENT AFTER MACHINING THE BREAK THROUGH. WELD CHANNEL BRACE ACROSS THE LARGE CUTOUT ADJACENT TO THE BREAK.--FINISH MACHINE THE POLOIDAL BREAK FLANGE FACES.--ROUGH MACHINE THE OUTSIDE BREAK PROFILE AND DRILL THE FOUR 1- HOLES THRU (2 HOLES ON EITHER SIDE OF BREAK).--FINISH MACHINE INSIDE BREAK TO 2.25- +/- .010. ENSURE THAT FINISHED BREAK SURFACES ARE PARALLEL TO SURFACES FINISHED IN PREVIOUS OPERATION.--INSTALL PLATE ACROSS BREAK ON THE DATUM -E- FLANGE.--INSTALL BREAK SHIM SO THAT OUTER PROFILE AND FLANGE FACES ARE BEST CONDITIONED FOR FINISH MACHINING. --REMOVE THE U-SHAPED BRACE AND TWO DATUM -E- TABS.--CLAMP ACROSS THE THE BREAK FLANGES TO HOLD THE SHIM IN PLACE FOR WELDING.--STITCH WELD SHIM ALONG THE INNER PROFILE OF THE CASTING (6 PLACES ABOVE THE T AND 4 PLACES BELOW).--FINISH MACHINE THE OUTER PROFILE OF SHIM AND BREAK FLANGES.--INSTALL DRILL FIXTURE AND DRILL THRU 7 PLACES 1.625 DIAMETER HOLES.--INSTALL 4 STUDS WITH NUTS AND WASHERS USING SUPPLIED BUSHINGS. THE	65708/1.0 -Sub:1 Op#:20	Closed	7/18/2006	713-M.Smith

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
SET UP FIXTURE PLATE MTMFX-3099 AND MACHINE LOCATING PADS AS NECESSARY.--SET UP CASTING WITH DATUM -E- AGAINST THE FIXTURE.--- MACHINE THE REMAINING PORTION OF THE POLOIDAL BREAK TO 2.050-.--- FINISH MACHINE DATUM -D- WING SURFACES AND ALL AREAS BELOW THE T SECTION.--- MACHINE T SECTION TO WITHIN .030-.--- FINISH MACHINE DATUM -D- FLANGE.--	65708/1.0 -Sub:1 Op#:30	Closed	8/4/2006	806-R.Vannoy
SET UP FIXTURE PLATE MTMFX-3100 AND MACHINE LOCATING PADS AS NECESSARY.--SET UP CASTING WITH DATUM -D- AGAINST THE FIXTURE.--- FINISH MACHINE DATUM -E- WING SURFACES AND ALL AREAS BELOW THE T SECTION.--- MACHINE T SECTION TO WITHIN .030-.--- FINISH MACHINE DATUM -E- FLANGE.--	65708/1.0 -Sub:1 Op#:35	Closed	8/18/2006	806-R.Vannoy
U5 FINAL MACHINING OPERATIONS	65708/1.0 -Sub:1 Op#:50	Closed	9/11/2006	445-J.Purkhiser
COMPLETE MACHINING OF INNER WING CLEARANCES PER PROGRAM.	65708/1.0 -Sub:1 Op#:60	Closed	9/11/2006	535-S.Lentz
SETUP PART WITH DATUM E SIDE UP.--ALL GRINDING WHEELS AND DISKS MUST BE VIRGIN MATERIAL NOT PREVIOUSLY USED ON ANY OTHER MATERIAL TO AVOID MATERIAL CONTAMINATION.----- BLEND ACCESSIBLE AREAS OF THE T SECTION.--- DEBURR WING AREAS TO REMOVE ANY SHARPNESS FROM MACHINING (SCALLOPS DO NOT NEED TO BE REMOVED).--- CHECK ALL ACCESSIBLE T CLEARANCES USING MTMFX-3473 CHECKING FIXTURE--- VERIFY COUNTERBORE CLEARANCES USING MTMFX-3564.----- FLIP PART SO THAT DATUM D IS UP.--	65708/1.0 -Sub:1 Op#:88	Closed	9/14/2006	219-T.Laird

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
DEBURR--ALL GRINDING WHEELS AND DISKS MUST BE VIRGIN MATERIAL NOT PREVIOUSLY USED ON ANY OTHER MATERIAL TO AVOID MATERIAL CONTAMINATION.----- TAP 3/8-16 HOLES USING TAP GUIDE. --- FINISH BLENDING T SECTION.--- HAND GRIND .06- -.09- CHAMFER ON ALL SPLIT LINE EDGES OF POLOIDAL BREAK AND ON ALL THRU HOLES AT POLOIDAL BREAK.--- DEBURR WING AREAS TO REMOVE ANY SHARPNESS FROM MACHINING (SCALLOPS DO NOT NEED TO BE REMOVED).----- USING 1/4- NUMBERS- STAMP NUMBERS ON FACE OF T PER DRAWING. USE DRAWING SE141-116-2MTM REV 6A FOR STAMPING NUMBERS. STAMPING DRAWING IS FOR A -C- CASTING. HOLE NUMBER ONE IS THE HOLE AT THE CENTER OF THE LEAD BLOCKS SLOTS. STAMP EVERY 5TH HOLE (1-5- 10-...THRU 95) STARTING AT LEAD BLOCK SLOT AND MOVING TOWARD POLOIDAL BREAK. DO NOT COUNT THE HOLE IN THE POLOIDAL BREAK SHIM (IF THE SHIM IS STILL INSTALLED AT THE TIME OF STAMPING).--- STAMP THE FOLLOWING USING 1/4- STAMPS IN THE LOCATION SHOWN ON SHEET 1- ZONE C3 OF DRAWING (IN BOX WITH DASHED LINES):--MAJOR TOOL--SE141-115 B1--(PART WEIGHT) LBS.--	65708/1.0 -Sub:1 Op#:90	Closed	9/16/2006	705-B.Hill
PROTECT PART FROM METAL CONTAMINATION DUE TO CONTACT WITH IRON- SPECIFICALLY WHEN RIGGING PART FOR MOVEMENT.--MOVE PART INTO WASH BOOTH. --THOROUGHLY CLEAN AND DRY ALL SURFACES AND HOLES PER SECTION 9 OF PS583. --PARTS TO BE WASHED USING HEATED- DE-MINERALIZED WATER- AND IF NECESSARY- A MILD NON-CHLORINATED CLEANING SOLUTION (E.G. SIMPLE GREEN®- OR AUTHORIZED EQUIVALENT)- USING MTM'S HIGH PRESSURE WASHER. THE SPRAY PRESSURE AT THE NOZZLE WILL BE APPROXIMATELY 1-000 TO 1-500 PSI AND THE CLEANING SOLUTION TEMPERATURE WILL BE APPROXIMATELY 150°F.--HAVE INSPECTION VERIFY THE CLEANLINESS OF THE CASTING PRIOR TO REMOVING FROM THE WASH BOOTH.--	65708/1.0 -Sub:1 Op#:95	Closed	9/16/2006	705-B.Hill

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
PT 100% OF FINISHED MACHINED SURFACES ONLY. SEE PS582 FOR PROCESSING INSTRUCTIONS. ----MTM CERTIFICATION TO INCLUDE THE INFORMATION PER SUPPLEMENTARY REQUIREMENTS S1 OF ASTM A903/A903M----MTM NDT Cert: LPI CERTIFICATION--Specification: ASTM A903/A903M--Method: E165--Acceptance: ASTM A903/A903M LEVEL 1--Part Number: SE141-115 Rev: 8--Part Description: WINDING FORM TYPE-B	65708/1.0 -Sub:1 Op#:100	Closed	9/17/2006	581-D.Edwards
SET PART ON RISERS WITH DATUM -D- FLANGE DOWN. PLACE A RISER ON EITHER SIDE OF THE POLOIDAL BREAK TO ENABLE CLAMPING TO ENSURE THAT THE DATUMS ARE COPLANER. LAY A STRAIGHT EDGE ACROSS THE DATUM -D- FLANGE TO VERIFY ALIGNMENT. ENSURE RADIAL ALIGNMENT BY LAYING A STRAIGHT EDGE ACROSS THE QUALIFIERS CUT ON THE OD OF EACH FLANGE. USE CLAMPS AS NECESSARY TO FORCE THE CASTING INTO POSITION.--ONCE THE ALIGNMENT IS SET- INSTALL THE POLOIDAL BREAK SHIM ASSEMBLY AND ACCOMPANYING HARDWARE AND INSULATION PER THE ASSEMBLY DRAWING.--VERIFY CLEARANCE OF Ø.001- - Ø.002 BETWEEN BUSHING AND BOLT PER DRAWING NOTE 13. RECORD RESULTS IN IDC.--APPLY THRED-GARD ANTI-SEIZE TO HARDWARE PER DRAWING NOTE 10.--TORQUE THE ASSEBMLY TO 1500 FT-LBS.--VERIFY GAP AT POLOIDAL BREAK PER IDC.--Part Number: SE141-115 Rev: 8--Part Description: PRODUCTION WINDING FORM TYPE B	65708/1.0 -Sub:1 Op#:130	Closed	9/19/2006	825-B.Jarrett
-CMM INSPECT DATUM E SIDE OF CASTING. ---PERFORM ALL HARD GAGING OF THE DATUM E SIDE. ---CONDUCT PERMEABILITY CHECK OF DATUM E SIDE PER OPERATION 136.---CONSULT ENGINEERING ON ANY OUT OF TOLERANCE CONDITIONS PRIOR TO FLIPPING THE PART AND STARTING INSPECT	65708/1.0 -Sub:1 Op#:132	Closed	9/27/2006	339-E.Root

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
THE -T- AREAS DEFINED AS -HIGH STRESS- ARE TO BE RT 100%. SEE PS581 FOR PROCESS INSTRUCTIONS. ----USE THE HOLE NUMBERS TO NUMBER THE FILM LOCATIONS AS SHOWN ON THE ATTACHED RT MAP.----ALL FILM IS TO BE DOUBLED UP IN ORDER TO SUPPLY THE CUSTOMER WITH A COMPLETE SET OF FILM.---- SPECIFICATIONS: ASTM A703/A703M SUPPLEMENTARY REQUIREMENT S5----PROCEDURE/METHOD: ASTM E94 AND ASTM E142 (USE OF A WIRE PENETRAMETER MAY BE NECESSARY INSTEAD OF THE HOLE TYPE TO ENSURE OBJECTIVE 2% OF THICKNESS RESOLUTION/SENSITIVITY)----ACCEPTANCE CRITERIA: NO DEFECT LARGER THAN .080- MAJOR DIMENSION IS ALLOWED.---- SCAN RT CERTIFICATION- AND HAND SKETCHED MAP AND LINK IN QAP TO THIS OPERATION.----Part Number: SE141-115 Rev: 9--Part Description: WINDING FORM TYPE-B--Material Type: 316 SST--Material Thickness: VARIES--Map(s): RT MAP AND READER SHEET Rev:	65708/1.0 -Sub:1 Op#:134	Closed	9/23/2006	010-R.Contractor
ORIENT CASTING FOR REMACHINING OF LEAD BLOCK SLOTS.----- MACHINE PAD TO WITHIN .100- OF FINISH. --- WELD REMAINDER OF EACH OF THE 3/8-16 TAPPED HOLES.--- MACHINE PAD TO FINISH AND DRILL AND TAP 3/8-16 HOLES ON LOCATION.--- MACHINE EACH OF THE SLOTS TO THE CORRECT LOCATION. THE SLOT WITH AND LENGTH WILL NOT MEET DRAWING REQUIREMENTS AFTER REWORK BUT THE CUSTOMER WILL ACCEPT.--	65708/1.0 -Sub:1 Op#:135	Closed	9/25/2006	509-S.Roberts

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
PERFORM A MAG PERMEABILITY CHECK OF THE MACHINED SURFACES USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE NO GREATER THAN 1.02µ.----CHECK THE PERMEABILITY IN 3 PLACES ON EACH SIDE OF THE T SECTION AT LOCATIONS ADJACENT TO EVERY 5TH HOLE STARTING WITH HOLE 5 AND ENDING WITH HOLE 95. INSPECT ONE POINT ON THE T SECTON- ANOTHER BELOW THE VPI GROOVE AND THE LAST POINT ON THE FLANGE. REPEAT THIS PROCESS ON BOTH SIDES OF THE PART. THERE WILL BE A TOTAL OF 57 POINTS INSPECTED PER SIDE. ----COMPLETE THE IDC INDICATING THE PERMEABILITY RANGE.--Part Number: SE141-115 Rev: 8--Part Description: PRODUCTION WINDING FORM TYPE-B	65708/1.0 -Sub:1 Op#:136	Closed	9/14/2006	053-M.Dunn
THE RESISTANCE OF THE MID-PLANE ELECTRICAL INSULATION SHALL BE GREATER THAN 500 KOHMS WHEN TESTED AT 100 VDC.----TEST 1:--THE INSULATION RESISTANCE BETWEEN THE MID-PLANE POLOIDAL BREAK SHIM AND WINDING FORM SHALL BE MEASURED. DURING THIS TEST- THE BOLTS SHOULD BE IN THEIR NORMAL STATE (I.E.- ELECTRICALLY -FLOATING-). THE MID-PLANE SHIM SHALL BE CONNECTED TO ONE SIDE OF THE MEGGER- AND THE CASTING SHALL BE CONNECTED TO THE OTHER. RECORD RESULTS IN IDC.----TEST 2:--ALL OF THE BOLTS SHALL BE ELECTRICALLY CONNECTED (JUMPERED) TOGETHER IN ONE GROUP. THE MID-PLANE CASTING (SHIM) AND THE WINDING FORM SHALL BE ELECTRICALLY CONNECTED TOGETHER IN A SECOND GROUP. THE INSULATION RESISTANCE BETWEEN THE JUMPERED BOLTS (GROUP 1) AND THE JUMPERED WINDING FORM AND MID-PLANE (GROUP 2) SHALL BE MEASURED FOR COMPLIANCE. RECORD RESULTS IN IDC.----Part Number: SE141-102 (RESISTANCE CHECK)--Part Description: MCWF ASSEMBLY TYPE-B	65708/1.0 -Sub:1 Op#:140	Closed	9/18/2006	503-B.Houk
PERFORM FINAL COSMETICS AS REQUIRED.--THOROUGHLY CLEAN CASTING WITH ISOPROPYL ALCOHOL. VERIFY THAT ALL HOLES ARE CLEAN AND FREE OF CHIPS.	65708/1.0 -Sub:1 Op#:150	Closed	9/25/2006	219-T.Laird

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
NC 20475--PT THE LEAD BLOCK PAD PER THE FOLLOWING.---------- MTM NDT Cert: NC 20475 PT CHECK--Specification: ASTM A903/A903M--Method: E165--Acceptance: ASTM A903/A903M LEVEL 1--Part Number: SE141-115 Rev: 8--Part Description: WINDING FORM TYPE-B	65708/1.0 -Sub:1 Op#:160	Closed	9/25/2006	581-D.Edwards
PERFORM A MAG PERMEABILITY CHECK OF THE LEAD BLOCK PAD USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE NO GREATER THAN 1.02µ.----COMPLETE THE IDC INDICATING THE PERMEABILITY RANGE.--Part Number: SE141-115 Rev: 8--Part Description: PRODUCTION WINDING FORM TYPE-B	65708/1.0 -Sub:1 Op#:170	Closed	9/25/2006	503-B.Houk
CHECK THE INNER AND OUTER AS-CAST SURFACES USING THE SEVERN PERMEABILITY GAGE. CASTING PERMEABILITY MUST BE LESS THAN 1.02. MARK ANY AREAS THAT ARE 1.02 OR GREATER. USE A GRID SIZE OF APPROXIMATELY 4-. ALSO CHECK ANY POROUS AREAS BECAUSE THESE TEND TO TRAP FERROMAGNETIC SAND WHICH LEADS TO HIGH PERMEABILITY.	65708/1.0 -Sub:18 Op#:10	Closed	9/26/2006	503-B.Houk
GRIND THE AREAS OF HIGH PERMEABILITY AND HAVE QUALITY REINSPECT.	65708/1.0 -Sub:18 Op#:20	Closed	9/26/2006	503-B.Houk
DEBURR POLOIDAL BREAK FLANGE.--HAND GRIND A .06- - .09- CHAMGER ON ALL PERIMETER BREAK EDGES (BOTH SIDES) AND ALL THRU HOLES (BOTH SIDES).	65708/1.0 -Sub:19 Op#:20	Closed	9/17/2006	524-G.Davis
INSTALL BREAK SHIM AND TEMPORARY ALUMINUM SHIM PLATES. USE TAPERED PINS TO ALIGN HOLES AND INSTALL THE FOUR SLAVE BOLTS AND BUSHINGS. USE ANTI-SIEZE ON THE BOLTS TO PREVENT GAULDING. TORQUE THE ASSEMBLY TO PREVENT MOVEMENT (500-1000 FT-LBS). THIS IS ONLY TEMPORARY AND ALIGNMENT IS NOT CRITICAL.	65708/1.0 -Sub:19 Op#:30	Closed	9/18/2006	771-B.Schultz
MACHINE APPROXIMATELY .06- OFF EACH SIDE OF BREAK SHIM. SHIM THICKNESS TO FINISH AT 2.125- +/- .005.--CHAMFERS WILL BE HAND GROUND DURING NEXT OPERATION.	65708/1.0 -Sub:20 Op#:10	Closed	9/14/2006	506-R.Liston
HAND GRIND .06- - .09- CHAMFER ON PERIMITER OF SHIM AND BOTH ENDS OF HOLES.--HAVE TOOL ROOM VERIFY THE SIZE OF THE HOLES IN ORDER TO SIZE THE BUSHINGS.	65708/1.0 -Sub:20 Op#:20	Closed	9/15/2006	407-R.Thomas
RECEIVE CUSTOMER SUPPLIED CASTING	65708/1.0 -Sub:2 Op#:10	Closed	3/3/2006	437-J.Hiatt

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
MACHINE THE SHIM COMPLETE PER THE DRAWING AND CNC PROGRAMS.	65708/1.0 -Sub:2 Op#:20	Closed	5/12/2006	506-R.Liston
PRE FIT EACH BUSHING TO MAKE SURE THEY SLIP INTO THE POLOIDAL BREAK FLANGE HOLES.--APPLY LOCTITE 411 TO THE OD OF EACH BUSHING AND INSTALL FLUSH TO ONE SIDE OF THE BREAK SHIM. GRIND THE OPPOSITE SIDE OF THE BUSHINGS FLUSH TO THE SHIM.	65708/1.0 -Sub:2 Op#:30	Closed	9/18/2006	771-B.Schultz
Programming for the -B- Shim	65708/1.0 -Sub:11 Op#:10	Closed	6/29/2006	219-T.Laird
SAW 16- LENGTH BAR AND MOVE TO THE NEXT WORK CENTER.	65708/1.0 -Sub:3 Op#:10	Closed	6/4/2005	227-D.Bockover
MACHINE OD OF BUSHING .001- - .002- SMALLER THAN SIZE OF THE HOLES IN POLOIDAL BREAK SHIM. IF HOLE SIZES VARY- MARK THE SHIM AND BUSHINGS 1 THRU 7.--MACHINE THE ID OF THE BUSHING TO 1.380 +/- .001--MACHINE THE LENGTH TO 2.19-. BUSHINGS WILL BE GROUND FLUSH DURING INSTALLATION.	65708/1.0 -Sub:3 Op#:20	Closed	9/16/2006	150-J.Fox
RECEIVE MATERIAL--NOTIFY CFT AND FORWARD MATERIAL STORES.	65708/1.0 -Sub:4 Op#:10	Closed	6/1/2005	131-W.Allen
SAW OFF 30- AND MOVE TO THE NEXT WORK CENTER.	65708/1.0 -Sub:5 Op#:10	Closed	6/4/2005	227-D.Bockover
MACHINE PER THE DRAWING FOR A .001- - .002- SLIP FIT WITH THE MATING DETAIL. --MEASURE THE HOLE SIZES IN THE TWO CASTING FLANGES AND SIZE THE BUSHINGS ACCORDINGLY. IF THE HOLE SIZES VARY- MARK EACH BUSHING 1 THRU 14 AND MAP OUT THE CORRESPONDING HOLE LOCATIONS ON THE PART.--MACHINE THE LENGTH OF EACH BUSHING TO 1.38- MINIMUM.	65708/1.0 -Sub:5 Op#:20	Closed	9/16/2006	150-J.Fox
SAW OFF 13- AND MOVE TO THE NEXT WORK CENTER.	65708/1.0 -Sub:6 Op#:10	Closed	6/1/2005	227-D.Bockover
RECEIVE MATERIAL	65708/1.0 -Sub:7 Op#:10	Closed	4/5/2005	131-W.Allen
MACHINE THE G-11 SHIM PIECES:--THERE ARE TWO PROGRAMS- ONE FOR EACH SIDE OF THE BREAK SHIM.--EACH PROGRAM WILL GENERATE 3 SHIM PIECES FOR A TOTAL OF 6 PIECES FOR THIS OPERATION.	65708/1.0 -Sub:7 Op#:20	Closed	7/27/2006	296-D.Stallsworth
Shear the following pices:--1pc - 35.50 x 15.00--1pc - 18.00 x 5.00--1pc - 12.50 x 4.50--	65708/1.0 -Sub:14 Op#:10	Closed	6/7/2006	483-R.Lester
MACHINE FIXTURE PLATES. SEE CHAD EASTMAN FOR INSTRUCTIONS.	65708/1.0 -Sub:14 Op#:20	Closed	7/26/2006	296-D.Stallsworth
SAW PER MATERIAL CARD	65708/1.0 -Sub:8 Op#:10	Closed	1/24/2006	266-R.Keith

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
MACHINE COMPLETE PER PRINT AND COMPLETE IDCS.----Part Number: SE141-139--Part Description: BEARING PLATE SHORT TYPE -B-	65708/1.0 -Sub:8 Op#:20	Closed	2/22/2006	164-L.Freeland
PERFORM A MAGNETIC PERMEABILITY CHECK USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE NO GREATER THAN 1.03µ.----Part Number: SE141-139--Part Description: BEARING PLATE SHORT TYPE -B-	65708/1.0 -Sub:8 Op#:30	Closed	2/23/2006	503-B.Houk
SAW PER MATERIAL CARD	65708/1.0 -Sub:9 Op#:10	Closed	1/24/2006	266-R.Keith
MACHINE COMPLETE PER PRINT AND COMPLETE IDCS.----Part Number: SE141-140--Part Description: BEARING PLATE LONG TYPE -B-	65708/1.0 -Sub:9 Op#:20	Closed	2/15/2006	565-S.Woods
PERFORM A MAGNETIC PERMEABILITY CHECK USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE NO GREATER THAN 1.03µ.----Part Number: SE141-140--Part Description: BEARING PLATE LONG TYPE -B-	65708/1.0 -Sub:9 Op#:30	Closed	3/1/2006	667-J.Bannister
RECEIVE HARDWARE- SCAN CERTIFICATIONS AND COMPLETE IDC.--MOVE TO STORES--	65708/1.0 -Sub:10 Op#:10	Closed	5/21/2006	854-R.Upchurch
PLACE THE FOLLOWING IN STORES:--7 PCS - DS141-036 STUD--14 PCS - DS141-060 NUT	65708/1.0 -Sub:10 Op#:20	Closed	5/23/2006	471-C.Lowell
NO CERTIFICATIONS REQUIRED.--VERIFY QUANTITY AND FORWARD PARTS TO NEXT WORK CENTER.	65708/1.0 -Sub:12 Op#:10	Closed	6/1/2006	437-J.Hiatt
MACHINE COMPLETE PER PRINT	65708/1.0 -Sub:12 Op#:20	Closed	7/5/2006	506-R.Liston
PERFORM A MAGNETIC PERMEABILITY CHECK USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE NO GREATER THAN 1.02µ.--Part Number: SE141-139--Part Description: BEARING PLATE TYPE -B- SHORT	65708/1.0 -Sub:12 Op#:30	Closed	7/9/2006	854-R.Upchurch
NO CERTIFICATIONS REQUIRED.--VERIFY QUANTITY AND FORWARD PARTS TO NEXT WORK CENTER.	65708/1.0 -Sub:13 Op#:10	Closed	6/1/2006	437-J.Hiatt
MACHINE COMPLETE PER PRINT	65708/1.0 -Sub:13 Op#:20	Closed	7/13/2006	506-R.Liston
PERFORM A MAGNETIC PERMEABILITY CHECK USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE NO GREATER THAN 1.02µ.--Part Number: SE141-140--Part Description: BEARING PLATE TYPE -B- LONG	65708/1.0 -Sub:13 Op#:30	Closed	7/16/2006	854-R.Upchurch

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 20475

Date: 09/15/06
User ID: GRIFFITH

Customer: ENERGY INDUSTRIES OF OHIO
Contact: NANCY HORTON
E-Mail: NKHFlowen@aol.com
Telephone: 216-496-2314
Fax: 216-328-2001

Part: SE141-115 / MODULAR COIL, TYPE B
Drawing ID: SE141-115 Revision: 8
W/O Links: 1-Type:W: 65708/1.0 Sub: 1
Customer P.O.: S005242-F/Ln:1
Serial No./Qty: B1 & B2

Reported By: MIKE GR TH
E-Mail: mGriffith@MajorTool.com
Telephone: 317-636-6433
Fax: 317-634-9420

Problem: B1
- Location of Lead Block slots are shifted in two axes as much as .200".
- 3/8-16 UNC holes are off the same amount and in the same direction as the slots.
- Height of pad between the lead blocks is plus stock as much as .5".

B2
- Location of Lead Block slots are shifted in two axes as much as .200".
- 3/8-16 UNC holes will fit within the bounds of the pad and will not require the proposed rework approved under NC 20338.

Proposed Disposition:

Proposed Remedial Action:
B1
- Machine Lead Block slots per drawing requirements. Slots will be oversized but accepted as is.
- Machine pad face to within .100" of finish dimension. Weld 3/8-16 tapped holes solid.
- Face pad to finish and drill/tap holes on location per drawing.

B2
- Machine Lead Block slots per drawing requirements. Slots will be oversized but accepted as is.
- Drill and tap 3/8-16 holes.

Number of additional pages: None

Customer Disposition: **[ ] Use As Is** **[X] Rework** **[ ] Repair** **[ ] Scrap** **[ ] Replace**

EIO's proposed disposition described above is accepted. This was discussed and agreed to in a teleconference on 9/15/06 at 10:30 AM (attendees: D. Williamson; J. Chrzanowski; L. Sutton; P. Heitzenroeder; M. Griffith; N. Horton; R. Sheppard).

Accepted by:

Phil Heitzenroeder
Digitally signed by Phil Heitzenroeder
DN: cn=Phil Heitzenroeder, c=US, o=PPPL, ou=Mech. Eng. Division
Date: 2006.09.15 14:01:04 -04'00'

Tech. Rep.

Brad Nelson
Digitally signed by Brad Nelson
DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED, email=nelsonbe@ornl.gov
Date: 2006.09.20 14:09:52 -04'00'

RLM

Mike Griffith
Digitally signed by Mike Griffith
DN: cn=Mike Griffith, c=US, o=Major Tool and Machine, ou=CFT - White, email=mgriffith@majortool.com
Reason: I agree to the terms defined by the placement of my signature on this document
Date: 2006.09.27 07:14:29 -04'00'

Major Tool Implemented By: _____ **Title:** _____ **Date:** _____

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/Open /WO:65708-1

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 20483

Date: 09/17/06
User ID: GRIFFITH

Customer: ENERGY INDUSTRIES OF OHIO
Contact: NANCY HORTON
E-Mail: NKHFlowen@aol.com
Telephone: 216-496-2314
Fax: 216-328-2001

Part: SE141-115 / MODULAR COIL, TYPE B
Drawing ID: SE141-115 Revision: 8
W/O Links: 1-Type:W: 65708/1.0 Sub: 1
Customer P.O.: S005242-F/Ln:1
Serial No./Qty: B1

Reported By: MIKE GRIFFITH
E-Mail: mGriffith@MajorTool.com
Telephone: 317-636-6433
Fax: 317-634-9420

Problem: PART IS REJECTED PER ASTM A903/A903M LEVEL 1.
SEE ATTACHMENT FOR SIZES AND LOCATIONS.

Proposed Disposition:
MTM proposes that indications be accepted as is.

Number of additional pages: 11 page PT summary

Customer Disposition: **X Use As Is** **[ ] Rework** **[ ] Repair** **[ ] Scrap** **[ ] Replace**

These indications were reviewed during a conference call on 9/19 that was attended by J. Chrzanowski, D. Williamson, F. Malinowski, L. Sutton, M. Griffith, N. Horton, P. Djordjevich, and P. Heitzenroeder
All are located in low stress areas, and were consequently accepted as is. We requested that M. Griffith check #4 and 14 for magnetic permeability since these appeared to be cavities which could contain foreign material; he confirmed by e-mail on 9/20 that the check was made, and that both passed. During discussions it was noted that the clusters of indications are most likely caused by loose sand, oxide particles, etc, which were not washed out during the molten stage due to flow obstructions such as corners or poor communication of those regions with risers and gating.

Approved by:

Phil Heitzenroeder
Digitally signed by Phil Heitzenroeder
DN: cn=Phil Heitzenroeder, c=US, o=PPPL, ou=Mech. Eng. Division
Date: 2006.09.20 16:19:36 -04'00'

Tech. Rep.

Brad Nelson
Digitally signed by Brad Nelson
DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED, email=nelsonbe@ornl.gov
Date: 2006.09.22 16:13:20 -04'00'

RLM

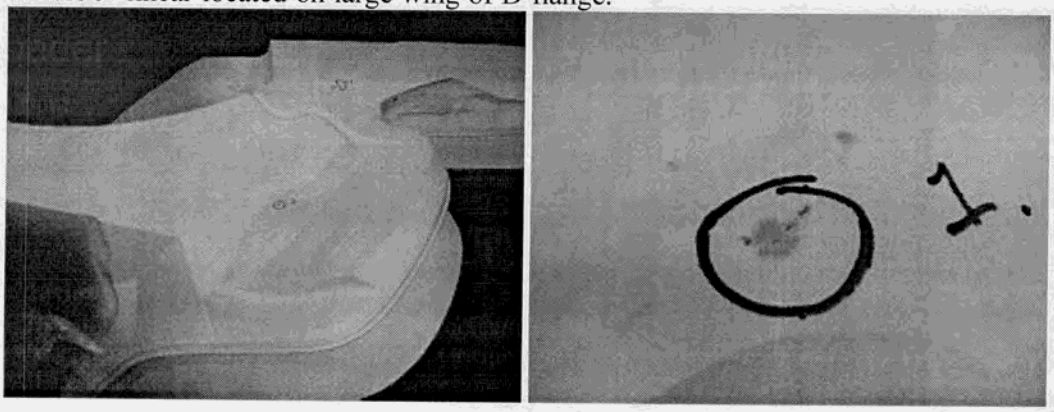
Major Tool Implemented By: Mike Griffith
Digitally signed by Mike Griffith
DN: cn=Mike Griffith, c=US, o=Major Tool and Machine, ou=CFT - White, email=mgriffith@majortool.com
Reason: I agree to the terms defined by the placement of my signature on this document.
Date: 2006.09.27 07:15:38 -04'00'

Title: _____ **Date:** _____

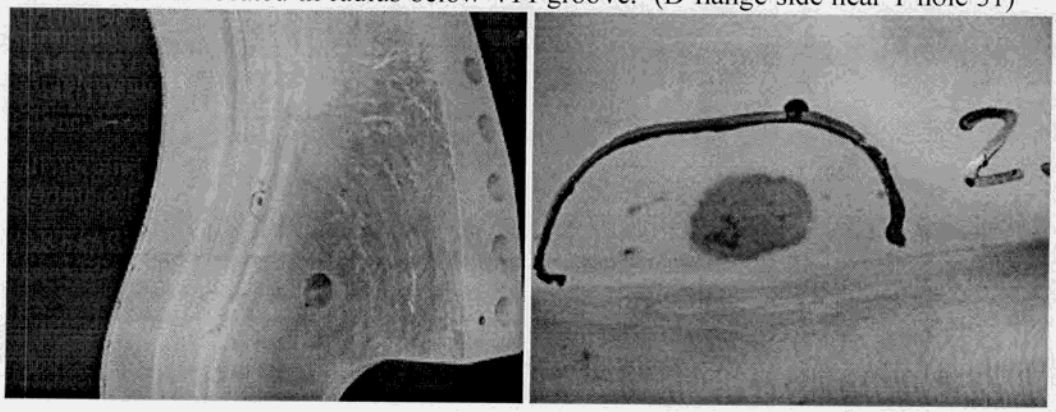
n:\mtmapps\Mtnonc14.qrp

PT Inspection Results of B1 – NC20483

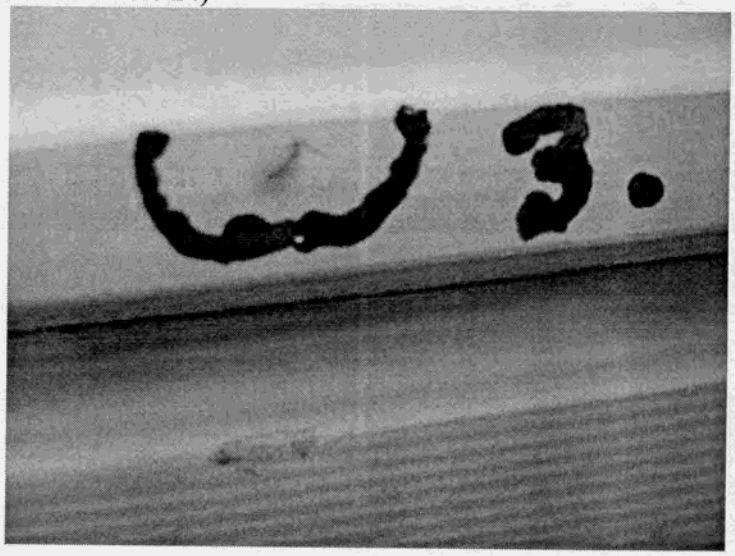
1. .250" linear located on large wing of D flange.



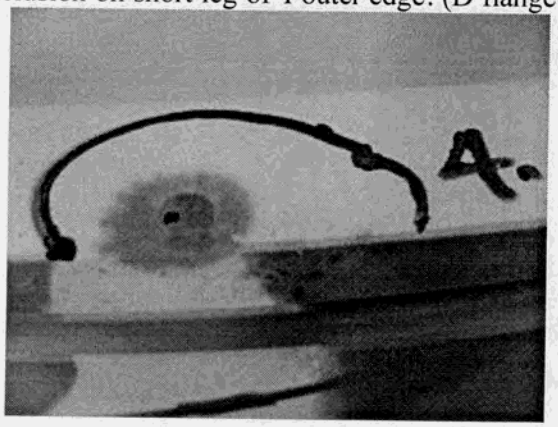
2. .350" linear located in radius below VPI groove. (D flange side near T hole 31)



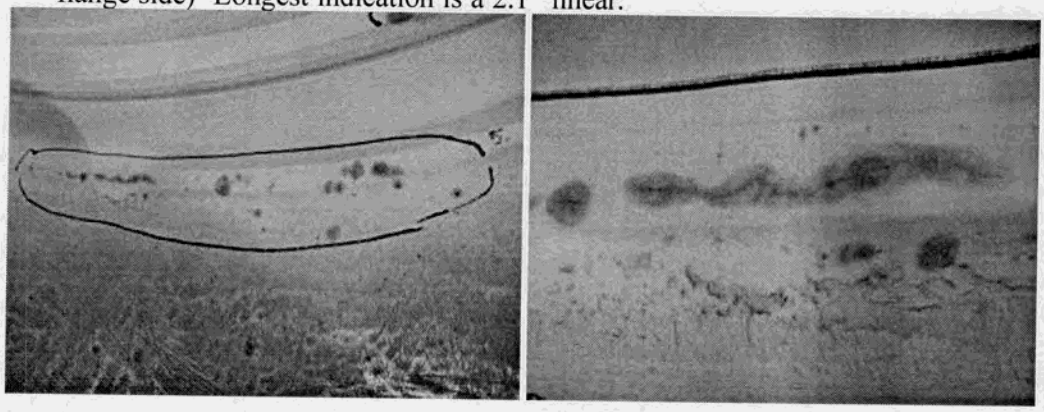
3. .150" linear located on small land between VPI groove and short leg of T. (D flange side near T hole 24)



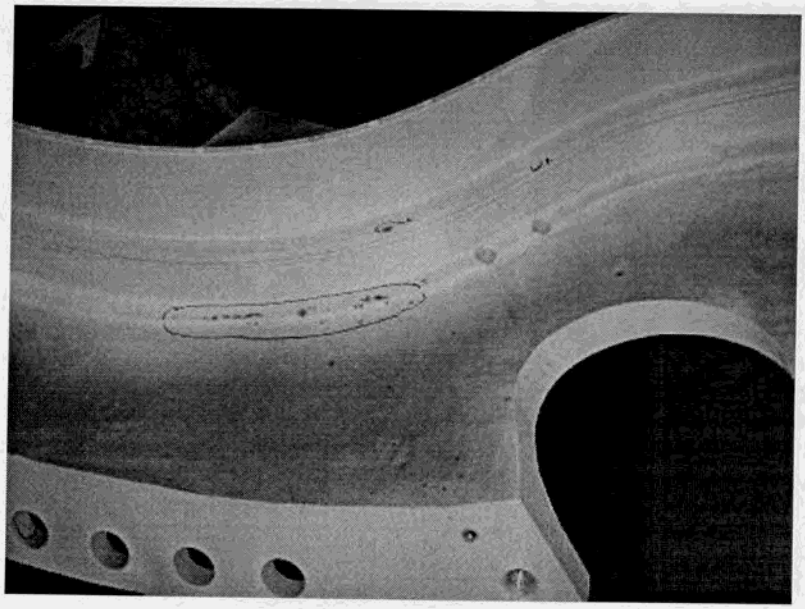
4. .250" rounded inclusion on short leg of T outer edge. (D flange side near hole 22)



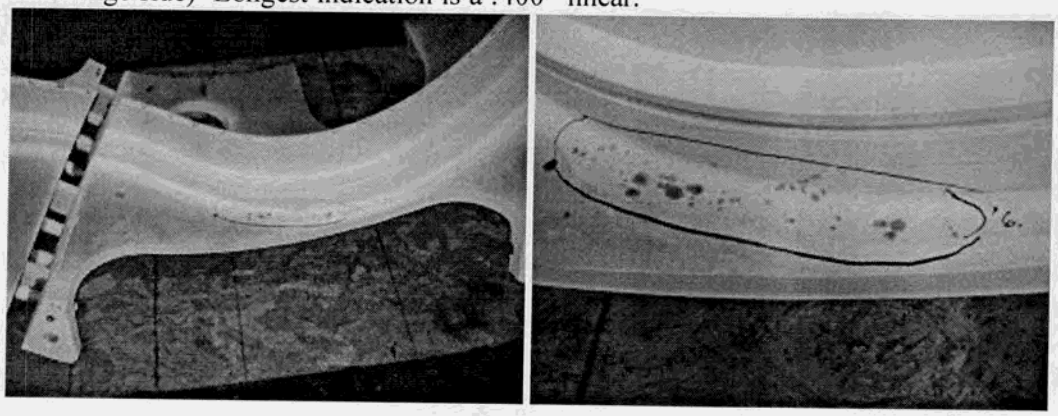
5. Cluster of indications in radius below VPI groove between T holes 18 and 22. (D flange side) Longest indication is a 2.1" linear.

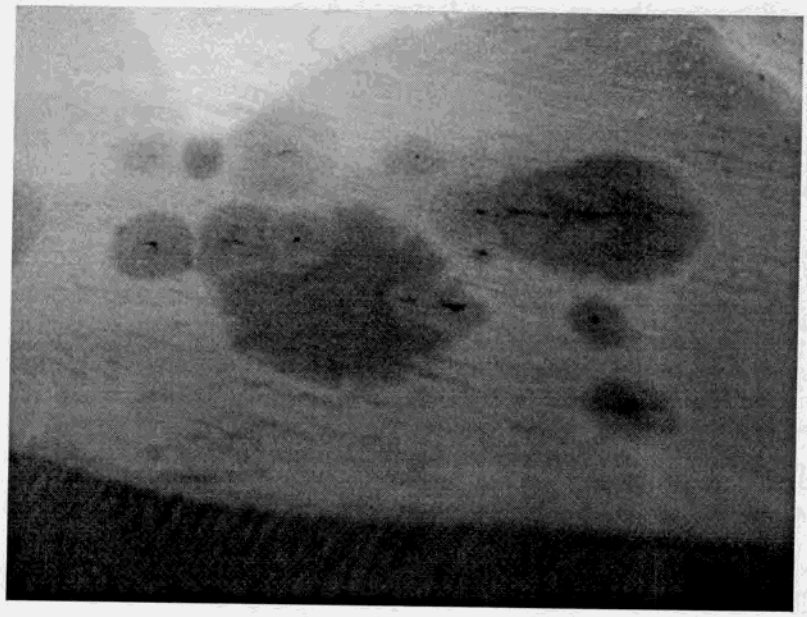


Picture at right is location of reject numbers 3, 4 and 5.

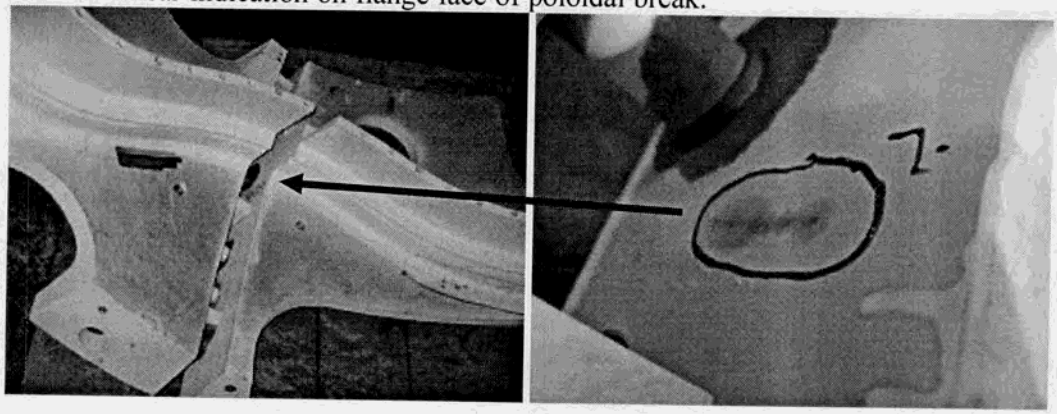


6. Cluster of indications in radius below VPI groove between T holes 8 and 12. (D flange side) Longest indication is a .400" linear.

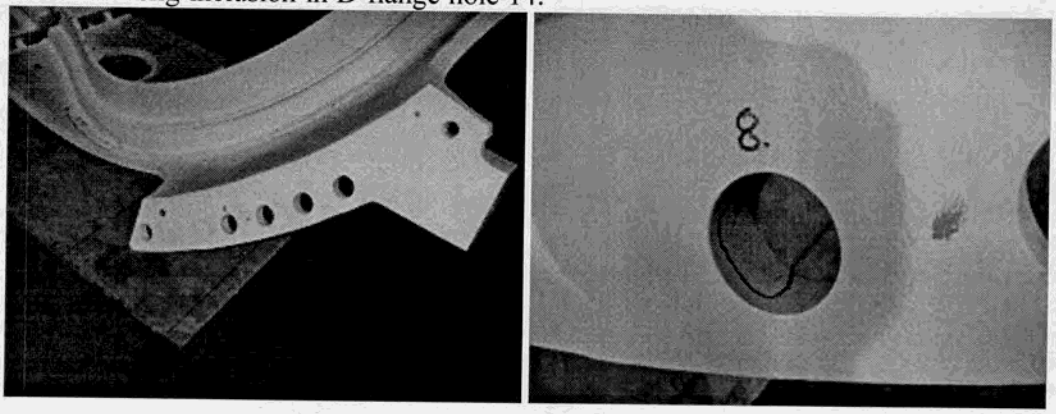


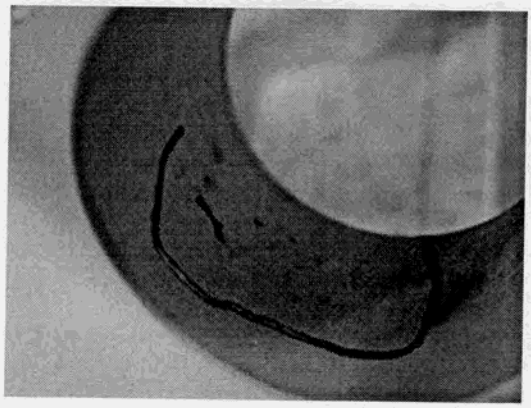


7. 1.6" linear indication on flange face of poloidal break.

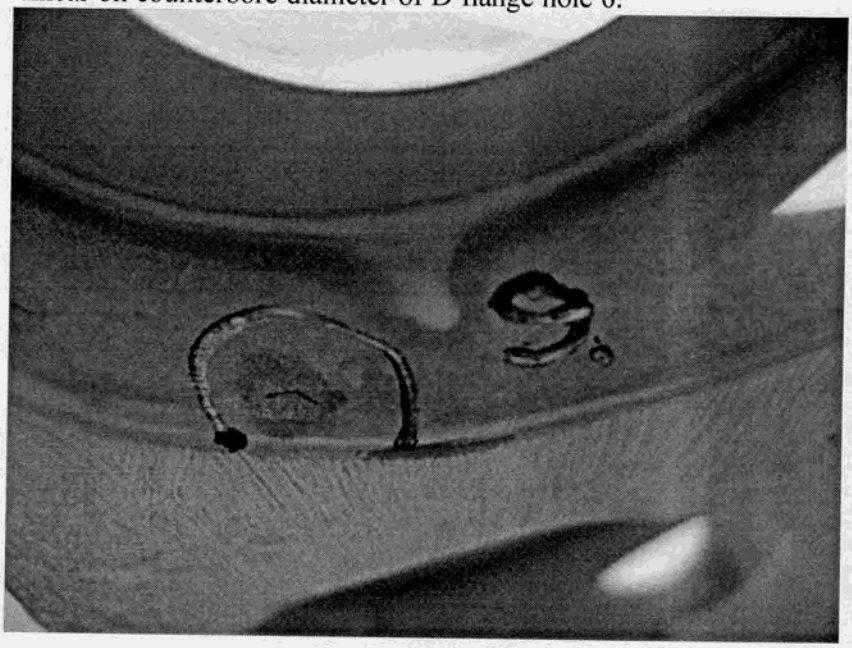


8. .300" long inclusion in D flange hole 14.

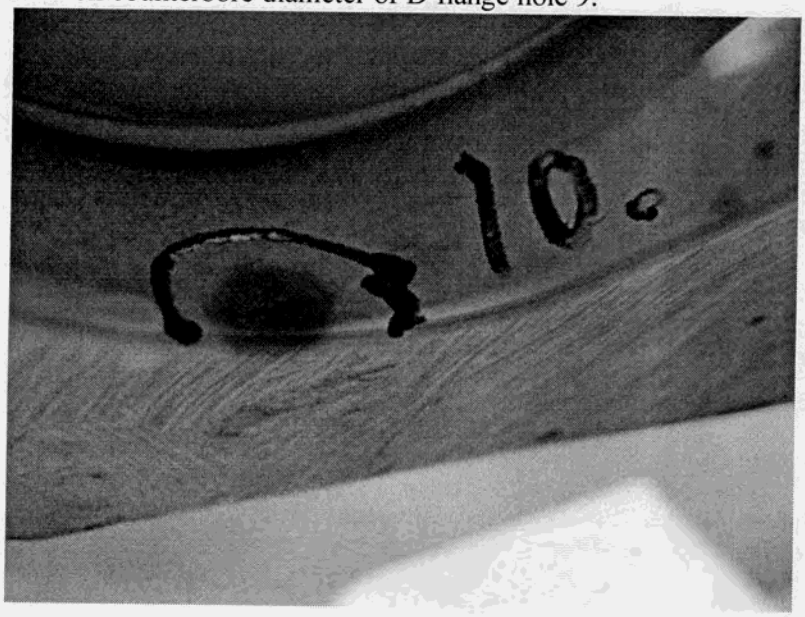




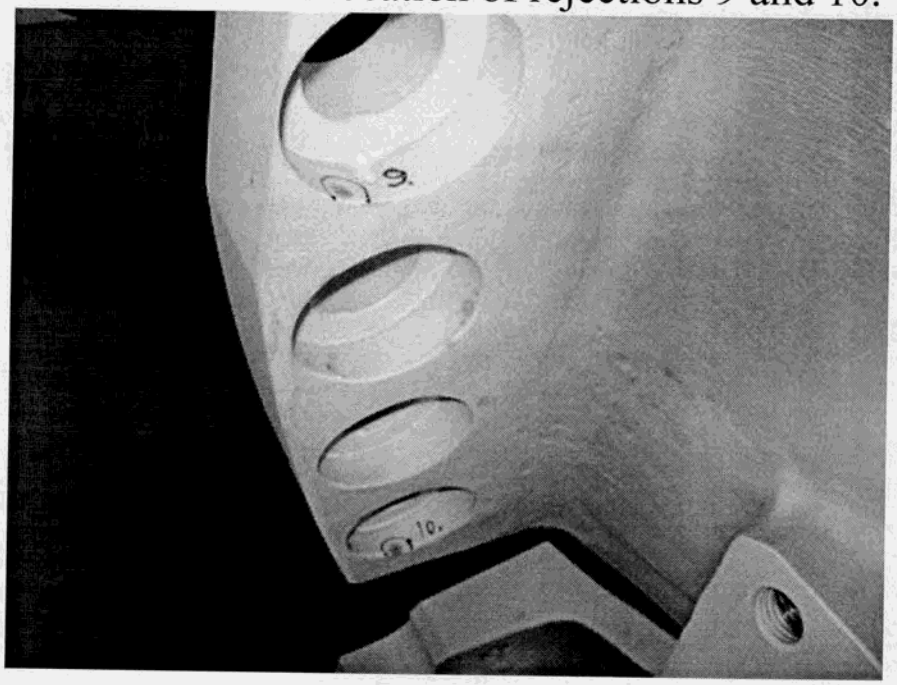
9. .200" linear on counterbore diameter of D flange hole 6.



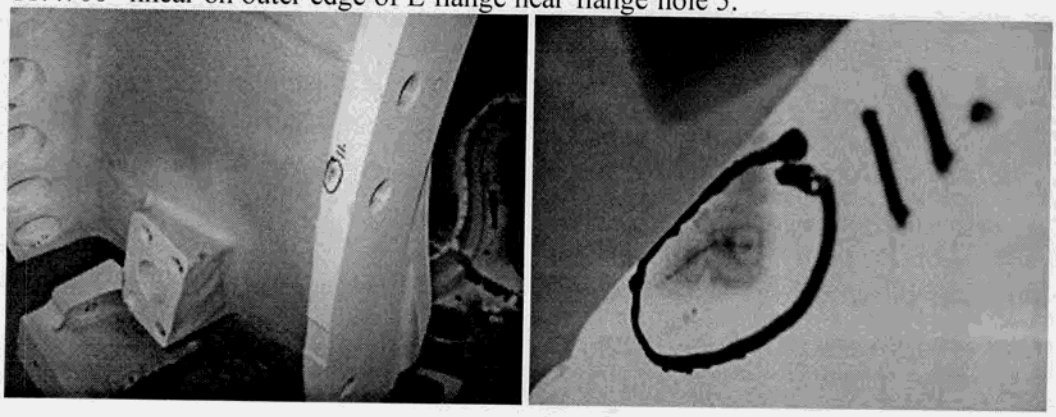
10. .200" linear on counterbore diameter of D flange hole 9.



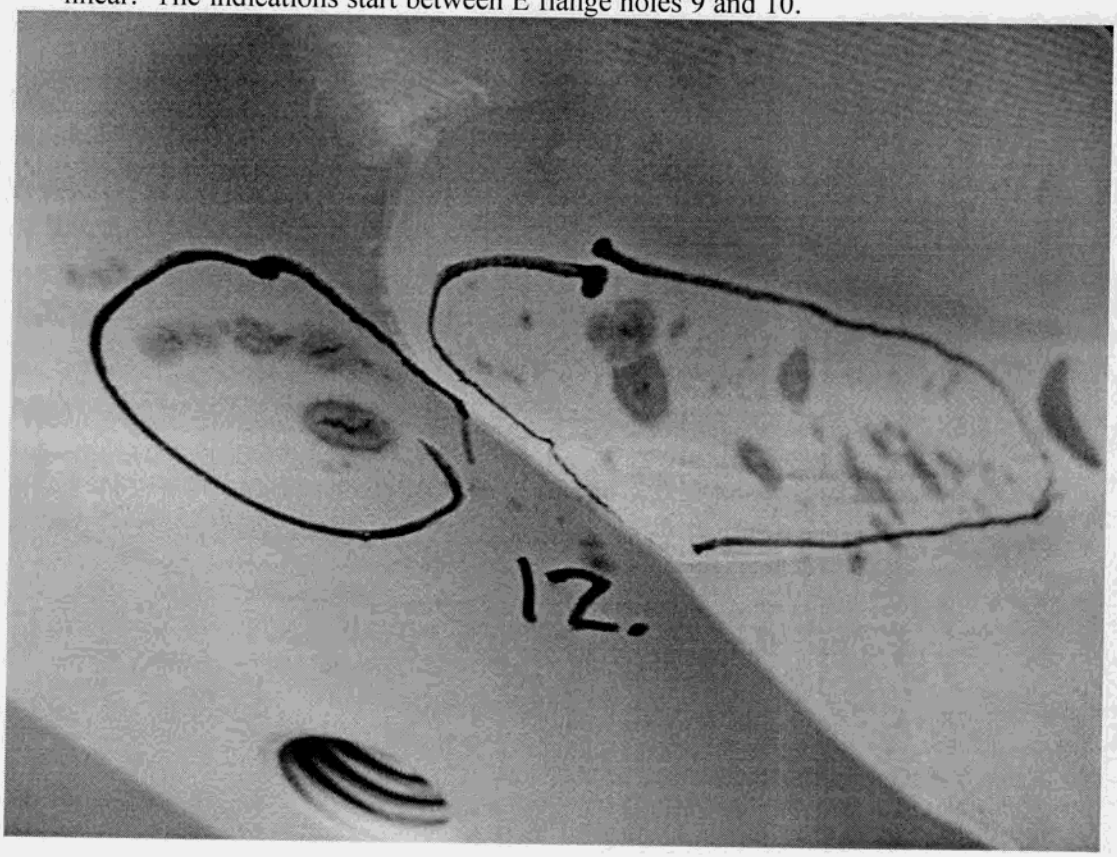
Picture below is location of rejections 9 and 10.



11. .700" linear on outer edge of E flange near flange hole 5.

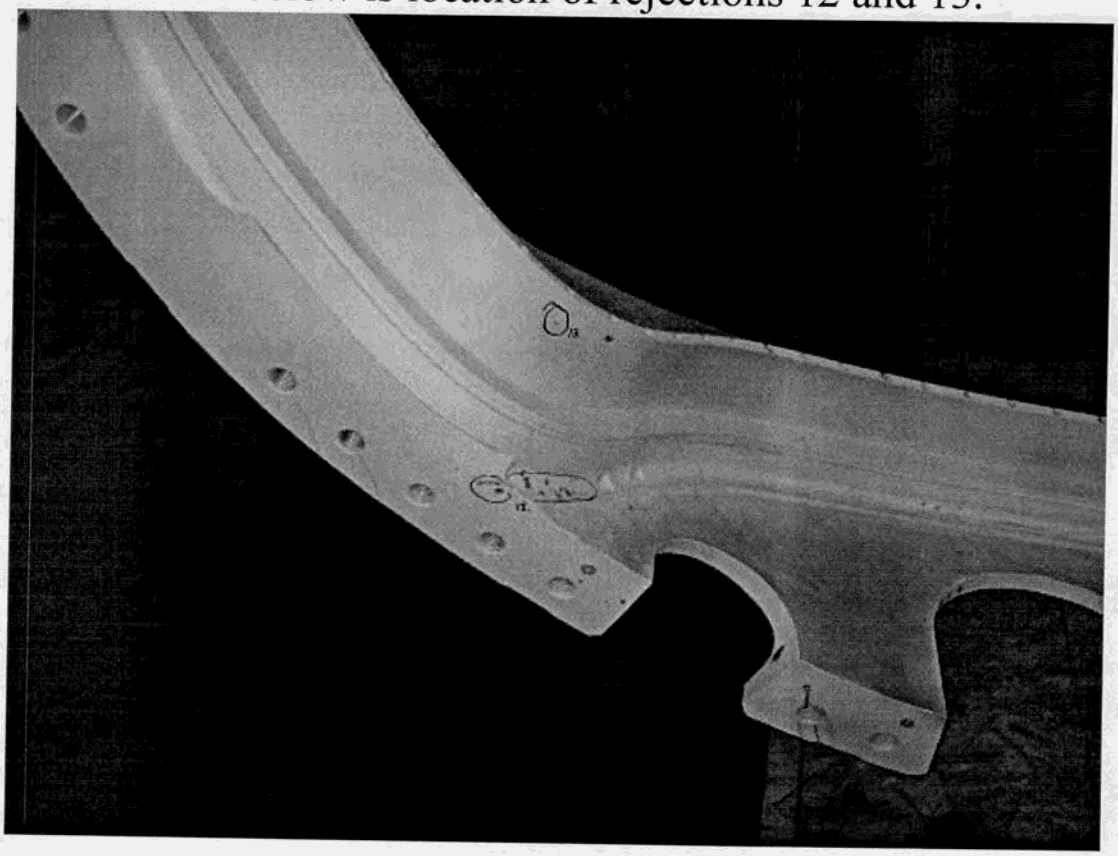


12. Cluster of indications that start on the E flange face and wrap around to the inside of the casting in the radius below the VPI groove. The longest indication is a .300" linear. The indications start between E flange holes 9 and 10.

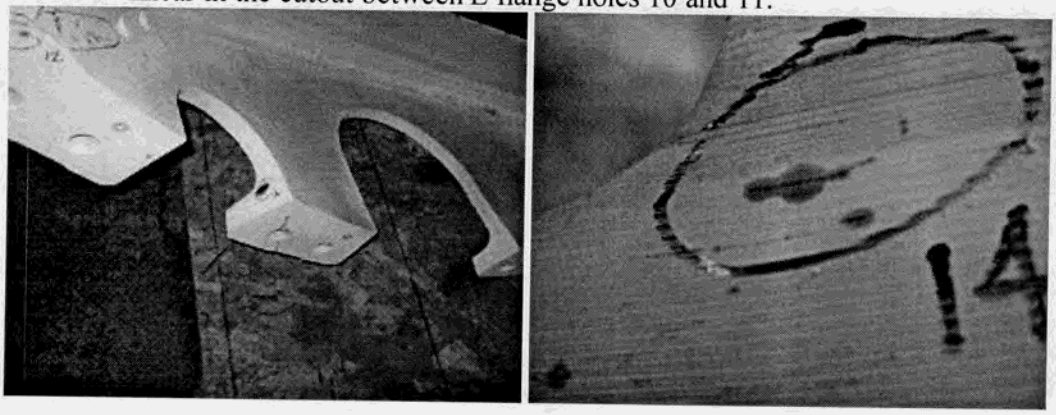


13. .200" linear on long leg of T. (E side near T hole 27)

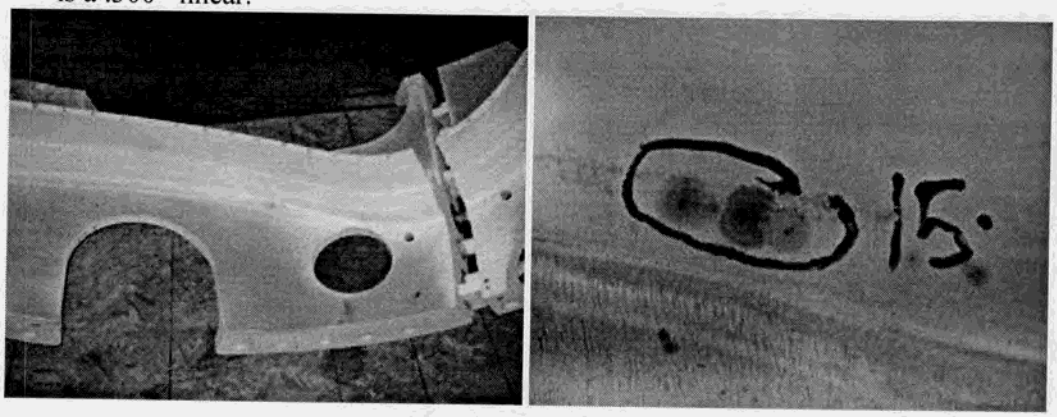
Picture below is location of rejections 12 and 13.



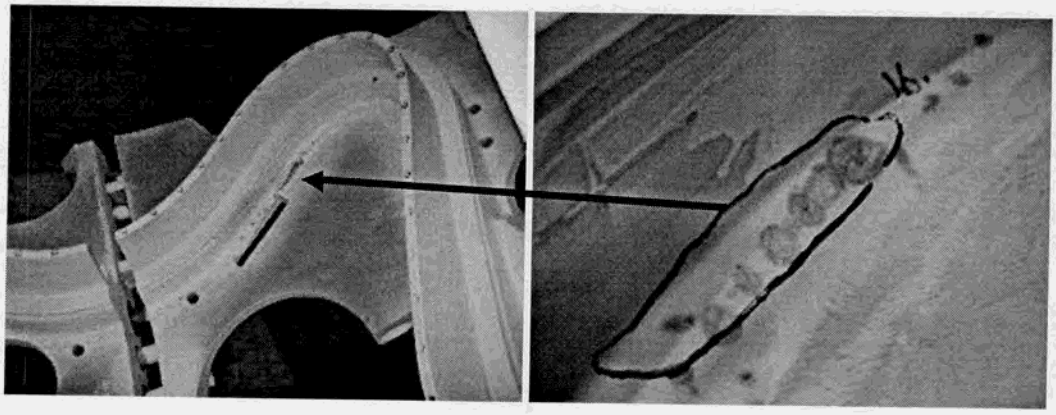
14. .700" linear in the cutout between E flange holes 10 and 11.



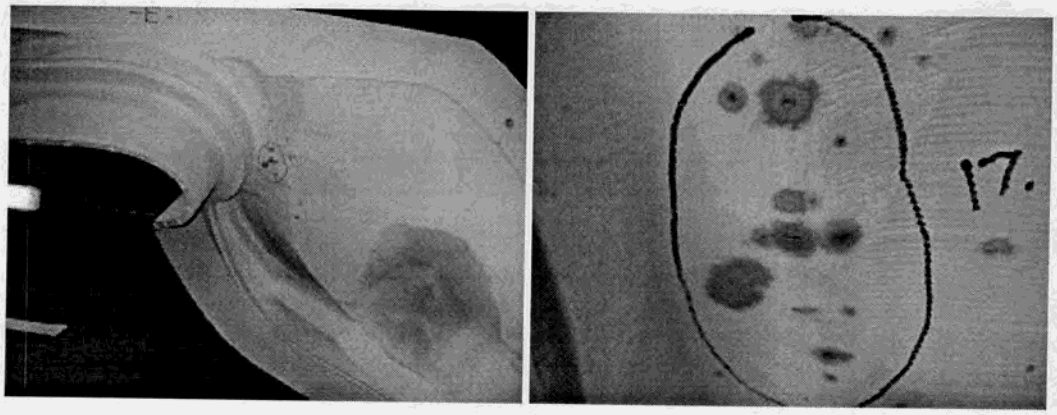
15. Cluster of indications in radius below VPI groove (E side near T hole 9). Longest is a .300" linear.



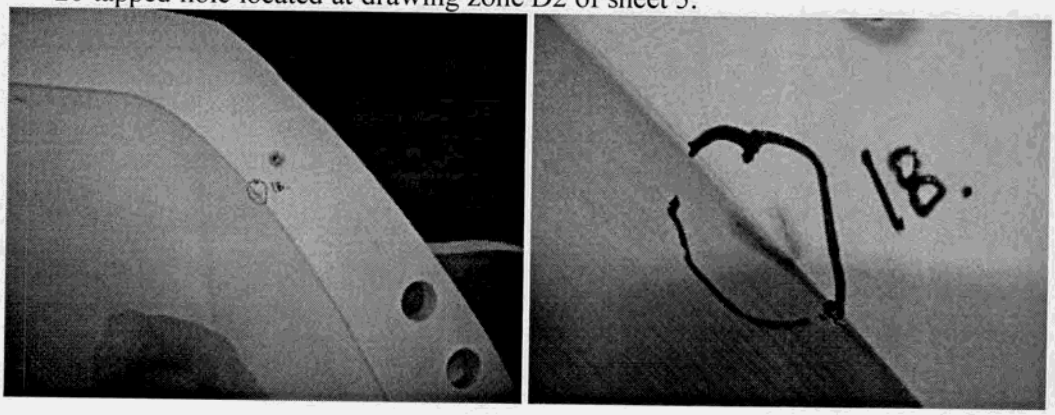
16. Cluster of indications in radius below VPI groove (E side near T hole 94). Longest is a .250" linear.



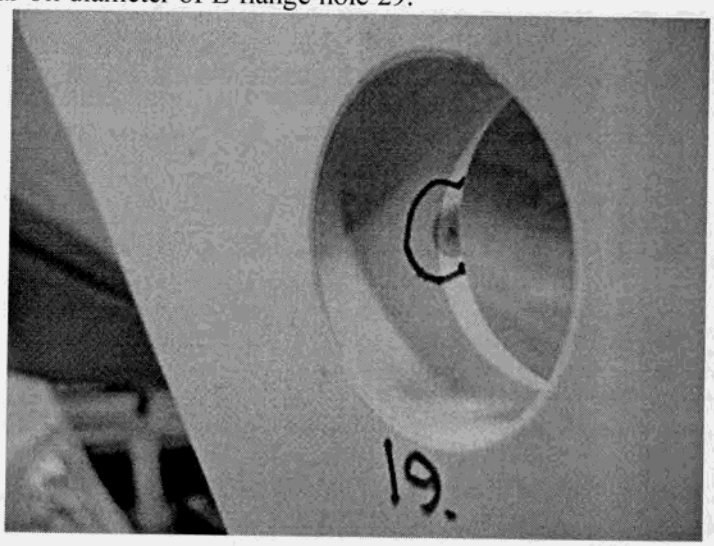
17. Cluster of indications in radius below VPI groove (E side near T hole 50). Longest is a .350" linear.



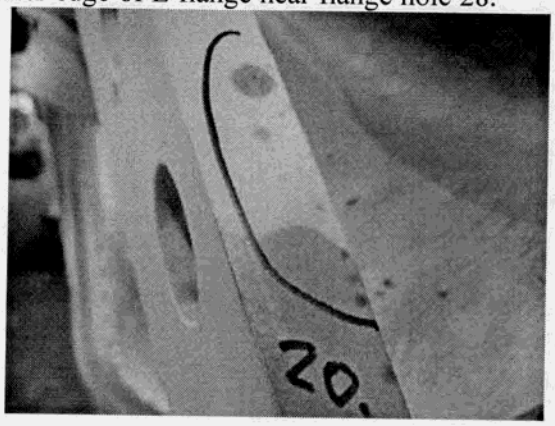
18. .300" linear on edge between E flange and inner casting wall. Indication is near ¼-20 tapped hole located at drawing zone D2 of sheet 5.



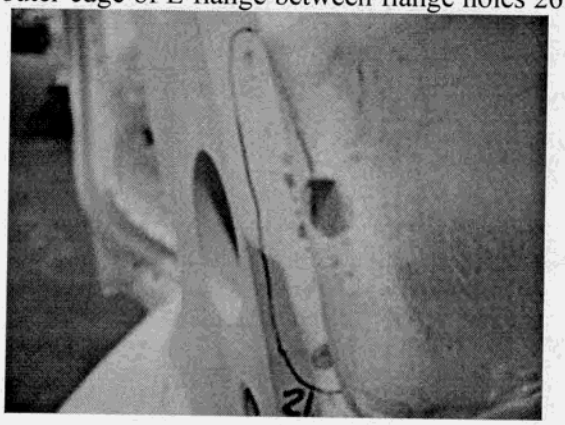
19. .100" linear on diameter of E flange hole 29.



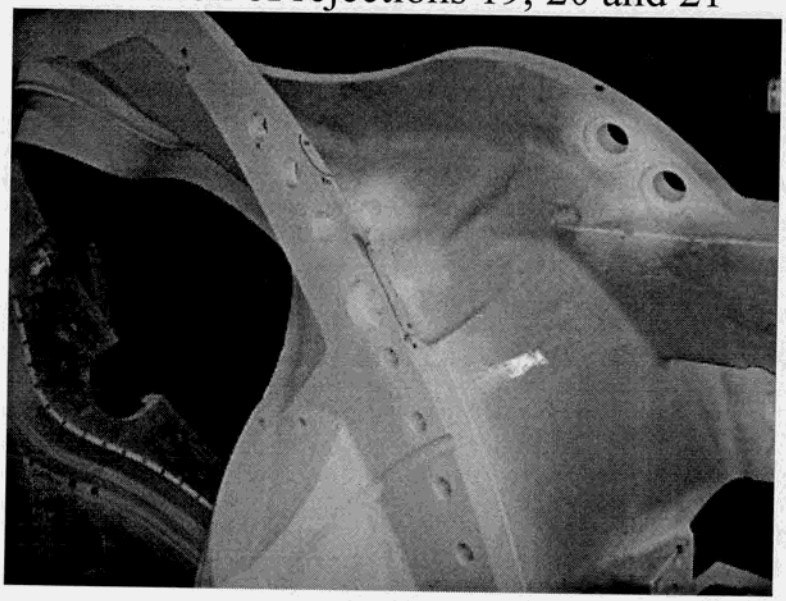
20. .150" linear on outer edge of E flange near flange hole 28.



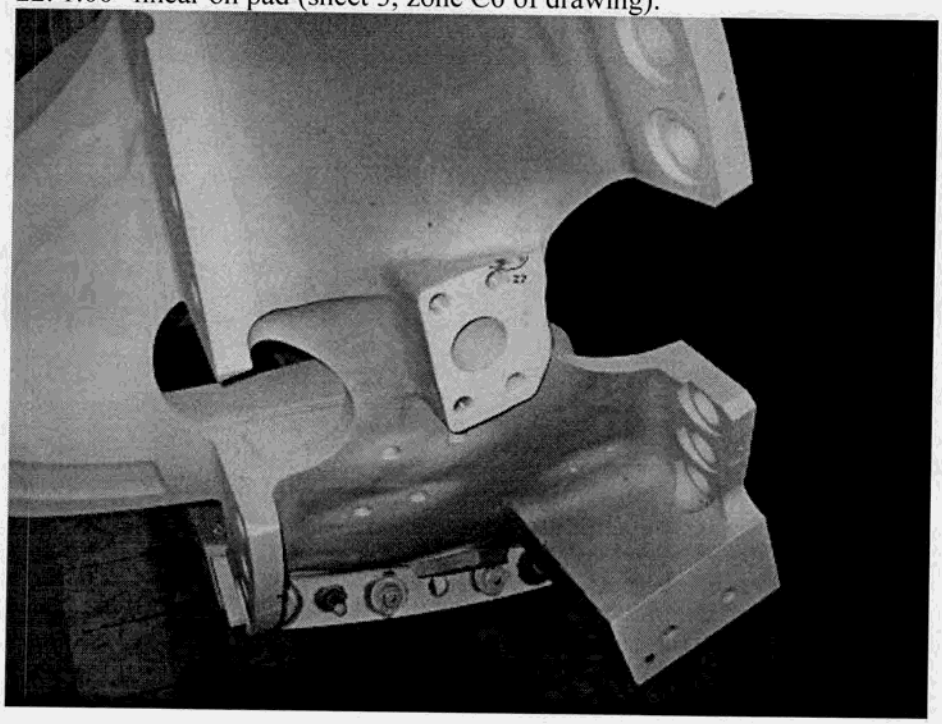
21. 1.200" linear on outer edge of E flange between flange holes 26 and 27.

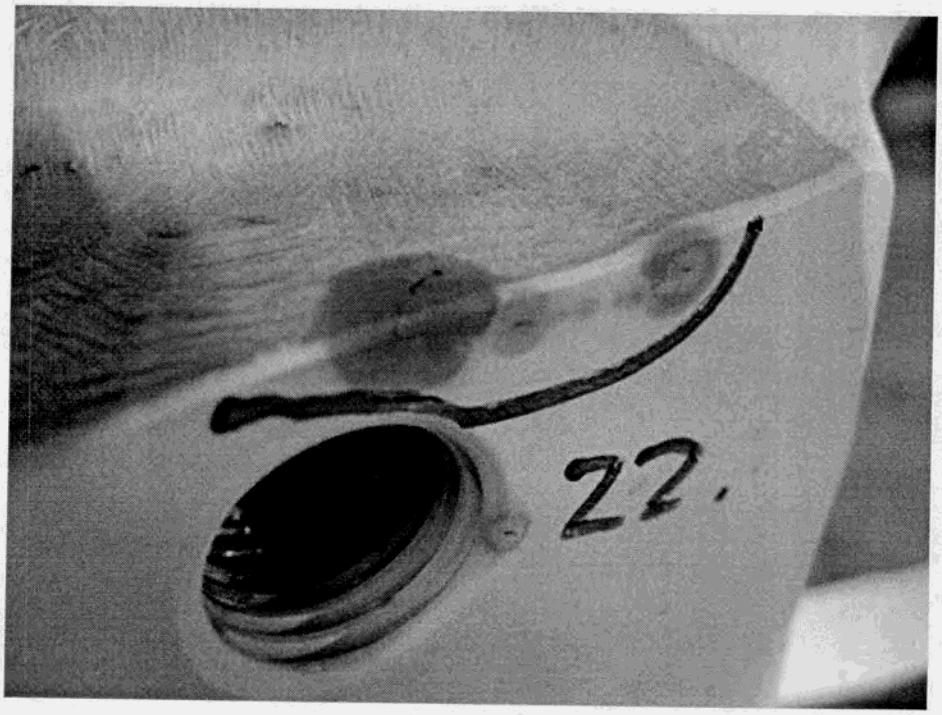


Location of rejections 19, 20 and 21



22. 1.00" linear on pad (sheet 3, zone C6 of drawing).





Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 20487

Date: 09/18/06
User ID: GRIFFITH

Customer: ENERGY INDUSTRIES OF OHIO
Contact: NANCY HORTON
E-Mail: NKHFlowen@aol.com
Telephone: 216-496-2314
Fax: 216-328-2001

Part: SE141-115 / MODULAR COIL, TYPE B
Drawing ID: SE141-102 Revision: 3
W/O Links: 1-Type:W: 65708/1.0 Sub: 1
Customer P.O.: S005242-F/Ln:1
Serial No./Qty: B1

Reported By: MIKE GRIFFITH
E-Mail: mGriffith@MajorTool.com
Telephone: 317-636-6433
Fax: 317-634-9420

Problem: Two areas are nonconforming per NCSX-CSPEC-141-03 section 4.2.6.
(see attachment for details)
1) The top right corner from 3" across to 4.3" down defines an area that exceeds the limit of .015" gap up to 1/8" deep. The max. gap is at the top where a .032" shim will start.
2) The area bordered by the red lines in the thick section of the T will allow for a .005" shim to pass completely thru. The specification requires the cumulative gap to be <.005".

Proposed Disposition:
MTM proposes that Gap deviation be accepted as is. All sharp edges from mismatch have been blended smooth.

Number of additional pages: 2 page summary

Customer Disposition: **[ ] Use As Is** **[X] Rework** **[ ] Repair** **[ ] Scrap** **[ ] Replace**

Jim Chrzanowski and Frank Malinowski will bring fiberglass cloth during their visit to MTM on 9/25. MTM is to work the fiberglass into the open areas and trim to fit. PPPL will impregnate the fiberglass with epoxy after the VPI and bakeout is completed. This was discussed during a conference attended by J. Chrzanowski, D. Williamson, F. Malinowski, L. Sutton, and P. Heitzenroeder. It is felt that the joint restraint is not an issue, since it is primarily provided by the body bound bolts, and although the joint area is reduced, the pressure on the remaining area will be increased. The fiberglass will primarily assure that the electrical properties of the joint are maintained by sealing this area.

Approved by:

Phil Heitzenroeder
Digitally signed by Phil Heitzenroeder
DN: cn=Phil Heitzenroeder, c=US, o=PPPL, ou=Mech. Eng. Division
Date: 2006.09.25 21:35:09 -04'00'

Tech. Rep.

Brad Nelson
Digitally signed by Brad Nelson
DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED, email=nelsonbe@ornl.gov
Date: 2006.09.26 07:33:15 -04'00'

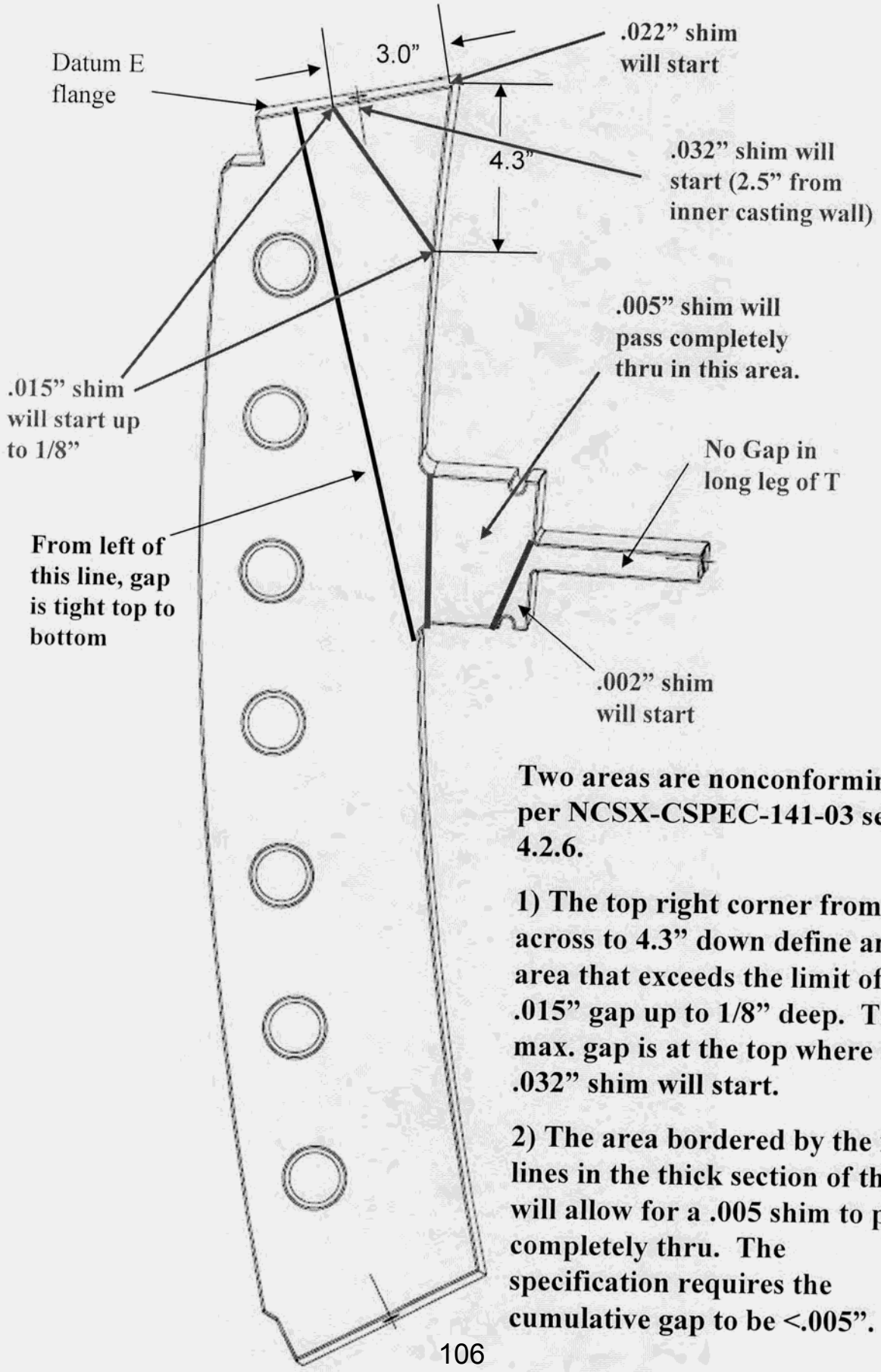
RLM

Mike Griffith
Digitally signed by Mike Griffith
DN: cn=Mike Griffith, c=US, o=Major Tool and Machine, ou=CFT - White, email=mgriffith@majortool.com
Reason: I agree to the terms defined by the placement of my signature on this document
Date: 2006.09.27 11:08:58 -04'00'

Major Tool Implemented By: _____ **Title:** _____ **Date:** _____

n:\mtmapps\Mtnonc14.qrp

NC20487 Poloidal Break Gap – SE141-115 B1



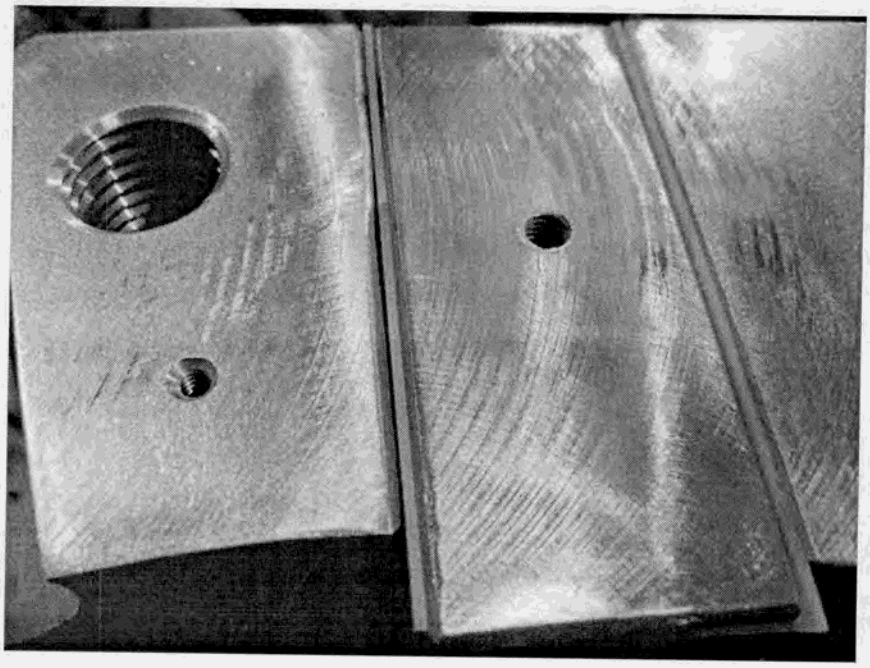
Two areas are nonconforming per NCSX-CSPEC-141-03 section 4.2.6.

1) The top right corner from 3" across to 4.3" down define an area that exceeds the limit of .015" gap up to 1/8" deep. The max. gap is at the top where a .032" shim will start.

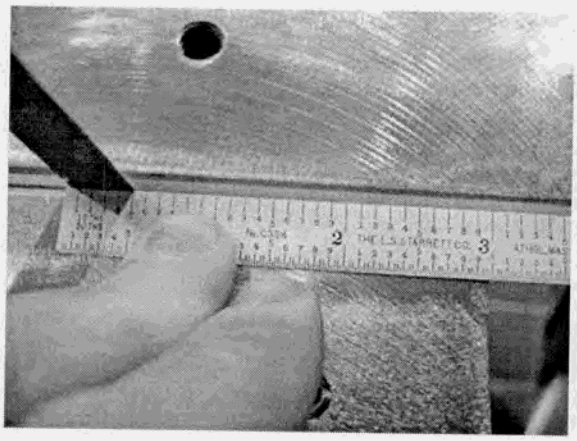
2) The area bordered by the red lines in the thick section of the T will allow for a .005 shim to pass completely thru. The specification requires the cumulative gap to be <.005".

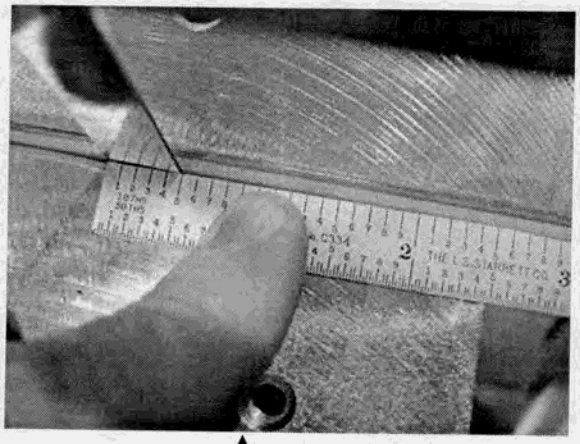
1

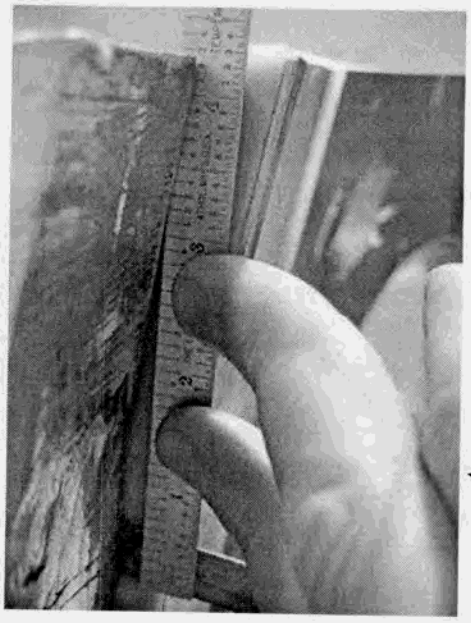
NC20487 Poloidal Break Gap – SE141-115 B1



View to the left is looking down on the datum E flange. The gap between G11 and flange face is visible on the left side of the break shim.







Top-right shows a .032" shim starting (2.5" from inner casting wall.

Top-left shows a .015" shim starting (3.0" from inner casting wall.

Bottom-left shows a .015" starting 4.3" from datum E face.

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 20518

Date: 09/26/06
User ID: GRIFFITH

Customer: ENERGY INDUSTRIES OF OHIO
Contact: NANCY HORTON
E-Mail: NKHFlowen@aol.com
Telephone: 216-496-2314
Fax: 216-328-2001

Part: SE141-115 / MODULAR COIL, TYPE B
Drawing ID: SE141-115 Revision: 8
W/O Links: 1-Type:W: 65708/1.0 Sub: 1
Customer P.O.: S005242-F/Ln:1
Serial No./Qty: B1

Reported By: MIKE GRIFFITH
E-Mail: mGriffith@MajorTool.com
Telephone: 317-636-6433
Fax: 317-634-9420

Problem: INSPECT WELD UPGRADE AREA OF LEAD BLOCK PAD. 4 LINEAR INDICATIONS IN WELD AREA.
1. BOTTOM CORNER NEXT TO BOTL HOLE, .200", LINEAR
2. BOTTOM CENTER NEXT TO BOLT HOLE, .100", LINEAR
3. TOP CORNER NEXT TO BOLT HOLE, .200", LINEAR
4. TOP CENTER NEXT TO BOLT HOLE, .200" LINEAR
(LINEAR INDICATIONS DO NOT BREAK INTO BOLT HOLES)
5. 6 RANDOM ROUNDED INDICATIONS ARE ACCEPTABLE PER CUSTOMER REQUIREMENTS. PART IS REJECTED FOR THE 4 LINEAR INDICATIONS PER ASTM A903/A903M LEVEL 1.

Proposed Disposition:
MTM proposes that the indications be accepted as is.

Number of additional pages: none

Customer Disposition: **[X] Use As Is** **[ ] Rework** **[ ] Repair** **[ ] Scrap** **[ ] Replace**

Tech Rep Approval: Larry Dudek Digitally signed by Larry Dudek DN: cn=Larry Dudek, c=US Date: 2006.09.27 11:06:17 -04'00' Date: _____

RLM Approval: Brad Nelson Digitally signed by Brad Nelson DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED, email=nelsonbe@ornl.gov Date: 2006.09.27 17:05:29 -04'00' Date: _____

Major Tool Implemented By: _____ **Title:** _____ **Date:** _____

n:\mtmapps\Mtnonc14.qrp

Major Tool & Machine, Inc.
1458 East 19th Street
Indianapolis, IN 46218-4289

MTM N/C: 20519

Date: 09/25/06
User ID: GRIFFITH

Customer: ENERGY INDUSTRIES OF OHIO
Contact: NANCY HORTON
E-Mail: NKHFlowen@aol.com
Telephone: 216-496-2314
Fax: 216-328-2001

Part: SE141-115 / MODULAR COIL, TYPE B
Drawing ID: SE141-102 Revision: 3
W/O Links: 1-Type:W: 65708/1.0 Sub: 0
Customer P.O.: S005242-F/Ln:1
Serial No./Qty: B1

Reported By: MIKE GRIFFITH
E-Mail: mGriffith@MajorTool.com
Telephone: 317-636-6433
Fax: 317-634-9420

Problem: Various issues were identified during the final review of the castings. See attachment for details.

Proposed Disposition:
Customer to review and provide remedial action.

Number of additional pages: 6 page attachment

Customer Disposition: **[ ] Use As Is** **[X] Rework** **[ ] Repair** **[ ] Scrap** **[ ] Replace**

The article to be dispositioned as follows, item numbers refer to the sections in the NC20519 attachment:
Item 1. Rework- Trim the bearing plate back to match the shape of the G-11CR insulator it's resting on
Item 2. Use As Is
Item 3. Use As Is
Item 4. Use As Is
Item 5. Use As Is
Item 6. Use As Is
Item 7. Use As Is
Item 8. Rework - The counterbores around the flange holes need to be enlarged to a 3" diameter cylinder by 3" high from the spot face surface. The blend-in corner radius at the upper extent of this machined area shall be 1/4".

The B1 casting may be released for shipment pending completion of item 8 of the corrective action of this NC.

Tech Rep Approval: Larry Dudek Digitally signed by Larry Dudek DN: cn=Larry Dudek, c=US Date: 2006.09.27 11:10:48 -04'00' Date: _____

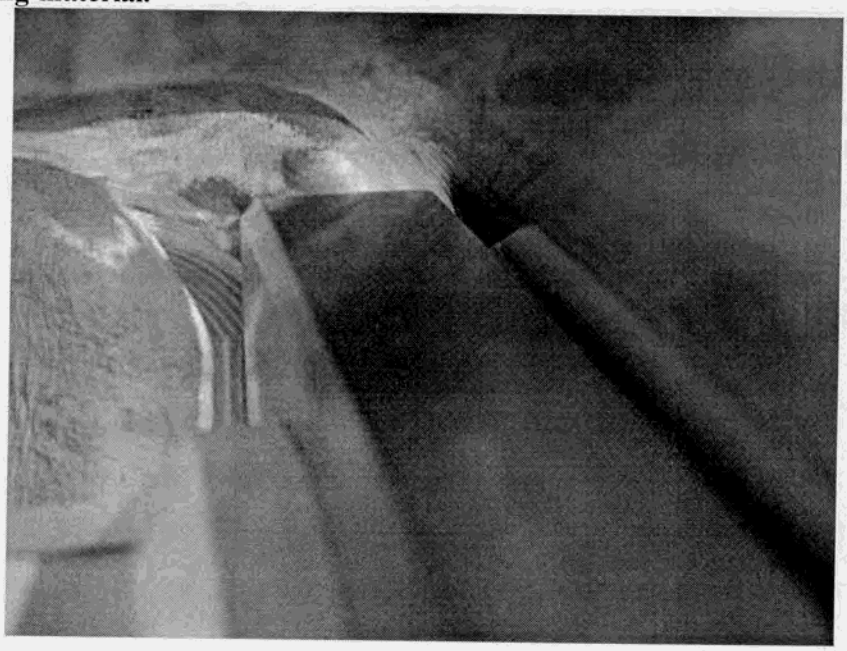
RLM Approval: Brad Nelson Digitally signed by Brad Nelson DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED, email=nelsonbe@ornl.gov Date: 2006.09.27 17:06:18 -04'00' Date: _____

Major Tool Implemented By: Mike Griffith Digitally signed by Mike Griffith DN: cn=Mike Griffith, c=US, o=Major Tool and Machine, ou=CFT - White, email=mgriffith@majortool.com Reason: I agree to the terms defined by the placement of my signature on this document Date: 2006.10.06 13:27:24 -04'00' **Title:** _____ **Date:** _____

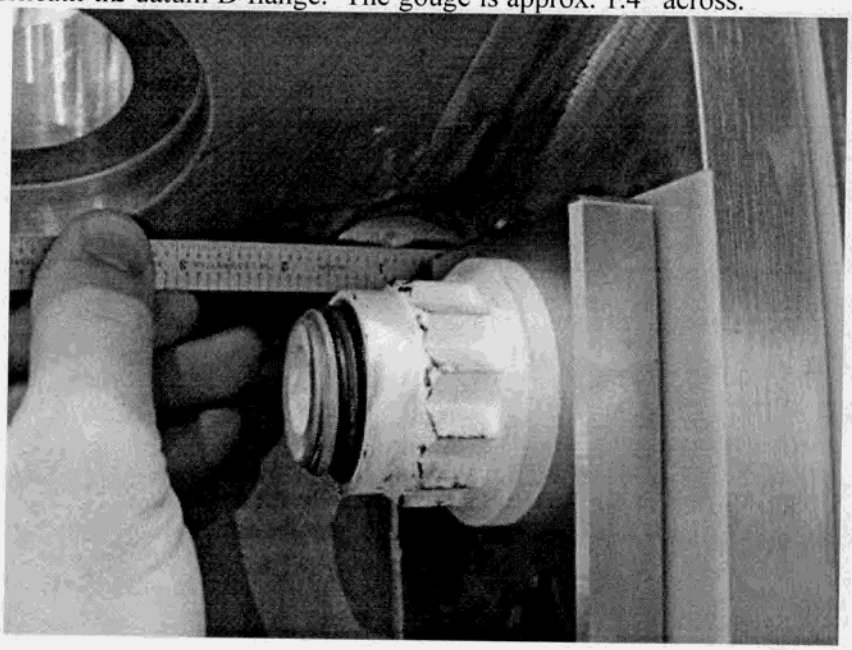
n:\mtmapps\Mtnonc14.qrp

1. Insulating material does not extend beyond bearing plate in one place nearest the datum D flange. The area is approximately .5" x .5" along the corner of the plate.

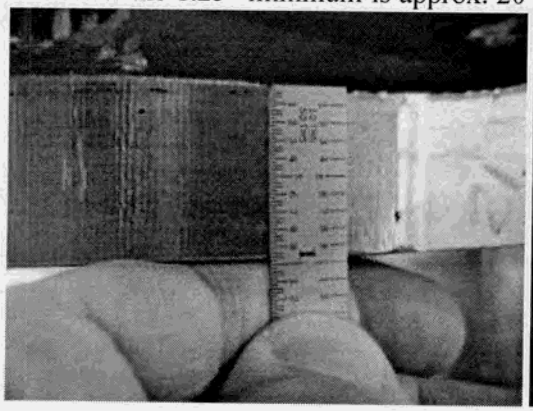
Proposed Action: Remove material from corner of bearing plate to match insulating material.

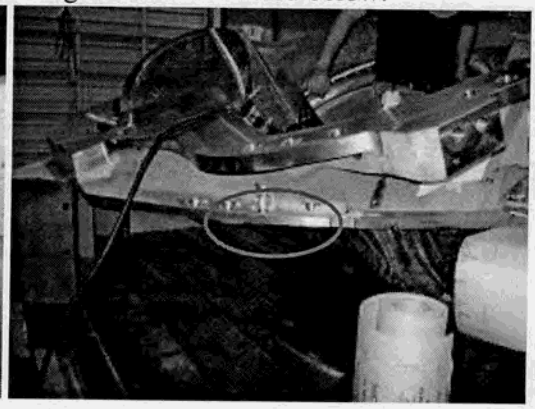


2. There is a tool gouge (eyebrow shape) near the poloidal break flange just underneath the datum D flange. The gouge is approx. 1.4" across.



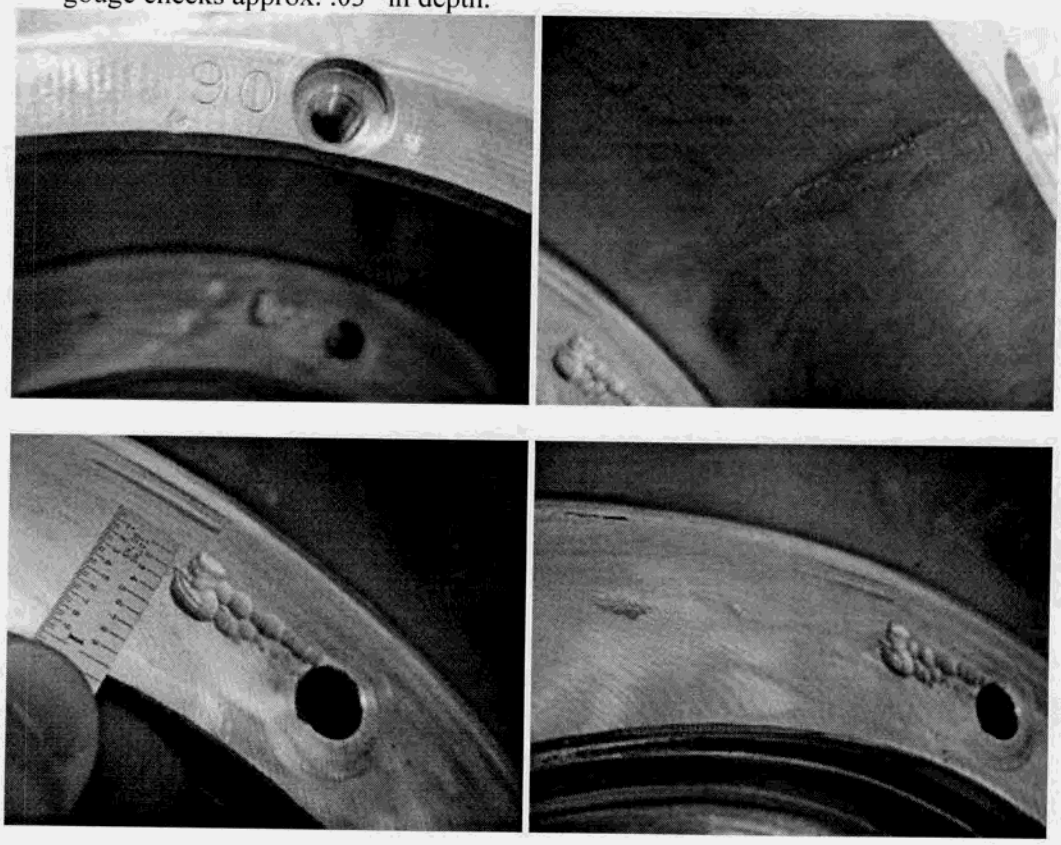
3. There is an area of the datum E flange that is 1.00 thick on the outer edge. The area under the 1.25" minimum is approx. 20" long in the area circled below.



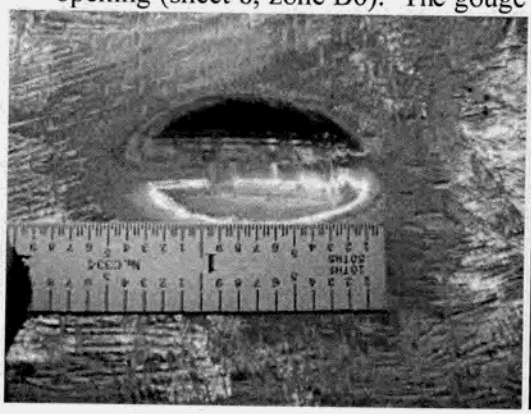
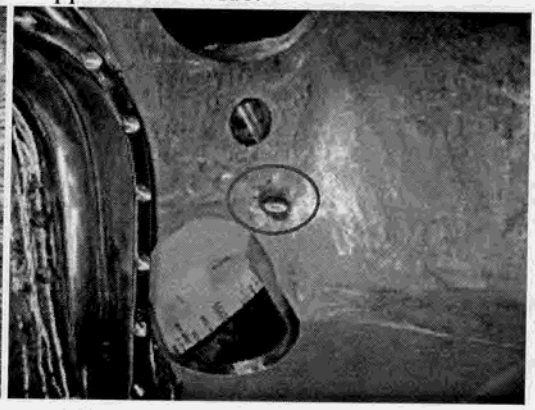


4. There is a cutter mark on the datum D side of the long leg of the T section near T hole 21. The cross section thickness of the T at this point checks .733". When compared to the surfaces adjacent to the mark, it measures approximately .011" at its deepest point.

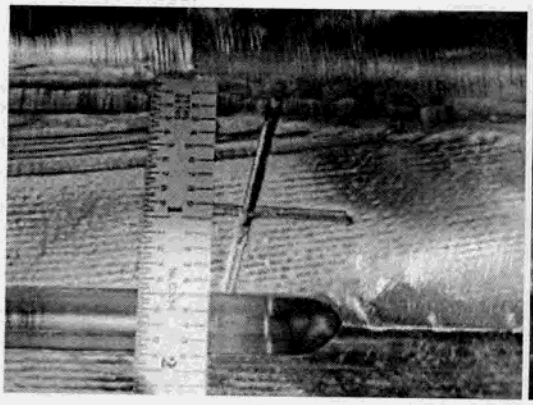
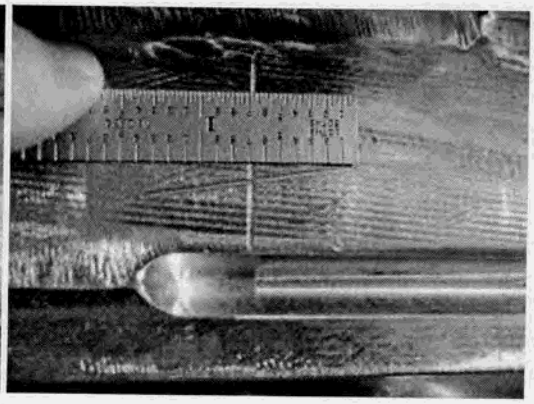
5. There are several tooling marks on the long and short legs of the T section on the datum E side near T hole 90. The cross section thickness of the T at this point checks .737". When compared to the surfaces adjacent to the mark, it measures approximately .013" at its deepest point.
   The deepest tool mark is shown next to the scale in the bottom-left photo. This gouge checks approx. .03" in depth.



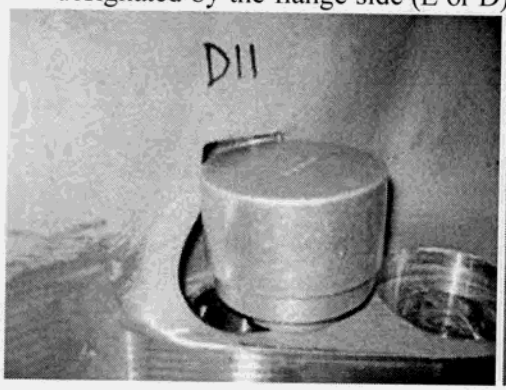
6. There is a tool gouge on the inner wall on the datum D side near the 8" port opening (sheet 8, zone B6). The gouge is approx. 1.5" wide.

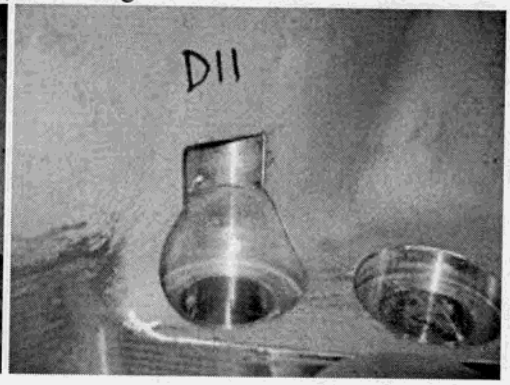



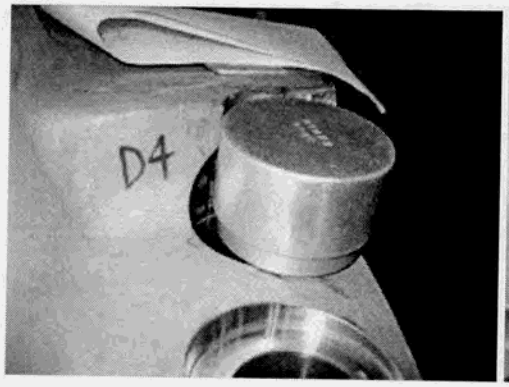
7. The scribe marks do not match the drawing requirements as described on sheet 7, zone E6. The scribing was performed prior to notification of the revision 9 changes. The scribing is to be aligned with sections U2 and U3 of the drawing (perpendicular and parallel to the base of the T). The scale in the below pictures show what would be the correct orientation (This conditions exists on both the D and E sides.

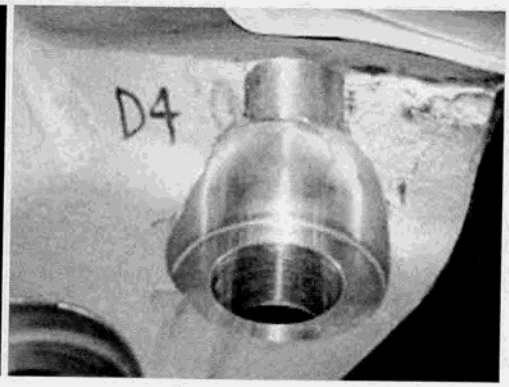



8. There are six counterbores that will not accept the 3" diameter gage. The holes are designated by the flange side (E or D) and flange hole number.

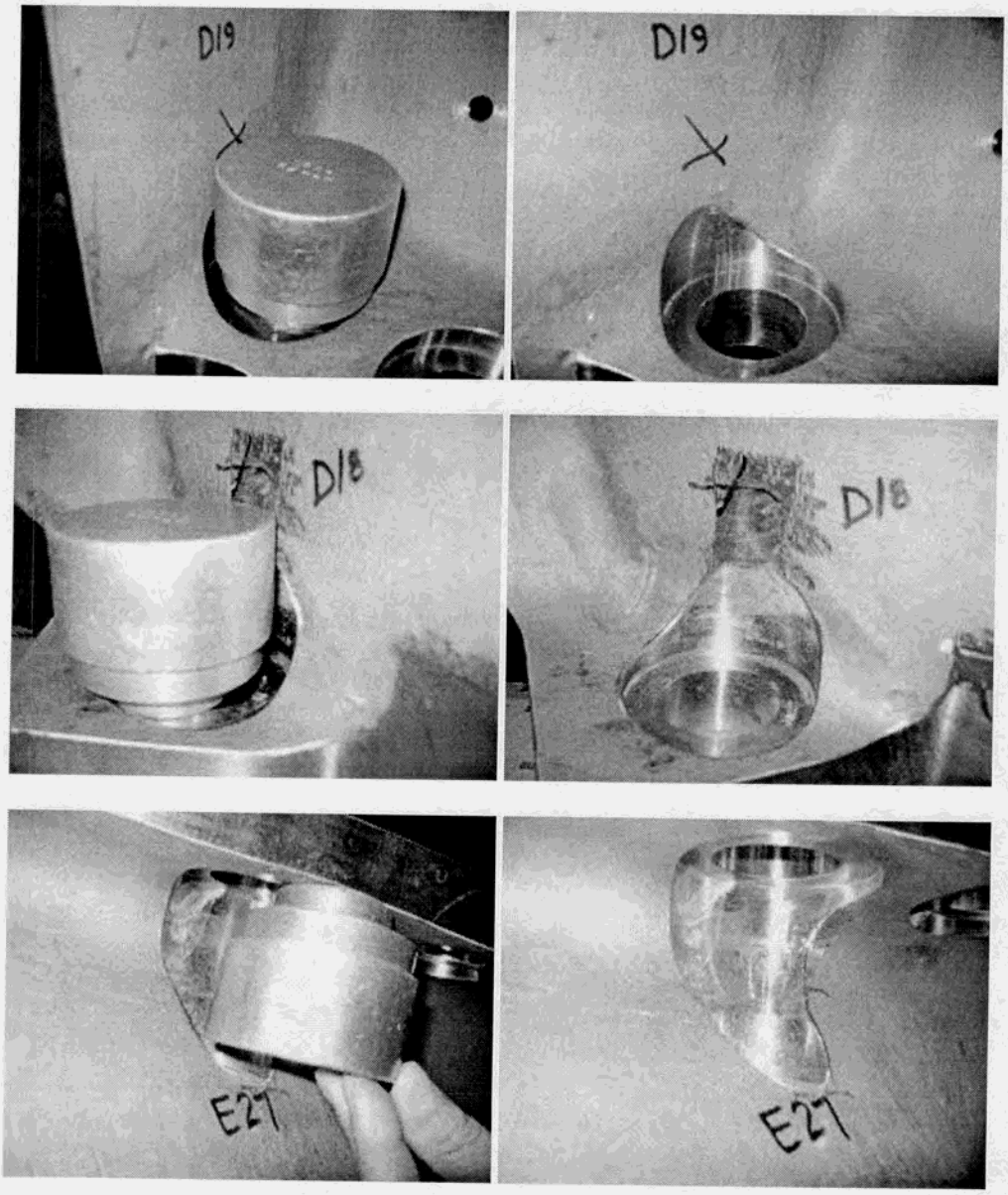








SE141-115 B1
NC20519 attachment



Customer: ENERGY INDUSTRIES OF OHIO
Contact: NANCY HORTON
E-Mail: NKHFlowen@aol.com
Telephone: 216-496-2314
Fax: 216-328-2001

Part: /
Drawing ID: SE141-115 Revision: 9
W/O Links: 1-Type:W: 65708/1.0 Sub: 1
Customer P.O.: S005242-F/Ln:1
Serial No./Qty: B1

Reported By: MIKE GRIFFITH
E-Mail: mGriffith@MajorTool.com
Telephone: 317-636-6433
Fax: 317-634-9420

Problem: Inspection Test #: 80 rejected: WING SURFACES: {g|-,12;;-.25|A|B|C}: -.033 TO .038
Inspection Test #: 90 rejected: OUTER AS CAST SURFACES: {g|.5|A|C|B}: -.166 TO .275
Inspection Test #: 140 rejected: 2X .31: : .305/.350
Inspection Test #: 150 rejected: MACHINED SURFACES
M TO M1: {g|.02|R|S|T}: -.025 TO .022
Inspection Test #: 160 rejected: DATUM D SIDE
VERIFY SHELL INTERSECT CLEARANCE
USING GAGE MTMFX-3473: : GAGE DOES NOT GO - T82
Inspection Test #: 170 rejected: P TO M: {g|,2|R|S|T}: .018 TO .110
Inspection Test #: 190 rejected: MACHINED SURFACES
N TO N1: {g|,02|R|S|T}: -.026 TO .032
Inspection Test #: 200 rejected: DATUM E SIDE
VERIFY SHELL INTERSECT CLEARANCE
USING GAGE MTMFX-3473: : WILL NOT ACCEPT GAGE: T32-T37, T6-T11, T86-T92, T56-T49
Inspection Test #: 210 rejected: Q TO N: {g|.2|R|S|T}: .009 TO .130
Inspection Test #: 220 rejected: HOLE 63 THRU 73
: b.625y.188: #70-.635 #71-.647 #72-.636 #73-.633 .178/.184
Inspection Test #: 260 rejected: : {#|,06|R|S|T}: .004 TO .078
Inspection Test #: 340 rejected: DATUM E: {f|,01}: .019
Inspection Test #: 350 rejected: DATUM E
: .25~ .01: .236 TO .256
Inspection Test #: 360 rejected: DATUM D: {f|,01}: .014
Inspection Test #: 370 rejected: DATUM D: .25~ .01: .237 TO .254
Inspection Test #: 580 rejected: : 3x bd2.000 - 2.001
y .990 - 1.000: 1.9992 DIA. X .998 DEEP
Inspection Test #: 870 rejected: CONFIRM THAT SCRIBE MARKS ARE
PARALLEL AND PERPENDICULAR TO
THE WINDING AXIS.: : NOT PAR. / PERP.
Inspection Test #: 880 rejected: 2X 1.56: : 1.76 TO 1.77
Inspection Test #: 1000 rejected: MACHINED SURFACES: {g|,02|A|B|C}: -.026 TO .032
Inspection Test #: 1010 rejected: AS CAST SURFACES: {g|,5|A|B|C}: -.312 TO .494
Inspection Test #: 1020 rejected: WING SURFACES: {g|-.12;;-.25|A|B|C}: -.698 TO .115
Inspection Test #: 1030 rejected: WING POCKET: {g|+0.0;;-.12|A|B|C}: -.173 TO .124

Proposed Disposition:

PROPOSE TO ACCEPT DEVIATIONS AS IS.

Number of additional pages: 10 page IDC attachment

Customer Disposition: **[X] Use As Is** **[ ] Rework** **[ ] Repair** **[ ] Scrap** **[ ] Replace**

Tech Rep Approval: Larry Dudek Digitally signed by Larry Dudek DN: cn=Larry Dudek, c=US Date: 2006.09.27 11:18:51 -04'00' Date: _____

RLM Approval: Brad Nelson Digitally signed by Brad Nelson DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED, email=nelsonbe@ornl.gov Date: 2006.09.27 17:07:05 -04'00' Date: _____

Major Tool Implemented By: _____ **Title:** _____ **Date:** _____

SOUTH TEXAS BOLT & FITTING, INC.
4845 HOMESTEAD RD, #500
HOUSTON, TEXAS 77028
PH # 713-673-5376
FAX# 713-673-5379

*** MATERIAL TEST REPORT ***
Date: 05-18-2006

SOLD TO: Major Tool & Machine, INc.
1458 East 19th Street
Indianapolis, IN 46218

Customer P/O # P06-01393

STBF Order # 81140A

ITEM	QTY	DESCRIPTION	LOT / HEAT
1	76	1 3/8-6 x 9 1/2 660B Broached Tapend Stud Silver Plated Per AMS 2410	xfr / E3930

Chemical Properties

C	Mn	P	S	Si	Ni	Cr	Mo
.046	.26	.015	.001	.28	25.60	14.10	1.21
Cu	**Co**	**V**	**Al**	**Ti**	**B**		
.13	.08	.22	.24	2.18	.0054		

Mechanical Properties

Tensile	Yield	Elong	RA	Hardness	Temperature	Macro
163310	11090	23.10	49.90	290hb	1325^f	Pass

Remarks: ASTM A453-03

Certificate of Conformance
This is to certify that the material purchased on this order was made in accordance with, and to conform to, the specifications and descriptions required by the American Society for Testing Materials (ASTM) and the American Society of Mechanical Engineers (ASME).

SOUTH TEXAS BOLT & FITTING

Lance Byrns
Quality Coordinator

MAY 22 2006
ASTM D17
RECEIVED
MAY 18 2006
107675 JH
Lines 5-14

SOUTH TEXAS BOLT & FITTING, INC.
4845 HOMESTEAD RD, #500
HOUSTON, TEXAS 77028
PH # 713-673-5376
FAX# 713-673-5379

*** MATERIAL TEST REPORT ***
Date: 06-06-2006

SOLD TO: Major Tool & Machine, INc.
1458 East 19th Street
Indianapolis, IN 46218

Customer P/O # P06-01394

STBF Order # 81140-1B

ITEM	QTY	DESCRIPTION	LOT / HEAT
1	184	1 3/8"-6 660B 12 Point Hex Nut Silver Plated Per AMS 2410	XFQ / 5407813

Chemical Properties

C	Mn	P	S	Si	Ni	Cr	Mo
.034	1.50	.007	.0016	.54	25.00	14.70	1.22
Cu	**Co**	**V**	**Al**	**Ti**	**B**	**Pb**	
.06	.05	.26	.27	2.25	.0074	.0001	

Mechanical Properties

Tensile	Yield	Elong	RA	Hardness	Temperature	Macro
160000	109000	27.60	43.10	319hr	720^C	Pass

Remarks: ASTM A453

Certificate of Conformance
This is to certify that the material purchased on this order was made in accordance with, and to conform to, the specifications and descriptions required by the American Society for Testing Materials (ASTM) and the American Society of Mechanical Engineers (ASME).

SOUTH TEXAS BOLT & FITTING

Lance Byrns
Quality Coordinator

MTM 016
JUN 06 2006

RECEIVED
JUN 6 2006
108032 JH
Lines 5-14

mc106270.tif (1593x2217x2 tiff)

McMASTER-CARR
NEW BRUNSWICK, NEW JERSEY

Certificate of Compliance

This certifies that, according to our records, all items on your purchase order were supplied in accordance with their descriptions and as illustrated in our catalog.

Purchase Order: P05-01332 Date: 3/7/05

McM Reference: 62416630-1

Sincerely,

Keith Jones
Quality Manager

MAR 10 2005
94112
1-4
B1

MTR 09
3/10/05

McMaster-Carr Supply Company
Phone: (732) 329-3200 FAX: (732) 329-3772 Internet: www.mcmaster.com
Mail: P.O. Box 440, New Brunswick, NJ 08903-0440 Street Address: 473 Ridge Rd., Dayton, NJ 08810-0317

Spaulding
COMPOSITES
55 Nadeau Drive
Rochester, NH 03867
Ph: (603) 332-0555 Fax: (603) 332-5357
www.spauldingcom.com

Shipping List 072435
Customer No 101193
Sales Order Shipper

Sold to : STANDARD GRINDING & MFG CO
3721 W. CHASE AVENUE
SKOKIE, IL 60076
United States

Ship to : STANDARD GRINDING & MFG CO
3721 W. CHASE AVENUE
SKOKIE, IL 60076
United States

Ship Date	Customer PO	Sales Order	# of Boxes	Weight	Ship VIA	Bill of Lading	FOB
05/17/2005	60624	065171-00	1	0	YELLOW	072435	DE

Item	Part / Description / Details	Order Quantity	Ship Qty
000001	39G1CNT73125NMWLF U/M SHT SO Item 4 G-11-CR 48" +untrimmed X 36"+untrimmed Thickness: 3.125" +/-.110" PLEASE NOTE THAT THERE IS NO NEMA STANDARD FOR G-11 CR SHEET SPAULDING C OF C TO G-11 CR SHEET NO TESTING REQUIRED AT TIME OF ORDER Sheet Rec'd 3.550 Tk	1.00000	1.00000

RECEIVED MAY 19 2005 By

MAY 31 2005
96507
Lines 1,2
MTM 09
5/31/05

CERTIFICATE of CONFORMANCE

WE HEREBY CERTIFY THAT THE MATERIAL SUPPLIED ON THIS ORDER WAS MADE IN ACCORDANCE WITH THE STANDARDS AND PROCESSES ESTABLISHED BY SPAULDING COMPOSITES COMPANY FOR THE REQUIREMENTS OF MATERIAL DESCIBED ABOVE.

LOT # DOM.

Authorized By: Mark F. Cardillo Date: 05/17/2005

Customer Copy Page # 1 Form: SCSHIP Rev: 8/99

05/26/05 13:00 847 674 1723 ATLAS FIBRE CO. 002/003

mc108545.tif (1644x2177x2 tiff) [2]

Spaulding COMPOSITES
55 Nadeau Drive
Rochester, NH 03867
Ph: (603) 332-0555 Fax: (603) 332-5357
www.spauldingcom.com

Shipping List 072434
Customer No 101193
Sales Order Shipper

Sold to : STANDARD GRINDING & MFG CO
3721 W. CHASE AVENUE
SKOKIE, IL 60076
United States

Ship to : STANDARD GRINDING & MFG CO
3721 W. CHASE AVENUE
SKOKIE, IL 60076
United States

Ship Date	Customer PO	Sales Order	# of Boxes	Weight	Ship VIA	Bill of Lading	F O B
05/17/2005	60624	065169-00	1	716	YELLOW	072434	DE

Item	Part / Description / Details	Order Quantity	Ship Qty
000001	39G1CNT71850NMWLF U/M SHT SO Item 5 G-11-CR 48" +UNTRIMMED X 36"+UNTRIMMED THK: 1.850" +/-.070" PLEASE NOTE THAT THERE IS NO NEMA STANDARD FOR G-11 CR SHEET SPAULDING C OF C TO G -11 CR SHEET NO TESTING REQUIRED AT TIME OF ORDER	1.00000	1.00000

RECEIVED
MAY 19 2005
By

5/31/05
MTM 09

CERTIFICATE of CONFORMANCE

WE HEREBY CERTIFY THAT THE MATERIAL SUPPLIED ON THIS ORDER WAS MADE IN ACCORDANCE WITH THE STANDARDS AND PROCESSES ESTABLISHED BY SPAULDING COMPOSITES COMPANY FOR THE REQUIREMENTS OF MATERIAL DESCIBED ABOVE.

LOT # DOM.

Authorized By: Mark F Candillo Date: 05/17/2005

Customer Copy Page # 1 Form: SCSHIP Rev: 8/99

05/26/05 13:00 8474 1723 ATLAS FIBRE CO. 003/003

INSPECTION DATA CHECKLIST

Quality Assurance Documentation for Part ID: SE141-102 (RESISTANCE CHECK) - Item: 13

Workorder: 65708/1-0 Sub:1 Op:140

Part: SE141-102 (RESISTANCE CHECK) - MODULAR COIL, TYPE B -

Drawing ID: SE141-102 Rev: 3			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
* (10)		TEST 1 RESISTANCE TO BE >500 kohms CHECK RESISTANCE BETWEEN THE MID-PLANE POLOIDAL BREAK SHIM AND THE WINDING FORM.	MULTIMETER	QA		J-1358	.8 GOHMS	503-B.H 09-18-06			A
* (20)		TEST 2 RESISTANCE TO BE >500 kohms CHECK RESISTANCE BETWEEN THE JUMPERED BOLTS AND JUMPERED MID-PLANE CASTING AND WINDING FORM.	MULTIMETER	QA		J-1358	.7 GOHMS	503-B.H 09-18-06			A

Major Tool and Machine, Inc. 1458 East 19th Street, Indianapolis, IN 46218 (317)636-6433 Fax (317)634-9420

METRODE PRODUCTS LTD
HANWORTH LANE
CHERTSEY SURREY
ENGLAND KT16 9LL
Tel +44 (0)1932 566721
Fax. +44 (0)1932 565168
Email tnfo@metrode com
Internet http//www metrode com

TEST CERTIFICATE

THIS PRODUCT HAS BEEN MANUFACTURED
AND SUPPLIED THROUGH A SYSTEM APPROVED
TO ISO 9001 & 2 OR EQUIVALENT

TEST CERTIFICATE NUMBER 194277

METRODE WELDING CONSUMABLES

BATCH No.	W920132
OUR ORDER REF.	S01788013 / 1
DATE	09/03/05
PRODUCT	ER316MNNF TIG 2.4MM
FORM	TIG WIRE
SPECIFICATION	BS EN 12072:2000 W 20 16 3 Mn L

INVOICE TO	DESPATCHED TO
EUROWELD LTD 255 ROLLING HILLS ROAD MOORESVILLE NC 28117 USA	EUROWELD LTD 255 ROLLING HILLS ROAD MOORESVILLE NC 28117 USA

IMPORTANT: Any liability arising from either reliance on this certificate, or use of our products, is strictly limited and governed by our conditions of business.

CUSTOMER ORDER No.	DELIVERY NOTE DOCUMENT No.	QUANTITY (Kg)
N. 05-39	DN0106163	17.5000

CHEMICAL ANALYSIS (WEIGHT %) TYPE CERTIFIED MATERIAL TEST REPORT: BS EN 10204: 3.1.B

C	Mn	Si	S	P	Cr	Ni	Mo	N	Cu			
0.015	7.43	0.42	0.006	0.014	19.9	15.4	2.62	0.14	0.20			

TYPICAL ALL-WELD METAL MECH. PRORERTIES, AS WELDED:-
TS: >600 N/mm2; 0.2%PS: >400 N/mm2; EL. ON 4D: 40 %;
CVN @ -196 DEG.C: 70 J.

3/23/05 3/23/05
94534 MTM 09
Line 1
B-2

Metrode Products Ltd. certifies that the above material conforms to the indicated specifications

B. KYIET
Q A MANAGER

NOTES *Ni includes incidental Co unless otherwise specified
*Nb (Cb) includes incidental Ta unless otherwise specified
Ferrite is given as FN (Ferrite Number) and measured on all-weld pad using instrument calibrated against NBS related secondary standards (See AWS A4 2-97) unless otherwise specified

All Test certificates issued by METRODE will contain this embossed seal
Any recipient of a copy of METRODE Test Certificate without the seal should ensure from the supplier that it is a true and accurate reproduction of the original

mc106579.tif (1652x2103x2 tiff)

mc106164.pdf

METRODE PRODUCTS LIMITED
HANWORTH LANE, CHERTSEY
SURREY, UK, KT16 9LL
Tel: +44 (0) 1932 566721
Fax: +44 (0) 1932 565168
Email: info@metrode.com
Website: www.metrode.com

CERTIFIED MATERIAL TEST REPORT

THIS PRODUCT HAS BEEN MANUFACTURED AND SUPPLIED THROUGH A SYSTEM APPROVED TO ISO 9001 & 2 OR EQUIVALENT

TEST CERTIFICATE NUMBER

183695

INVOICE TO
EUROWELD LTD
255 ROLLING HILLS ROAD
MOORESVILLE
NC 28117
USA

DESPATCHED TO
EUROWELD LTD
255 ROLLING HILLS ROAD
MOORESVILLE
NC 28117
USA

CUSTOMER ORDER NUMBER	N.05-34
DELIVERY NOTE DOCUMENT NUMBER	DN0105859
QUANTITY (KG)	15.0000
OUR ORDER REFERENCE	SO1787730 / 1
DATE	02/03/05

METRODE WELDING CONSUMABLE	ER316MNNF TIG 2.4mm
FORM	TIG WIRE
BATCH NUMBER	WO20132
SPECIFICATION	BS EN 12072:2000 W 20 16 3 Mn L

Chemical Analysis (Weight %) — Type: BS EN 10204: 3.1.B / ASME SFA-5.01: Sch. H

C	Mn	Si	S	P	Cr	Ni	Mo	N	Cu		
0.015	7.43	0.42	0.006	0.014	19.9	15.4	2.62	0.14	0.20		

Mechanical Tests — Type: BS EN 10204: 2.2 / ASME SFA-5.01: Sch. G

Tensile Tests						Impact Energies		
Condition	Test Temperature	$Rp_{0.2\%}$ (MPa)	Rm (MPa)	A4 (%)	Z (%)	Temperature (°C)	Impact Energy (J)	Lateral Expansion (mm)
AS-WELDED	ROOM	>400	>600	40	-	-196	70	-

Metrode Products Limited certifies that the above material conforms to the indicated specifications

This document is produced electronically and is valid without signature.

IMPORTANT Any liability arising from either reliance on this certificate, or use of our products, is strictly limited and governed by our conditions of business

Barrie Kyle – Q.A.Manager

ASME SFA-5.01; Lot classification S4

3/3/05
93911
Line 1 B.1

Notes:
% Ni includes incidental Co unless otherwise specified.
% Nb (Cb) includes incidental Ta unless otherwise specified.
Ferrite is given as FN (Ferrite Number) and measured on all-weld pad using instrument calibrated against NBS-related secondary standards (See AWS A4.2-97) unless otherwise specified

MAR 09
3/7/05

FROM : EUROWELD-LTD FAX NO. : 704 662 9820 Mar. 02 2005 09:57AM P2

Westmoreland Mechanical Testing & Research, Inc.
P.O. Box 388
Westmoreland Drive
Youngstown, Pa. 15696-0388 U.S.A.
Telephone: 724-537-3131 Fax: 724-537-3151
Website: www.wmtr.com
WMT&R is a technical leader in the material testing industry.

ACCREDITED
621-01 & 621-02

Accredited Nadcap Materials Testing Laboratory

April 22, 2005

CERTIFICATION

WMT&R Report No. 5-25008
P.O. No. P05-01764
PQR No. 434
Welder Jason Bever #465

Major Tool & Machine Inc.
1458 East 19th Street
Indianapolis, IN 46218

Corrected Date
May 4, 2005

Attention: Josh Mayne

Subject: All processes, performed upon the material as received, were conducted at WMT&R, Inc. in accordance with the WMT&R Quality Assurance Manual, Rev. 9, dated 4/1/2000.
The following tests were performed on this order: IMPACT and TENSILE

IMPACT RESULTS: ASME Section IX and AWS B2.1, ASTM E23-02
No Requirements
MATERIAL: Metaltek CF8MNMN MOD
SAMPLE TYPE: Charpy V-Notch **DISPOSITION: Report**

Specimen ID	TestLog Number	Sample Size	Temp. °F\°C	Energy ft-lbs	Energy joules	Mils Lat Exp	A\U\R
Weld-1	B65835	Standard	68\20	173	234.6	84	Report
Weld-2	B65836	Standard	68\20	160	216.9	68	Report
Weld-3	B65837	Standard	68\20	157	212.9	81	Report

A\U\R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

Richard G. Parks
Project Manager/Industrial Technology Engineer

5/4/05
May 4, 2005

Westmoreland Mechanical Testing & Research, Inc.
P.O. Box 388
Westmoreland Drive
Youngstown, Pa. 15696-0388 U.S.A.
Telephone: 724-537-3131 Fax: 724-537-3151
Website: www.wmtr.com
WMT&R is a technical leader in the material testing industry.

ACCREDITED
621-01 & 621-02

Accredited Nadcap Materials Testing Laboratory

April 20, 2005

CERTIFICATION

Major Tool & Machine Inc.
1458 East 19th Street
Indianapolis, IN 46218

WMT&R Report No. 5-25008
P.O. No. P05-01764
PQR No. 434
Welder Jason Bever #465

Attention: Josh Mayne

Subject: All processes, performed upon the material as received, were conducted at WMT&R, Inc. in accordance with the WMT&R Quality Assurance Manual, Rev. 9, dated 4/1/2000.
The following tests were performed on this order: IMPACT and TENSILE

TENSILE RESULTS: ASME Section IX and AWS B2.1, ASTM E21-03a
SOAK TIME: 5 Minutes
SPEED OF TESTING: 0.0050 in./in./min., 0.0500 in./min./in.
MATERIAL: Metrode ER316Mnnf

DISPOSITION: Report

Specimen ID	TestLog Number	Temp. °F/°C	UTS KSI/MPA	0.2% YS KSI/MPA	Elong %	RA %	Modulus MSI/GPA	Ult. Load LBS/NEWTONS	0.2% YLD. LBS/NEWTONS
T1	B65833	-320/-196	191.8/1320	148.7/1030	27	39	28.7/198	2630/11699	2039/9071

A/U/R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

DISPOSITION: Report

Specimen ID	TestLog Number	Orig. Width (in./mm)	Final Width (in./mm)	Orig. Thick (in./mm)	Final Thick (in./mm)	Orig. Dia. (in./mm)	4D Orig GL (in./mm)	4D Final GL (in./mm)	Orig. Area (Sq. In./Sq. mm)	Failure Location/Type	Machine Number	A/U/R
T1	B65833	0.1802/4.57708	0.1437/3.650	0.0761/1.933	0.0582/1.478	0.2511/6.378	0.70/17.78	0.89/22.61	0.04183816/26.992307	WELD/DUCTILE	M9	R

A/U/R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

Roy E. Starr/Matt Wojton
____ Technical Services Manager/____ Tensile Supervisor April 20, 2005

Westmoreland Mechanical Testing & Research, Inc.
P.O. Box 388
Westmoreland Drive
Youngstown, Pa. 15696-0388 U.S.A.
Telephone: 724-537-3131 Fax: 724-537-3151
Website: www.wmtr.com
WMT&R is a technical leader in the material testing industry.

ACCREDITED
621-01 & 621-02

Accredited Nadcap Materials Testing Laboratory

April 20, 2005

CERTIFICATION

WMT&R Report No. 5-25008
P.O. No. P05-01764

Major Tool & Machine Inc.

TENSILE RESULTS: ASME Section IX and AWS B2.1, ASTM E21-03a
SOAK TIME: 5 Minutes
SPEED OF TESTING: 0.0050 in./in./min., 0.0500 in./min./in.
MATERIAL: Metrode ER316Mnnf

DISPOSITION: Report

Specimen ID	TestLog Number	Temp. °F/°C	UTS KSI/MPA	0.2% YS KSI/MPA	Elong %	RA %	Modulus MSI/GPA	Ult. Load LBS/NEWTONS	0.2% YLD. LBS/NEWTONS
T2	B65834	-320/-196	204.7/1410	156.5/1080	29	34	29.9/206	5095/22664	3894/17323

A/U/R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

DISPOSITION: Report

Specimen ID	TestLog Number	Orig. Dia. (in./mm)	Final Dia. (in./mm)	4D Orig GL (in./mm)	4D Final GL (in./mm)	Orig. Area (Sq. In./Sq. mm)	Failure Location/Type	Machine Number	A/U/R
T2	B65834	0.1780/4.521	0.1444/3.668	0.70/17.78	0.90/22.86	0.02488456/16.054520	WELD/DUCTILE	M9	R

A/U/R: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

Matthew Wojton 4.20.05
Roy E. Starr/Matt Wojton
Technical Services Manager/ Tensile Supervisor April 20, 2005

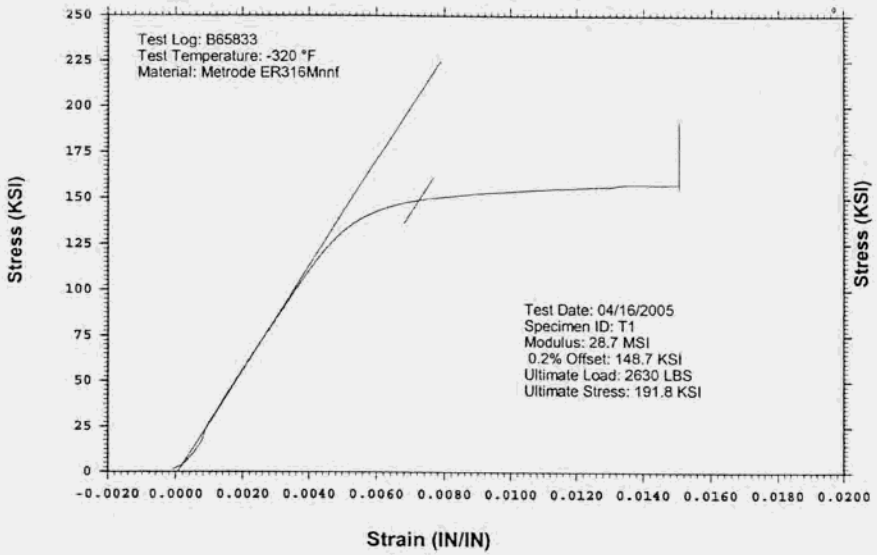
WESTMORELAND MECHANICAL TESTING & RESEARCH, Inc

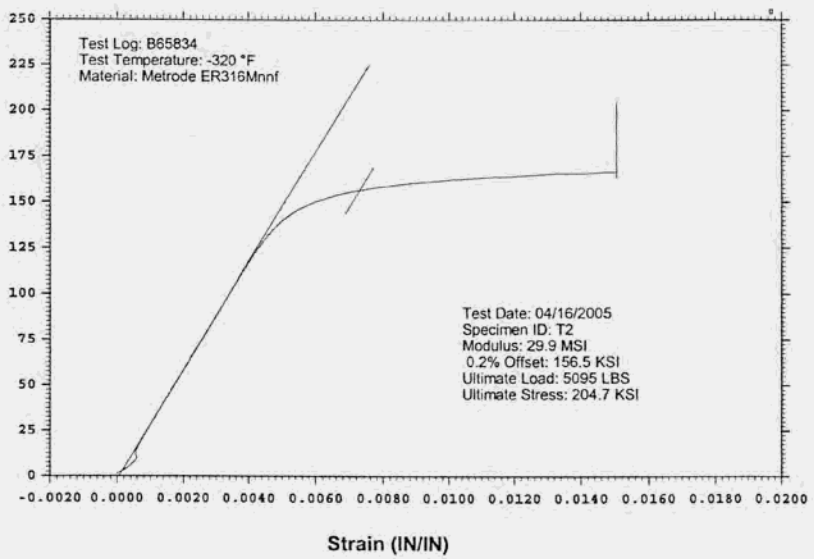
Stress vs. Strain

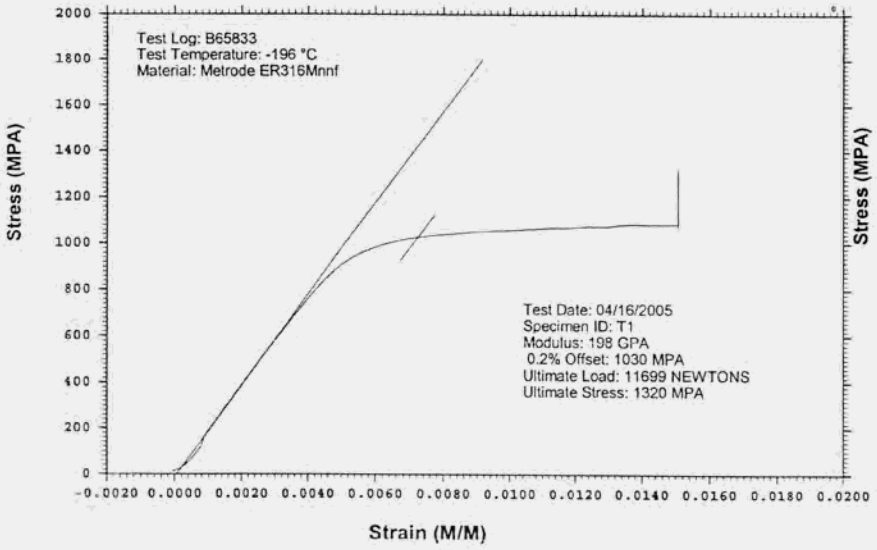
Phone: (724)537-3131

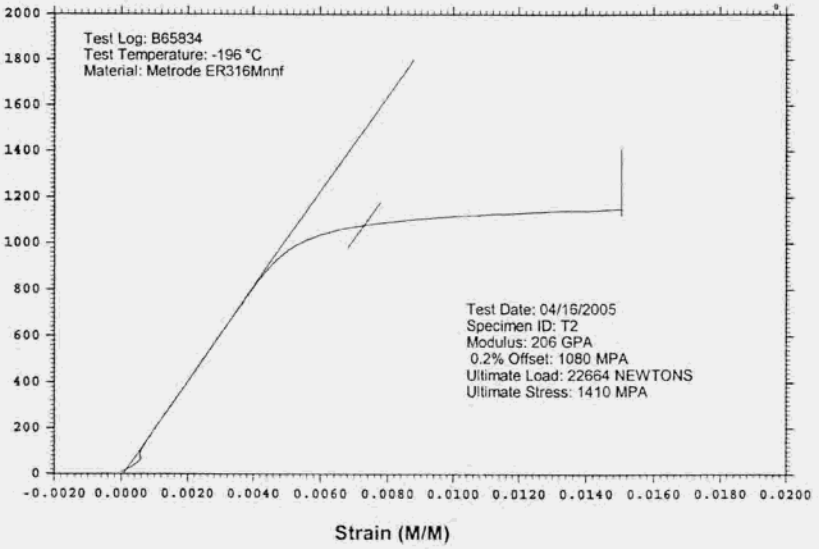
Customer: Major Tool & Machine Inc.
WMT&R Report: 5-25008

P.O. No.: P05-01764
PQR No.: 434
Welder: Jason Bever #465









mc107081.tif (1727x2247x2 tiff)

GE Advanced Materials, Polymershapes

Certificate of Conformance

Date:

Attn: Receiving Inspection
To: Major Tool + Machine
Address: 1458 E. 19th St.
Indianapolis, IN 46218

Customer P.O. Number: P05-01288
Sales Order No: 2790834

It is hereby certified that the product information provided below conforms to the corresponding information in the possession of GE Advanced Materials, Polymershapes with respect to such products. This certification and the sale of products are subject to GE Advanced Materials, Polymershapes' standard conditions of sale. This document shall not be reproduced, except in full, without prior written approval.

Quantity	Description	Lot/Specification/Standard Number
36	G11CR Plendic Sheet .062" THK X 16" X 38"	No Spec / N38,009023

APR - 5 2005
94942
1-18

MTM 09
4/5/05

GE Advanced Materials, Polymershapes

By: Ernest Evans

Title: Warehouse Worker

Nondestructive Test
Certification for Liquid Penetrant Examination

1458 E. 19th Street, Indianapolis, In 46218
TEL:(317)636-6433 FAX:(317)634-9420

Quality Assurance Documentation for Part ID: SE141-115 - Item: 18

Date of Inspection: 09/17/2006 **Type of Material:** CAST STAINLESS **NDT#:17928**

Stage of Inspection:	Manufacturing Process:	Surface Condition:	Test Being Run to:	Heat Treated:
[ ] Incoming Inspection [ ] In-Process Inspection [ ] After Repair [x] Final Inspection	[ ] Weldment [x] Casting [ ] Bar Stock [ ] Plate [ ] Forging [ ] Other	[x] Machined [ ] Rough [ ] Other FINAL MACHINED	[x] Router Instructions [x] Drawing [ ] Test Plan [ ] Technique Card SEE NOTES	[ ] Yes [x] No

Part Information:
MTM Job Number: 65708/1.0 -Sub:1 -Op:100
Resource ID: 810-LIQUID PENETRANT INSPE
Part ID: SE141-115
Part Name: MODULAR COIL, TYPE B
Serial Number:
Customer P.O.: S005242-F
Customer Unit/Plant:

Test Results:
Quantity Inspected: 1
Quantity Accepted: 0
Quantity Rejected: 1
Run Hours: 0.0

Inspection Results:
Customer N/C #:
[ ] Accepted
[x] Rejected
[ ] N/C-Report
[ ] Rework
MTM N/C #: 20483

Customer Inspection Plan: SEE NOTES
Test Step:
Revision:
Material Test Number:

Inspection Criteria:
Customer Specification: ASTM A903/A903M
MTM Spec Number: PS582 (REF NDT-WI-009)
Acceptance Standard: ASTM A903 (SEE NOTES)

Inspection Materials Used:
Manufacturer: SHERWIN
Type of Penetrant: DP-51
Batch Number: 69-E47
Developer: D-100
Batch Number: 65-C6

Penetrant Examination Processes:
Type: II (Visible) / Dwell Time: 20 Minutes
Method: A (Water Wash)
Method of Drying: Forced Air Fan
Form: e (nonaqueous for Type II visible dye) / Dwell Time: 20 Min

Inspection Requirements:

100 % of all accessible surfaces [ ] Joint Preps [ ] Root Pass [ ] Back Gouge [ ] Cover Pass [ ] Other

Notes:
INSPECT 100% OF SURFACES ON PRODUCTION MODULAR COIL WINDING FORM TYPE-B.
SPECIFICATION: ASTM A903/A903M
METHOD: ASTM E165

ACCEPTANCE CRITERIA: ASTM A903/A903M LEVEL I FOR MACHINED SURFACES INCLUDING THE ENTIRE "T" SECTION (HIGH STRESS AREAS)

PART HAS 22 REJECTABLE INDICATIONS PER CUSTOMER REQUIREMENTS ON MACHINED SURFACES. SEE NCR-20483 AND PHOTOS FOR MORE DETAILED INFO.

This is to certify that the pieces specified have been inspected in accordance with the specifications shown.

Inspector: 581-D.EDWARDS **Date:** 09/17/2006 Douglas D. Edwards Level II MTM P-10

Quality Assurance Documentation for Part ID: SE141-115 - Item: 19

Workorder: 65708/1-0 Sub:1 Op:130

Part: SE141-115 - MODULAR COIL, TYPE B -

Drawing ID: SE141-102 Rev: 3			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
2* (10)	D2	Ø.001 - Ø.002 CHECK CLEARANCE OF ITEM 5 TO ITEM 6.	FEELER GAGES	MFG		J-1203	LESS THAN .002	825-B.J 09-18-06			A
* (15)		THE GAP BETWEEN THE POLOIDAL BREAK BUSHINGS AND FLANGE SHAL BE LESS THAN .002"		MFG			LES THAN .002	825-B.J 09-19-06			A
* (20)		ENSURE THAT THE CUMULATIVE GAP AT ANY SINGLE CROSS SECTION OF THE POLOIDAL FLANGE ELEMENTS IS LESS THAN .005".		MFG		FEELER STOCK	ONE AREA WILL ACCE T A .005" SHIM [N/C :20487]	242-M.G 09-18-06			R
* (30)		THE MAX. GAP AT THE POLOIDAL BREAK PERIMITER IS .015" AND CANNOT EXCEED 1/8" FROM THE EDGE		MFG		FEELER STOCK	ONE AREA EXCEEDS T E ALLOWABLE GAP (.0 32" WILL START) [N/ C:20487]	242-M.G 09-18-06			R
1* (40)	F3	TORQUE ASSEMBLY TO 1500 +/- 30 FT-LBS PER DRAWING NOTE 15.	TORQUE MULTIPLI	MFG		J-1240	1500	825-B.J 09-18-06			A

Quality Assurance Documentation for Part ID: SE141-115 - Item: 20

Workorder: 65708/1-0 Sub:1 Op:132

Part: SE141-115 - MODULAR COIL, TYPE B -

Drawing ID: SE141-115 Rev: 9			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
1* (10)	C3	VERIFY PART MARKING: MAJOR TOOL SE141-114 A(casting number) (weight) LBS.		QA		VISUAL	ACCEPT	339-E.R 09-26-06			A
1* (20)	C3	RECORD FINAL PART WEIGHT		QA			5460	339-E.R 09-26-06			A
1* (30)	F3	NOTE 14 BACK SPOTFACE ALL THRU HOLES TO MINIMUM CLEAN UP.		QA		VISUAL	ACCEPT	339-E.R 09-26-06			A
1* (40)	E7	// .02 A	CMM	QA		00064	.001	339-E.R 09-26-06			A
1* (50)	E6	// .02 A	CMM	QA		00064	.003	339-E.R 09-26-06			A
1* (60)	B6	// .02 A	CMM	QA		00064	.003	339-E.R 09-26-06			A
1* (70)	B5	// .02 A	CMM	QA		00064	.001	339-E.R 09-26-06			A
1* (80)	C8	⌓ -.12 -.25 A B C WING SURFACES	CMM	QA		00064	-.033 TO .038 [N/C: 20528]	339-E.R 09-26-06			R
1* (90)	D3	⌓ .5 A C B OUTER AS CAST SURFACES	CMM	QA		00064	-.166 TO .275 [N/C: 20528]	339-E.R 09-26-06			R
2* (100)	G7	2X .03 X 45°		QA		VISUAL	ACCEPT	503-B.H 09-26-06			A
2* (110)	G7	.40	CALIPER	QA		P-2056	.391/.405	503-B.H 09-26-06			A
2* (120)	G7	2X .03 X 45°		QA		VISUAL	ACCEPT	503-B.H 09-26-06			A
2* (130)	G8	2X R.11	RADIUS GAGE	QA		R-25	.110	503-B.H 09-26-06			A

2* (140)	H7	2X .31	CALIPER	QA		P-2056	.305/.350 [N/C:20528]	503-B.H 09-26-06			R
2* (150)	H6	⌓ .02 R S T MACHINED SURFACES M TO M1	CMM	QA		00064	-.025 TO .022 [N/C:20528]	339-E.R 09-26-06			R
2* (160)	F5	DATUM D SIDE VERIFY SHELL INTERSECT CLEARANC USING GAGE MTMFX-3473		QA		MTMFX-3473	GAGE DOES NOT GO - T82 [N/C:20528]	339-E.R 09-26-06			R
2* (170)	E6	⌓ .2 R S T P TO M	CMM	QA		00064	.018 TO .110 [N/C:20528]	339-E.R 09-26-06			R
2* (180)	H4	⌓ .1 R S T MACHINED SURFACES M1 TO N1	CMM	QA		00064	-.016 TO .023	339-E.R 09-26-06			A
2* (190)	G3	⌓ .02 R S T MACHINED SURFACES N TO N1	CMM	QA		00064	-.026 TO .032 [N/C:20528]	339-E.R 09-26-06			R
2* (200)	F3	DATUM E SIDE VERIFY SHELL INTERSECT CLEARANC USING GAGE MTMFX-3473		QA		MTMFX-3473	WILL NOT ACCEPT GAGE: T32-T37, T6-T11, T86-T92, T56-T49 [N/C:20528]	339-E.R 09-26-06			R
2* (210)	F3	⌓ .2 R S T Q TO N	CMM	QA		00064	.009 TO .130 [N/C:20528]	339-E.R 09-26-06			R
2* (220)	D6	⌴ .625 ↧ .188 HOLE 63 THRU 73	CALIPER	QA		P-3761	#70-.635 #71-.647 #72-.636 #73-.633 .178/.184 [N/C:20528]	503-B.H 09-26-06			R
2* (230)	C5	2X .06-.09 X 45°	CALIPER	QA		P-2056	ACCEPT	503-B.H 09-26-06			A
2* (240)	C4	84X .375-16 UNC ↧ .75	THREAD PLUG GA	QA		A-46	ACCEPT	339-E.R 09-26-06			A
2* (250)	C4	84X ⌴ .625 ↧ .188	CALIPER	QA		P-3761	.620/.630 .174/.184	503-B.H 09-26-06			A
2* (260)	C4	⌖ .06 R S T	CMM	QA		00064	.004 TO .078 [N/C:20528]	339-E.R 09-26-06			R

3* (270)	G7	9.00	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
3* (280)	G7	4.50	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
3* (290)	G6	3.00	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
3* (300)	F7	1.50	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
3* (310)	F7	4X Ø1.0-8UNC ↧2.1	THREAD PLUG GA	QA		A-71	ACCEPT	503-B.H 09-26-06			A
3* (320)	G5	17.00 AT MOUNTING AREA	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
3* (330)	H2	125 DATUM E	PROFILOMETER	QA		J-1152	LESS THAN 100	503-B.H 09-26-06			A
3* (340)	G1	▱ .01 DATUM E	CMM	QA		00064	.019 [N/C:20528]	339-E.R 09-26-06			R
3* (350)	G3	.25± .01 DATUM E	CMM	QA		00064	.236 TO .256 [N/C:20528]	339-E.R 09-26-06			R
3* (360)		▱ .01 DATUM D	CMM	QA		00064	.014 [N/C:20528]	339-E.R 09-26-06			R
3* (370)	E2	.25± .01 DATUM D	CMM	QA		00064	.237 TO .254 [N/C:20528]	339-E.R 09-26-06			R
3* (380)	E2	125 DATUM D	PROFILOMETER	QA		J-1152	26 TO 71	339-E.R 09-26-06			A
3* (390)	F4	2X Ø2.50	CALIPER	QA		P-2056	2.25	503-B.H 09-26-06			A
3* (400)	F4	4X Ø1.0 -8UNC ↧2.5	THREAD PLUG GA	QA		A-71	ACCEPT	503-B.H 09-26-06			A
3* (410)	F4	1.72	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
3* (420)	D5	8X Ø1-8UNC ↧ 1.5	THREAD PLUG GA	QA		A-71	ACCEPT	503-B.H 09-26-06			A
3* (430)	B7	4X 1-8UNC ↧ 2.5	THREAD PLUG GA	QA		A-71	ACCEPT	503-B.H 09-26-06			A
3* (440)	C1	1.50	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A

3* (450)	C1	3.00	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
3* (460)	C1	4X Ø 1-8UNC ↧ 2.1	THREAD PLUG GA	QA		A-71	ACCEPT	503-B.H 09-26-06			A
3* (470)	C1	4.50	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
3* (480)	B1	9.00	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
4* (500)	H6	Ø1.375-6UNC THRU OR Ø1.375-6UNC X ↧1.5 MIN FOR FLANGE THK GREATER THAN 1.5	THREAD PLUG GA	QA		A-375	ACCEPT	339-E.R 09-26-06			A
4* (510)	E6	14X Ø1.885 ± .003 THRU	CMM	QA		00064	1.882 TO 1.887	339-E.R 09-26-06			A
4* (520)	E6	14X ⌴Ø3.00 SPOTFACE BACKSIDE MINIMUM TO CLEAN UP	SCALE	QA		J-922	ACCEPT	339-E.R 09-26-06			A
4* (530)	E6	⌖ .06 M A D 14 X Ø1.885	CMM	QA		00064	.026 TO .056	339-E.R 09-26-06			A
4* (540)	D6	10X Ø1.885 ± .003 THRU	CMM	QA		00064	1.882 TO 1.887	339-E.R 09-26-06			A
4* (550)	D6	10X ⌴Ø3.00 SPOTFACE BACKSIDE MINIMUM TO CLEAN UP	SCALE	QA		J-922	ACCEPT	339-E.R 09-26-06			A
4* (560)	D6	⌖ .06 M A D 10 X Ø1.885	CMM	QA		00064	.030 TO .038	339-E.R 09-26-06			A
4* (580)	C7	3X ⌴Ø2.000 - 2.001 ↧ .990 - 1.000	DIAL BORE GAGE DEPTH MICROMET	QA		J-1401 P-5018	1.9992 DIA. X .998 DEEP [N/C:20528]	890-M.V 09-26-06			R
4* (590)	C7	⌖ Ø.06 M A D 3X Ø1.130	CMM	QA		00064	.026 TO .042	339-E.R 09-26-06			A
4*	D4	Ø1.375-6UNC THRU OR Ø1.375-6UNC X 1.5 MIN	THREAD PLUG GA	QA		A-375	ACCEPT	339-E.R			A

(600)		FOR FLANGE THK GREATER 1.5						09-26-06			
4* (610)	D4	⌖ .06 M A D Ø1.375-6UNC	CMM	QA		00064	.028	339-E.R 09-26-06			A
4* (620)	E2	10X .25-20UNC-2B	THREAD PLUG GA	QA		A-726	ACCEPT	503-B.H 09-26-06			A
4* (630)	E2	Ø.03 X 45° CHAMFER		QA		VISUAL	ACCEPT	503-B.H 09-26-06			A
5* (640)	F7	12X .25-20UNC-2B	THREAD PLUG GA	QA		A-726	ACCEPT	503-B.H 09-26-06			A
5* (650)	F7	Ø.03 X 45° CHAMFER		QA		VISUAL	ACCEPT	503-B.H 09-26-06			A
5* (660)	G6	3X 1.0	CMM	QA		00064	1.0	339-E.R 09-26-06			A
5* (670)	G6	3X Ø3.00	CMM	QA		00064	3.00	339-E.R 09-26-06			A
5* (680)	G6	3X Ø1.50	CMM	QA		00064	1.51	339-E.R 09-26-06			A
5* (690)	E3	12XØ1.375-6UNC THRU OR Ø1.375-6UNC X ↧1.5 MIN FOR FLANGE THK GREATER THAN 1.5	THREAD PLUG GA	QA		A-375	ACCEPT	339-E.R 09-26-06			A
5* (700)	E3	⌖ .06 N A E 12X Ø1.375-6	CMM	QA		00064	.015 TO .055	339-E.R 09-26-06			A
5* (710)	D4	14XØ1.375-6UNC THRU OR Ø1.375-6UNC X ↧1.5 MIN FOR FLANGE THK GREATER THAN 1.5	THREAD PLUG GA	QA		A-375	ACCEPT	339-E.R 09-26-06			A
5* (720)	D4	⌖ .06 N A E 14X Ø1.375-6	CMM	QA		00064	.013 TO .065	339-E.R 09-26-06			A
5* (730)	E3	3X Ø1.885 ±..003 THRU	CMM	QA		00064	1.884 TO 1.885	339-E.R 09-26-06			A
5* (740)	E3	3X ⌴Ø3.00 SPOTFACE BACKSIDE MINIMUM CLEAN UP	SCALE	QA		J-922	ACCEPT	339-E.R 09-26-06			A
5* (750)	E3	⌖ .06 N A E 3X Ø1.885	CMM	QA		00064	.031 TO .033	339-E.R 09-26-06			A

6* (760)	G7	5.00	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
6* (770)	H7	5.00	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
6* (780)	H6	5.00	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
6* (790)	C6	6.00	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
6* (800)	C6	5.00	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
6* (810)	F6	4X Ø1.00	CALIPER	QA		P-2056	1.005	503-B.H 09-26-06			A
6* (820)	F7	6.50	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
6* (830)	F6	2.00	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
6* (840)	H5	2X .88/1.13		QA		VISUAL	NOT MEASURED AT T S OP	339-E.R 09-26-06			A
6* (850)	C5	2.250 ± .010		QA		VISUAL	NOT MEASURED AT T S OP	339-E.R 09-26-06			A
6* (860)	F4	.06 - .09 X 45°		QA		VISUAL	ACCEPT	503-B.H 09-26-06			A
7* (870)	E6	CONFIRM THAT SCRIBE MARKS ARE PARALLEL AND PERPENDICULAR TO THE WINDING AXIS.		QA		VISUAL	NOT PAR. / PERP. [N /C:20528]	339-E.R 09-26-06			R
7* (880)	C4	2X 1.56	INDICATOR	QA		J-1387	1.76 TO 1.77 [N/C:2 0528]	339-E.R 09-26-06			R
7* (890)	C4	5.190	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
7* (900)	C3	6X .375-16UNC-2B TAP ↧ .75 .03 X 45° CHAMFER	THREAD PLUG GA	QA		A-52	ACCEPT	503-B.H 09-26-06			A
7* (910)	B3	3.75	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
7*	B3		CMM	QA		00064	SEE IGES DATA	339-E.R			A

(920)		7.50						09-26-06			
8* (930)	C5	4X Ø1.0 THRU	CALIPER	QA		P-2056	1.005	503-B.H 09-26-06			A
9* (940)	C7	2X Ø.50 THRU	CALIPER	QA		P-2056	.498	503-B.H 09-26-06			A
9* (950)	F4	10.15	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
9* (960)	F4	1.63	CMM	QA		00064	SEE IGES DATA	339-E.R 09-26-06			A
9* (970)	D4	Ø.25 ↧5.0 ⌴Ø.625 ↧3.0	CALIPER	QA		P-2056	.247/.630	503-B.H 09-26-06			A
9* (980)	E2	Ø.25 ⌴Ø.625 DETAIL D	CALIPER	QA		P-2056	.247/.630	503-B.H 09-26-06			A
9* (990)	F2	4X Ø1.0 THRU	CALIPER	QA		P-2056	1.005	503-B.H 09-26-06			A
11* (1000)	C5	⌓ .02 A B C MACHINED SURFACES	CMM	QA		00064	-.026 TO .032 [N/C: 20528]	339-E.R 09-26-06			R
11* (1010)	E5	⌓ .5 A B C AS CAST SURFACES	CMM	QA		00064	-.312 TO .494 [N/C: 20528]	339-E.R 09-26-06			R
11* (1020)	C8	⌓ -.12 -.25 A B C WING SURFACES	CMM	QA		00064	-.698 TO .115 [N/C: 20528]	339-E.R 09-26-06			R
11* (1030)	D1	⌓ +0.0 -.12 A B C WING POCKET	CMM	QA		00064	-.173 TO .124 [N/C: 20528]	339-E.R 09-26-06			R

TEAM® Industrial Services, Inc.
TCM Division

10540 Chester Road
Cincinnati, Ohio 45215
(513) 771-3292 Phone

RADIOGRAPHY READER SHEET 4347
Form # 20.3A Rev. 3

Densitometer S/N: 12105	Cal Date: 8/2/06

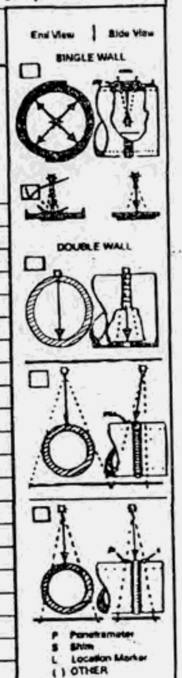
Client: Major Tool + Machine	Interpreter/Level: Robert Weaver II	Radiographer: Robert Weaver	Job No.: 13860001	R.O. No.: NA	Date: 9/23/06

Isotope/X-Ray	Dia. X Len/KV	Curies/MA	Focal Spot Size	SFD	SOD	Time	Film Processing	Film Type / 1 or 2	PB Screens	Film Technique / MFG/Speed
IR192	.106"x.106"	34	.151"	15"	14.25"		Auto	2	.010"	Single to Double / Kodak AA

Weld Process / Heat Number	Material Spec.	Material Diameter	Material Thickness	Penetrameter	Shim	Acceptance Standard
NA	316 SST	NA	.75"	ASTM 1B	NA	No indications >.080"

Description	Density Readings through IQI(s) & Area of Interest	*Remarks*: Refer to Film Identification for Special Requirement for ASME Sec XI
65708/1.0/1/134/818 SE141-115 page 1 of 2	1.8 - 3.0	NA

FITTING SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRAMETER SIZE	PENETRAMETER QUALITY LEVEL	SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER-PIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MIS-MATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT			REJECT
"T"	63-67	NA	1B	.016"																							✓			
↓	67-70	↓	↓	↓																							✓			
↓	70-73	↓	↓	↓																							✓			



Robert Weaver II — TEAM Technician Signature
Douglas D. Edwards — Customer Representative Signature
9/23/06 — Date

mc122177.tif (2547x3287x2 tiff) [2]

MCWF Type B

MTM Workorder Number: 65708/1 (B1)

RT Map of High Stress Region

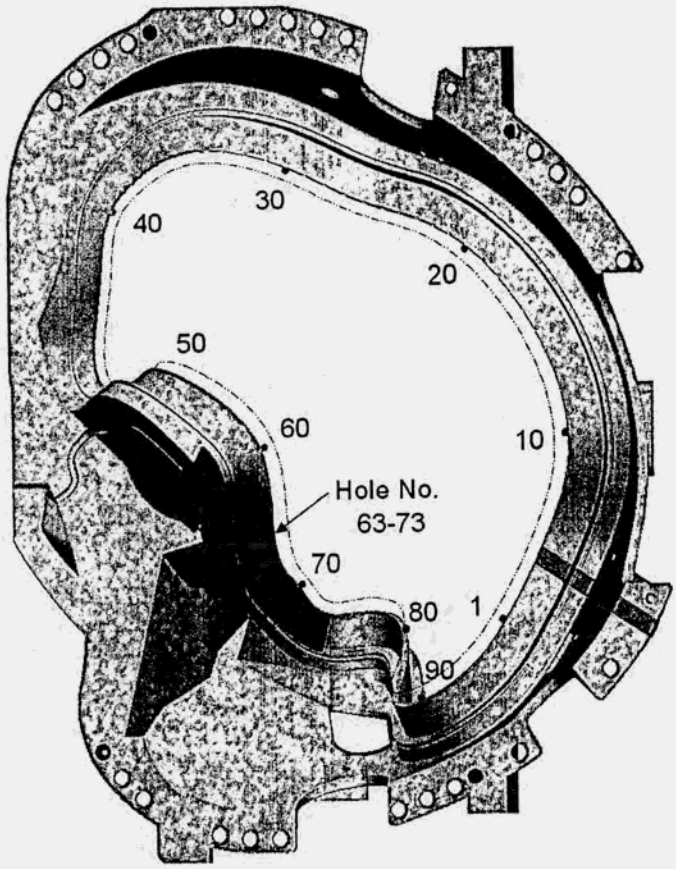


Figure 1 – High Stress Region Identification for Type-B MCWF

65708/1.0/1/134/818
SE141-115
9/23/04
page 2 of 2

Rev. 1

Quality Assurance Documentation for Part ID: SE141-115 - Item: 22

Workorder: 65708/1-0 Sub:1 Op:136

Part: SE141-115 - MODULAR COIL, TYPE B -

Drawing ID: SE141-115 Rev: 8			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
* (10)		DATUM -E- SIDE MAG PERMEABILITY TO BE NO GREATER THAN 1.02µ. CHECK 3 PLACES ADJACENT TO EVERY 5TH HOLE IN T SECTION.	MASTER GAGE	QA		J-1165	ACCEPTABLE PER CU OMER REQUIREMENT	053-M.D 09-14-06			A
* (20)		DATUM -D- SIDE MAG PERMEABILITY TO BE NO GREATER THAN 1.02µ. CHECK 3 PLACES ADJACENT TO EVERY 5TH HOLE IN T SECTION.	MASTER GAGE	QA		J-1165	ACCEPTABLE PER CU OMER REQUIREMENT	053-M.D 09-14-06			A

Major Tool & Machine, Inc.
1458 E. 19th Street, Indianapolis, In 46218
TEL:(317)636-6433 FAX:(317)634-9420

Nondestructive Test
Certification for Liquid Penetrant Examination
Quality Assurance Documentation for Part ID: SE141-115 - Item: 23

Date of Inspection: 09/25/2006 **Type of Material:** STAINLESS **NDT#:** 17994

Stage of Inspection:	Manufacturing Process:	Surface Condition:	Test Being Run to:	Heat Treated:
[ ] Incoming Inspection [ ] In-Process Inspection [x] After Repair [ ] Final Inspection	[x] Weldment [ ] Casting [ ] Bar Stock [ ] Plate [ ] Forging [ ] Other WELD UPGRADE	[ ] Machined [ ] Rough [x] Other BLENDED FLUSH	[x] Router Instructions [x] Drawing [ ] Test Plan [ ] Technique Card SEE NOTES	[ ] Yes [x] No

Part Information:
MTM Job Number: 65708/1.0 -Sub:1 -Op:160
Resource ID: 810-LIQUID PENETRANT INSPE
Part ID: SE141-115
Part Name: MODULAR COIL, TYPE B
Serial Number:
Customer P.O.: S005242-F
Customer Unit/Plant:

Test Results:
Quantity Inspected: 1
Quantity Accepted: 0
Quantity Rejected: 1
Run Hours: 0.0

Inspection Results:
Customer N/C #:
[ ] Accepted
[x] Rejected
[ ] N/C-Report
[ ] Rework
MTM N/C #: 20518

Customer Inspection Plan: SEE NOTES
Test Step:
Revision:
Material Test Number:

Inspection Criteria:
Customer Specification: ASTM A903/A903M
MTM Spec Number: PS582 (REF NDT-WI-009)
Acceptance Standard: ASTM A903 (SEE NOTES)

Inspection Materials Used:
Manufacturer: SHERWIN
Type of Penetrant: DP-51
Batch Number: 69-E47
Developer: D-100
Batch Number: 65-C6

Penetrant Examination Processes:
Type: II (Visible) / Dwell Time: 20 Minutes
Method: A (Water Wash)
Method of Drying: Forced Air Fan
Form: e (nonaqueous for Type II visible dye) / Dwell Time: 20 Min

Inspection Requirements:
100 % of all accessible surfaces [ ] Joint Preps [ ] Root Pass [ ] Back Gouge [ ] Cover Pass [ ] Other

Notes:
INSPECT WELD UPGRADES ON LEAD BLOCK PAD ON PRODUCTION MODULAR COIL WINDING FORM TYPE-B.
4 LINEAR INDICATIONS IN WELD AREA.
1. BOTTOM CORNER NEXT TO BOTL HOLE, .200", LINEAR
2. BOTTOM CENTER NEXT TO BOLT HOLE, .100", LINEAR
3. TOP CORNER NEXT TO BOLT HOLE, .200", LINEAR
4. TOP CENTER NEXT TO BOLT HOLE, .200" LINEAR
(LINEAR INDICATIONS DO NOT BREAK INTO BOLT HOLES)
5. 6 RANDOM ROUNDED INDICATIONS ARE ACCEPTABLE PER CUSTOMER REQUIREMENTS. PART IS REJECTED FOR THE 4 LINEAR INDICATIONS PER ASTM A903/A903M LEVEL 1.

ACCEPTANCE CRITERIA: ASTM A903/A903M LEVEL I FOR MACHINED SURFACES

This is to certify that the pieces specified have been inspected in accordance with the specifications shown.

Inspector: 581-D.EDWARDS **Date:** 09/25/2006 Douglas D. Edwards Level II MTM P-10

Quality Assurance Documentation for Part ID: SE141-115 - Item: 24

Workorder: 65708/1-0 Sub:1 Op:170

Part: SE141-115 - MODULAR COIL, TYPE B -

Drawing ID: SE141-115 Rev: 8			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		NC20475 MAG PERMEABILITY TO BE NO	MASTER GAGE	QA		J-1165	LESS THAN 1.02	503-B.H			A
(10)		GREATER THAN 1.02µ.						09-25-06			

Quality Assurance Documentation for Part ID: SE141-139 - Item: 25

Workorder: 65708/1-0 Sub:12 Op:30

Part: SE141-139 - SHORT BEARING PLATE TYPE "B" -

Drawing ID: SE141-139 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
1* (10)	G2	RECORD MAGNETIC PERMEABILITY. RESULTS TO BE NO GREATER THAN 1.02µ.	MASTER GAGE	QA		J-1270	LESS THAN 1.02	854-R.U 07-09-06			A

Quality Assurance Documentation for Part ID: SE141-140 - Item: 26

Workorder: 65708/1-0 Sub:13 Op:30

Part: SE141-140 - LONG BEARING PLATE TYPE "B" -

Drawing ID: SE141-140 Rev: 1			INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
1* (10)	G2	RECORD MAGNETIC PERMEABILITY. RESULTS TO BE NO GREATER THAN 1.02µ.	MASTER GAGE	QA		J-1165	LESS THAN 1.02	854-R.U 07-16-06			A

Employees: 053-M.Dunn / 242-M.Griffith / 339-E.Root / 503-B.Houk / 825-B.Jarrett / 854-R.Upchurch / 890-M.Vislay

PRINCETON UNIVERSITY

PLASMA PHYSIC LABORATORY -- PPPL

PRODUCT CERTIFICATION AND SHIPPING RELEASE

PROJECT	ITEM DESCRIPTION			SHIPMENT NUMBER	
PPPL - NCSX Modular Coil Winding Form	A-1 Modular Coil Winding Form			8	
PPPL SUBCONTRACT/ ORDER NO.	**REV.**	**ITEM NO.**	**SUPPLIER REFERENCE NO.**	**REV.**	**QUANTITY SHIPPED**
S005242-F	Amend #14	B-1	PPPL -FP-LTS-3 with Major Tool & Machine	Amend # 9	1

SUPPLIER'S CERTIFICATION

This is to certify that the products and services identified herein have been produced under a controlled quality assurance program and are in conformance with the procurement requirements including applicable codes, standards and specifications as identified in the above-referenced documents unless noted below. Any supporting documentation will be retained in accordance with the procurement requirements.

Per agreement with PPPL, authorization for shipping release is granted prior to sign off of NC's, as set forth below, as well as completion of documentation package. Delivery of Part to PPPL will follow additional machining to achieve the vertical clearance for the flange back spot faces, as outlined in NC 20519 and requested by PPPL in letter dated 27 September 2006.

SIGNED: Nancy K. Horton Digitally signed by Nancy K. Horton DN: CN = Nancy K. Horton, C = US, O = Energy Industries of Ohio, OU = Nuclear Energy Date: 2006.09.27 15:27:17 -04'00' DATE: 9/27/06

TITLE: **EIO Program Manager for NCSX** COMPANY: **Energy Industries of Ohio**

PPPL (AUTHORIZED REPRESENTATIVE) SHIPPING RELEASE

This is to certify that evidence supporting the above Supplier's Certification statement has been audited and no product/service nonconformances from procurement requirements have been found unless noted below. This product/service is hereby released for shipment.

This section serves as the Quality Assurance release for the above described product for shipment. It does not constitute an acceptance thereof and does not relieve the Vendor, Manufacturer or Contractor of any and all responsibility or obligation imposed by the purchase contract. It does not waive any rights the Purchaser may have under the purchase contract, including the Purchaser's right to reject the above described material upon discovery of any deviations from requirements of the purchase contract, drawings and specifications.

NONCONFORMANCES FROM PROCUREMENT QUALITY REQUIREMENTS:

As documented on approved Metal Tek Corrective Action Reports, including CA1537and CA1538, as well as approved Nonconformance NC's 20275, 20483 & 20487 from Major Tool. In addition, the following NC's, which have been approved by PPPL are currently in their signature cycle:

- *NC20518 for PT rejections of weld upgrades (to be accepted as-is)*
- *NC 20519 for Various Surface conditions - note that all rework is complete except for additional machining to achieve the vertical clearance for the flange back spot faces, as requested by PPPL.*
- *NC20528 for Rejections on the IDC, which have been reviewed and accepted by PPPL to use as-is.*

REMARKS/PRODUCT SERIAL NUMBERS:

Release with open NC action as documented above.

BY PPPL QA REPRESENTATIVE (Or Designee)	DATE
Irving Zatz Digitally signed by Irving Zatz DN: CN = Irving Zatz, C = US, O = PPPL Date: 2006.09.27 15:41:39 -04'00'	