

# ENERGY INDUSTRIES OF OH

Purchase Order Number:

S005242-F

Part Number:

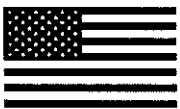
SE141-116

Part Name:

MCWF C-5

MTM Work Order Number:

65707/5.0



*Major*

Tool & Machine, Inc.

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**Quality Assurance Documents For**  
**Workorder: 65707/5.0**

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**Customer: 8909 - ENERGY INDUSTRIES OF OHIO**  
**Customer P.O.: S005242-F**  
**Customer Part ID: SE141-116 - MCWF C-5**

<u>Item#</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
1	CERTIFICATE OF CONFORMANCE
2	COMPLETED SHOP TRAVELERS: - 65707-5 completed shop travelers.xls
3	NC19233 - SE141-137 BEARING PLATES: - NC19233 Dispositioned.pdf
4	NC19234 - SE141-138 BEARING PLATES: - NC19234 Dispositioned.pdf
5	NC19511 - POLOIDAL BREAK REPAIR: - NC19511_C5PolBreak_041806.pdf
6	NC19587 - PT REJECTIONS: - NC19587_DPforC5.pdf
7	NC19607 - RT REJECTIONS: - NC19607_S5242_C5RT.pdf
8	NC19710 - FINAL COSMETIC REPAIRS: - NC19710 dispositioned.pdf
9	NC19713 - FINAL DIMENSIONAL : - NC19713_Signedoff_C5IDC_TGrind.pdf
10	NC19718 - FINAL VISUAL NC: - NC19718_Signedoff_C5_cleanup.pdf

**DS141-036 - STUD**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
11	4	10	30	Material Certification: THIS HARDWARE TO BE REPLACED / DS141-036 - STUD - MC108535.TIF / 8969595

**DS141-060 - NUT**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
12	4	10	50	Material Certification: THIS HARDWARE TO BE REPLACED / DS141-060 - NUT - MC108531.TIF / 8990135

**SE141-078 - POLOIDAL BREAK SHIM ASSEMBLY**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
13	2	30	20	Certificate of Conformance: N/A / LOCTITE 411 - LOCKING COMPOUND - mc106229.tif / CERTIFIED

**SE141-078-03 - INSULATING SLEEVE**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
14	3	10	10	Certificate of Conformance: / G11CR_1 - ROUND, BAR, 1.75 DIA - mc108545.tif / CERTIFIED

**SE141-103**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
15	1	140		Inspection Data Checklist: 2 steps

**SE141-103-1 - MOD COIL WINDING FORM ASSEMBLY TYPE-C**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
16	0	10	10	Material Certification: Trace ID: 116252 / ER316MNNF_093_GTAW - WELD WIRE,GTAW .093 DIA - mc106579.tif / W020132 / WO20132
17	0	10	10	Material Certification: Trace ID: 113686 / ER316MNNF_093_GTAW - WELD WIRE,GTAW .093 DIA - mc106164.pdf / W020132 / WO20132

**SE141-103-4 - INSULATING SHEET**

<u>Item#</u>	<u>Sub</u>	<u>Op</u>	<u>Pc</u>	<u>Document Description / Material Description / File Name / Heat Lot</u>
18	7	10	10	Certificate of Conformance: G11CR / G11CR_3 - SHEET, FLAT - mc107081.tif / CERTIFIED

**SE141-103-5 - INSULATING SLEEVE**



Customer: 8909 - ENERGY INDUSTRIES OF OHIO  
Customer P.O.: S005242-F  
Customer Part ID: SE141-116 - MCWF C-5

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
19	5	10	10	Certificate of Conformance: / G11CR_1 - ROUND, BAR, 1.75 DIA - Same as Item #14 / CERTIFIED

**SE141-116 - MODULAR COIL WINDING FORM TYPE-C**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
20	1	40		Inspection Data Checklist: 1 steps
21	1	88		Inspection Data Checklist: 6 steps
22	1	100		Nondestructive Liquid Penetrant Test Certification #16421
23	1	110		Map(s): RT MAP AND READER SHEET - MC119135.PDF
24	1	120		Inspection Data Checklist: 2 steps
25	1	130		Inspection Data Checklist: 4 steps
26	1	132		Inspection Data Checklist: 83 steps
27	14	20		Nondestructive Liquid Penetrant Test Certification #16422
28	14	30		Inspection Data Checklist: 1 steps

**SE141-137 - BEARING PLATE DETAIL**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
29	9	10	10	Material Certification: TO BE REPLACED - SEE NC19233 / 316_17 - BAR, FLAT, 1"X3", 316 SST - MC115096.TIF / M11443
30	9	40		Inspection Data Checklist: 1 steps

**SE141-138 - BEARING PLATE DETAIL**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
31	10	10	10	Material Certification: TO BE REPLACED - SEE NC19234 / 316_17 - BAR, FLAT, 1"X3", 316 SST - Same as Item #29 / M11443
32	10	40		Inspection Data Checklist: 1 steps

CERTIFICATE OF CONFORMANCE

Page: 1  
Date: 06/12/06  
User ID: GRIFFIT#

TO: ENERGY INDUSTRIES OF OHIO

DATE: 04/28/2006

ATTENTION: Receiving Department

Seller certifies that:

Part Number: SE141-116

Purchase Order: S005242-F

Part Name: MCWF C-5

Workorder: 65707/5.0

Part Serial Number: C5

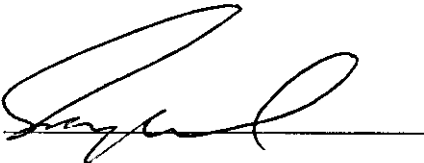
Quantity: 1

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:

MANUFACTURED PER B.P. SE141-103 REV. 3 AND P.O. REQUIREMENTS.

Signature: 

Title: Dusky Mae

Date: 4/28/06



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**Tool & Machine, Inc.**

COMPLETED SHOP TRAVELERS

SE141-116

MCWF C5

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
Manufacturing Planning- QA planning- Production Support	65707/5.0 -Sub:0 Op#:10	Closed	4/23/2006	744-P.Schumacher
FINAL INSPECTION----PREPARE PART FOR SOURCE INSPECTION.---- Review and complete QA data package per QAP and the requirements of the product specification NCSX-CSPEC-141-03-05 September 23- 2004.-- Contact CFT to review data package prior to notifying source inspection.	65707/5.0 -Sub:0 Op#:20	Closed	4/28/2006	744-P.Schumacher
SOURCE INSPECTION --FINAL ACCEPTANCE OF PART AND DATA PACKAGE.--HAVE SOURCE INSPECTOR STAMP AND SIGN C OF C.--	65707/5.0 -Sub:0 Op#:30	Closed	4/28/2006	840-G.Masood
PACKAGE AND SHIP----BUILD A BOX/CRATE SUITABLE FOR PROTECTING THE PART FROM THE ENVIRONMENT.----WEIGH THE FINISHED PART AND METAL STAMP THE VALUE IN POUNDS ON THE CASTING IN THE AREA MARKED ON THE CUSTOMER DRAWING.---- PART MUST BE PROTECTED AND WRAPPED IN PLASTIC PRIOR TO INSERTING INTO THE CRATE. REFER TO PS583.----PART IS TO BE SHIPPED TO PPPL IN PRINCETON- NJ PER QAP SHIPPING ADDRESS. ---CRATE MUST BE MARKED/STENCILED PER THE MTM DRAWING.---	65707/5.0 -Sub:0 Op#:40	Closed	4/28/2006	131-W.Allen
RECEIVE CUSTOMER SUPPLIED MATERIAL. ----Part Number: SE141- 116 Rev: 6--Part Description: PRODUCTION WINDING FORM TYPE-C	65707/5.0 -Sub:1 Op#:10	Closed	12/2/2005	131-W.Allen
SETUP AND MACHINE THE FLANGE FACES AND FLANGE PERIPHERY TO WITHIN .100- STOCK.	65707/5.0 -Sub:1 Op#:18	Closed	2/20/2006	005-K.Contractor
SET CASTING ON RISERS WITH DATUM -E- FLANGE DOWN. ROUGH MACHINE OUTSIDE POLOIDAL BREAK FLANGES TO WITHIN .030- OF FINISH. MACHINE POLOIDAL BREAK THROUGH THE FLANGES AND CASTING WALL TO 2.050- LEAVING THE T SECTION TO BE CUT AT A LATER TIME.	65707/5.0 -Sub:1 Op#:20	Closed	2/27/2006	345-D.Sauser
USING TABS CUT FROM CUSTOMER SUPPLIED MATERIAL- WELD TEMPORARY SHIM IN PLACE. WELD TABS TO SHIM AND TABS TO CASTING. (DO NOT WELD SHIM DIRECTLY TO CASTING)--USE MACHINED QUALIFIERS TO HELP POSITION THE SHIM.	65707/5.0 -Sub:1 Op#:25	Closed	2/27/2006	345-D.Sauser



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.--	65707/5.0 -Sub:1 Op#:30	Closed	2/27/2006	345-D.Sauser
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.--	65707/5.0 -Sub:1 Op#:35	Closed	3/8/2006	713-M.Smith
DEBURR COMPLETE BOTH FLANGES- INCLUDING ALL HOLES AND COUNTERBORES. REMOVE ANY ROUGHNESS ON THE LARGE WING AREAS USING SCOTCH BRITE (MACHINE SCALLOPS ARE ACCEPTABLE).	65707/5.0 -Sub:1 Op#:40	Closed	3/8/2006	576-J.Geisinger
CD-1 (SETUP 1)--SET UP MTMFX-3099 ON ANGLE PLATE.--LOAD PART WITH DATUM -D- FLANGE UP.--VERIFY FLATNESS OF DATUM -D- FACE AND RECORD RESULTS IN IDC (SEE LINKED DATUM -D-MAP)--RECORD TOOLING BALL LOCATIONS IN IDC.--COMPLETE ALL PROGRAMS FOR SETUP 1.	65707/5.0 -Sub:1 Op#:50	Closed	3/17/2006	445-J.Purkhiser
CD-2 (SETUP 2)--SET CASTING ON RISERS WITH DATUM -D- FLANGE UP. --RECORD TOOLING BALL LOCATIONS IN IDC. COMPLETE ALL PROGRAMS FOR SETUP 2.	65707/5.0 -Sub:1 Op#:55	Closed	3/22/2006	445-J.Purkhiser
CE-2 (SETUP 4)--SET CASTING ON RISERS WITH DATUM -E- FLANGE UP. --RECORD TOOLING BALL LOCATIONS IN IDC. --COMPLETE ALL PROGRAMS FOR SETUP 4.	65707/5.0 -Sub:1 Op#:60	Closed	3/29/2006	315-C.Land
CE-1 (SETUP 3)--SET UP MTMFX-3100 ON ANGLE PLATE.--LOAD PART WITH DATUM -E- FLANGE UP.--VERIFY FLATNESS OF DATUM -E- FACE AND RECORD RESULTS ON IDC (SEE LINKED DATUM -E-MAP)--RECORD TOOLING BALL LOCATIONS IN IDC.--COMPLETE ALL PROGRAMS FOR SETUP 3.--	65707/5.0 -Sub:1 Op#:70	Closed	4/3/2006	315-C.Land



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COMPLETED SHOP TRAVELERS

SE141-116

MCWF C5

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
<p>SET PART BACK ON CD-1 (SETUP 1 FIXTURE)--FINISH MACHINE THE SOUTH T SECTION OF THE POLOIDAL BREAK TO FINISH. MACHINE THE OPPOSITE T SECTION TO MATCH THE OUTER POLOIDAL BREAK SURFACE THAT WAS MACHINED OFF OF LOCATION. T SECTION OF THE BREAK SHOULD FINISH AT 2.350. DO NOT MACHINE THE BREAK ANY LARGER THAN 2.370-.</p> <p>POLOIDAL BREAK OPERATION (SETUP 5)--- INSTALL MTMF-3099 ON RISERS. --- TACK WELD FIXTURE TO RISER BLOCKS TO PREVENT MOVEMENT.--- LOAD PART ON FIXTURE WITH DATUM -D- FLANGE UP. --- TACK WELD DATUM -E- FLANGE TO THE FIXTURE ON EITHER SIDE OF THE POLOIDAL BREAK.--- TACK WELD BRACING TO PREVENT MOVEMENT OF THE POLOIDAL BREAK WHEN THE TEMPORARY SHIM IS REMOVED. TABS MADE FROM THE CASTING MATERIAL ARE TO BE WELDED TO THE BRACING AND THEN THE TABS WELDED TO THE CASTING.--- RECORD TOOLING BALL LOCATIONS IN IDC. --- REMOVE SHIM AND FINISH MACHINE POLOIDAL BREAK.--- INSTALL DRILL FIXTURE AND COMPLETE GUN DRILLING OPERATION.--- COMPLETE ALL REMAINING PROGRAMS FOR SETUP 5.--- REMOVE THE DRILL FIXTURE AND INSTALL THE TWO TAPERED PINS. PLACE ALUMINUM BLOCKS IN THE POLOIDAL BREAK AND CLAMP OVER THE BLOCKS TO MINIMIZE ANY MOVEMENT DURING HANDLING. --- VERIFY THAT QUALIFIERS HAVE BEEN CUT ON THE OUTER DIAMETERS OF THE -D- AND -E- FLANGES ACROSS THE POLOIDAL BREAK. THIS WILL BE USED FOR ALIGNMENT DURING THE ASSEMBLY OPERATION.--- CUT THE TACKS AND BRACING LOOSE AND REMOVE THE PART FROM THE FIX</p>	65707/5.0 -Sub:1 Op#:75	Closed	4/4/2006	315-C.Land
	65707/5.0 -Sub:1 Op#:80	Closed	4/19/2006	315-C.Land



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COMPLETED SHOP TRAVELERS

SE141-116

MCWF C5

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
<p>PROTECT PART FROM METAL CONTAMINATION DUE TO CONTACT WITH IRON- SPECIFICALLY WHEN RIGGING PART FOR MOVEMENT.-- ALL GRINDING WHEELS AND DISKS MUST BE VIRGIN MATERIAL NOT PREVIOUSLY USED ON ANY OTHER MATERIAL TO AVOID MATERIAL CONTAMINATION.----- FINISH HAND TAPPING OF 3/8-16 HOLES USING TAP GUIDE (IF REQUIRED)--- START BLENDING T-SECTION--- HAND GRIND 1/16 CHAMFER ON ALL SPLIT LINE EDGES OF POLOIDAL BREAK AND ON ALL THRU HOLES AT POLOIDAL BREAK.--- HAND GRIND VPI GROOVE WHERE REQUIRED. --- 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--- HAND GRIND 1/16 TO 3/32 CHAMFER ON OUTER EDGE OF T IN ALL ACCESSIBLE AREAS.--- FINISH ALL OTHER REQUIRED DEBURRING ON DATUM -D- SIDE PRIOR TO MOVING PART TO PLANT 2 FOR FLIPPING.</p>	65707/5.0 -Sub:1 Op#:85	Closed	4/11/2006	219-T.Laird
<p>PROTECT PART FROM METAL CONTAMINATION DUE TO CONTACT WITH IRON- SPECIFICALLY WHEN RIGGING PART FOR MOVEMENT.-- ALL GRINDING WHEELS AND DISKS MUST BE VIRGIN MATERIAL NOT PREVIOUSLY USED ON ANY OTHER MATERIAL TO AVOID MATERIAL CONTAMINATION.----- FLIP PART AND SET UP ON DATUM -D---- START BLENDING 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--- HAND GRIND 1/16 TO 3/32 CHAMFER ON OUTER EDGE OF T IN ALL ACCESSIBLE AREAS.--- USING 1/4- NUMBERS- STAMP NUMBERS ON FACE OF T PER DRAWING. USE DRAWING SE141-116-2MTM REV 6A FOR STAMPING NUMBERS.----</p>	65707/5.0 -Sub:1 Op#:88	Closed	4/21/2006	744-P.Schumacher
<p>HAND GRIND VPI GROOVE AND AREAS OF CAST STOCK THAT WERE NOT REMOVED BY MACHINING. SEE ROB BACKEK FOR DETAILS.</p>	65707/5.0 -Sub:1 Op#:89	Closed	4/12/2006	219-T.Laird





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COMPLETED SHOP TRAVELERS

SE141-1116

MCWF C5

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
<p>PERFORM COSMETIC DEBURR AND FINAL CLEAN.--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.--</p> <p>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: LP1 CERTIFICATION--</p> <p>Specification: ASTM A903/A903M--Method: E165--Acceptance: ASTM A903/A903M LEVEL 1</p> <p>GOVERNMENT SOURCE INSPECTOR TO WITNESS PT RESULTS.</p>	65707/5.0 -Sub:1 Op#:90	Closed	4/12/2006	219-T.Laird
	65707/5.0 -Sub:1 Op#:100	Closed	4/24/2006	581-D.Edwards
	65707/5.0 -Sub:1 Op#:101	Closed	4/25/2006	840-G.Masood



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Tool & Machine, Inc.

COMPLETED SHOP TRAVELERS

SE141-116  
MCWF C5

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
<p>THE -T- AREAS DEFINED AS -HIGH STRESS- ARE TO BE RT 100%. SEE PS581 FOR PROCESS INSTRUCTIONS.----HAND SKETCH A LAYOUT OF ALL FILM LOCATIONS ON 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 PENETRATER 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.----Certification: RADIOGRAPHIC INSPECTION-- Map(s): RT MAP Rev: --Part Number: SE141-116 Rev: 8--Part Description: WINDING FORM TYPE-C--Material Type: 316 SST --Material Thickness: VARIES</p>	65707/5.0 -Sub:1 Op#:110 65707/5.0 -Sub:1 Op#:111	Closed Closed	4/13/2006 4/25/2006	010-R.Contractor 840-G.Masood
<p>GOVERNMENT SOURCE INSPECTOR TO WITNESS RT RESULTS. 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 SECTION- 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: SE141-116 Rev: 8--Part Description: PRODUCTION WINDING FORM TYPE-C SOURCE FOR MAG PERMEABILITY</p>	65707/5.0 -Sub:1 Op#:120 65707/5.0 -Sub:1 Op#:121	Closed Closed	4/25/2006 4/25/2006	840-G.Masood 840-G.Masood



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**Tool & Machine, Inc.**

COMPLETED SHOP TRAVELERS

SE141-116

MCWF C5

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
<p>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 ASSEMBLY TO 1500 FT-LBS.--VERIFY GAP AT POLOIDAL BREAK PER IDC.--Part Number: SE141-116 Rev: 8--Part Description: WINDING FORM TYPE-C</p>	65707/5.0 -Sub:1 Op#:130	Closed	4/26/2006	524-G.Davis
<p>CMM INSPECT AND COMPLETE IDC. OUTPUT INSPECTION RESULTS FOR VERIFICATION USING VERISURF SOFTWARE.---Part Number: SE141-116 Rev: 8--Part Description: WINDING FORM TYPE-C</p>	65707/5.0 -Sub:1 Op#:132	Closed	4/26/2006	339-E.Root
<p>SOURCE INSPECTION - FINAL ACCEPTANCE OF PART AND DATA PACKAGE. HAVE SOURCE INSPECTOR STAMP AND SIGN C OF C.</p>	65707/5.0 -Sub:1 Op#:133	Closed	5/1/2006	578-S.Martinez



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COMPLETED SHOP TRAVELERS

SE141-116  
MCWF C5

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
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: SE141-103---Part Description: MCWF ASSEMBLY TYPE-C	65707/5.0 -Sub:1 Op#:140	Closed	4/25/2006	840-G.Masood
SOURCE FOR ELECTRICAL TEST	65707/5.0 -Sub:1 Op#:150	Closed	4/25/2006	840-G.Masood
RECEIVE CUSTOMER SUPPLIED CASTING	65707/5.0 -Sub:2 Op#:10	Closed	12/9/2005	437-J.Hiatt
MACHINE THE SHIM COMPLETE PER THE DRAWING AND CNC PROGRAMS.	65707/5.0 -Sub:2 Op#:20	Closed	3/1/2006	234-E.Booher
ASSEMBLE (5) OF THE INSULATING SLEEVES INTO THE SHIM AND BOND USING LOCTITE 411. DO NOT INSTALL THE BUSHINGS IN THE OUTSIDE HOLES. THEY WILL BE INSTALLED LATER.	65707/5.0 -Sub:2 Op#:30	Closed	4/14/2006	825-B.Jarrett
SAW OFF 16- AND MOVE TO NEXT WORK CENTER.	65707/5.0 -Sub:3 Op#:10	Closed	6/4/2005	227-D.Bockover
MACHINE PER THE DRAWING FOR A SLIP FIT WITH MATING DETAIL. OBTAIN FINISHED MACHINED CASTING SHIM BEFORE FINAL SIZING THE O.D. OF THE SLEEVE.	65707/5.0 -Sub:3 Op#:20	Closed	4/11/2006	236-M.Jennings
RECEIVE MATERIAL--NOTIFY CFT AND FORWARD MATERIAL STORES.	65707/5.0 -Sub:4 Op#:10	Closed	6/1/2005	131-W.Allen
SAW OFF 30- LENGTH AND MOVE TO NEXT WORK CENTER.	65707/5.0 -Sub:5 Op#:10	Closed	6/4/2005	227-D.Bockover
MACHINE PER THE DRAWING FOR A SLIP FIT WITH MATING DETAIL. CHECK FINISHED MACHINED CASTING BEFORE FINAL SIZING THE O.D. OF THE SLEEVE.	65707/5.0 -Sub:5 Op#:20	Closed	5/1/2006	176-J.Denney



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COMPLETED SHOP TRAVELERS

SE141-116  
MCWF C5

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
SAW 13- LENGTH AND MOVE TO NEXT WORK CENTER.	65707/5.0 -Sub:6 Op#:10	Closed	6/2/2005	227-D.Bockover
RECEIVE MATERIAL	65707/5.0 -Sub:7 Op#:10	Closed	4/5/2005	131-W.Allen
MACHINE THE PROFILE LEAVING STOCK PER PROGRAM.----ALSO MACHINE OUT FLAT STOCK PIECES FOR SHIMS BEHIND THE OUTSIDE OF POLOIDAL BREAK FLANGE PER CNC PROGRAM.	65707/5.0 -Sub:7 Op#:20	Closed	9/14/2005	129-E.Taina
SAW TO A LENGTH OF 6.75-.	65707/5.0 -Sub:9 Op#:10	Closed	1/10/2006	227-D.Bockover
MACHINE BEARING PLATES COMPLETE FROM MATERIAL SUPPLIED BY MAJOR TOOL.--VENDOR TO SUPPLY DIMENSIONAL INSPECTION REPORT.--MTM TO DO ALL NDT TESTING PER NOTE 5.--Part Number: SE141-137 Rev: 1--Part Description: BEARING PLATE--Dimensional Report: VENDOR SUPPLIED--Dimensional Report: VENDOR SUPPLIED	65707/5.0 -Sub:9 Op#:30	Closed	2/8/2006	subcontact
PERFORM A MAGNETIC PERMEABILITY CHECK USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE NO GREATER THAN 1.03µ.--Part Number: SE141-137 Rev: 1--Part Description: BEARING PLATE DETAIL	65707/5.0 -Sub:9 Op#:40	Closed	2/8/2006	503-B.Houk
SAW TO A LENGTH OF 10.5-.	65707/5.0 -Sub:10 Op#:10	Closed	1/10/2006	227-D.Bockover
MACHINE BEARING PLATES COMPLETE FROM MATERIAL SUPPLIED BY MAJOR TOOL.--VENDOR TO SUPPLY DIMENSIONAL INSPECTION REPORT.--MTM TO DO ALL NDT TESTING PER NOTE 5.----Part Number: SE141-138 Rev: 1--Part Description: BEARING PLATE--Dimensional Report: VENDOR SUPPLIED--Dimensional Report: VENDOR SUPPLIED	65707/5.0 -Sub:10 Op#:30	Closed	2/8/2006	subcontact
PERFORM A MAGNETIC PERMEABILITY CHECK USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE NO GREATER THAN 1.03µ.--Part Number: SE141-138 Rev: 1--Part Description: BEARING PLATE DETAIL	65707/5.0 -Sub:10 Op#:40	Closed	2/8/2006	503-B.Houk
WELD MARKED UP AREAS AND BLEND REPAIRS SMOOTHIE. MAKE SURE THAT AREAS REMAIN IDENTIFIED FOR NDT.--BLEND OUT ALL OTHER MARKED AREAS.--	65707/5.0 -Sub:14 Op#:10	Closed	4/21/2006	233-G.Stupples
PENETRANT INSPECT WELD REPAIR.--Specification: ASTM A903/A903M LEVEL 1--MTM NDT Cert: REPAIR OF DEFECTS	65707/5.0 -Sub:14 Op#:20	Closed	4/24/2006	581-D.Edwards



*Major*

**Tool & Machine, Inc.**

COMPLETED SHOP TRAVELERS

SE141-116

MCWF C5

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
PERFORM A RELATIVE MAGNETIC PERMEABILITY CHECK OF THE REPAIRED AREAS. VERIFY PERMEABILITY IS LESS THAN 1.02. PERMEABILITY TO BE CHECKED AT A MINIMUM OF 1 POINT EVERY 2 SQR. INCHES IN THE REPAIRED REGION.--	65707/5.0 -Sub:14 Op#:30	Closed	4/26/2006	503-B.Houk
MAP OUT THE AREAS THAT REQUIRE GRINDING AS DEFINED ON THE CUSTOMER SUPPLIED DOCUMENT. INSPECT THE WINDING AND RECORD THE RESULTS ON THE CUSTOMER MAP THAT CORRESPOND TO THE IDENTIFIED AREAS. THIS DATA WILL BE USED TO VERIFY THAT SUFFICIENT STOCK HAS BEEN REMOVED AFTER GRINDING.	65707/5.0 -Sub:15 Op#:10	Closed	4/26/2006	503-B.Houk
GRIND THE AREAS OF HEAVY STOCK THAT ARE MAPPED ON THE T SECTION. VERIFY THAT THE MINIMUM AMOUNT OF STOCK HAS BEEN REMOVED BY COMPARING THE INSPECTION RESULTS AFTER GRIND TO THE ORIGINAL RESULTS.	65707/5.0 -Sub:15 Op#:20	Closed	4/26/2006	524-G.Davis
RECORD THE FINAL INSPECTION RESULTS ON THE CUSTOMER SUPPLIED MAP. VERIFY THAT THE MINIMUM AMOUNT OF MATERIAL HAS BEEN REMOVED AND THAT THE SURFACE CONDITION OF THE T IS ACCEPTABLE AFTER GRIND.	65707/5.0 -Sub:15 Op#:30	Closed	4/26/2006	524-G.Davis

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

MTM N/C: 19233

Page: 1  
Date: 02/17/06  
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: SE141-137 /  
Drawing ID: SE141-137

Revision: 1

Customer P.O.: S005242-F/Ln:4  
Serial No./Qty: 12 PCS.

Reported By: MIKE GRIFFITH  
E-Mail: mGriffith@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: PER RFD 14-011 MAGNETIC PERMEABILITY TO BE NO GREATER THAN 1.03.  
BEARING PLATES FOR C4, C5 AND C6 CHECK BETWEEN 1.03 AND 1.05.

Proposed Disposition:  
PROPOSE TO USE AS IS.

Number of additional pages: \_\_\_\_\_

Customer Disposition:     Use As Is     Rework     Repair     Scrap     Replace

The material specified for the bearing plates will be changed to Stellanloy. The bearing plates for all MCWFs except C1, C2, C3 (already been accepted by NCSX) shall be made of Stellanloy.

Major Tool Implemented By: Mike Griffith Title: CST ENGINEER Date: 3/23/06

PER ATTACHED EMAIL, PARTS WILL BE SHIPPED WITH HIGH PERMEABILITY BEARING PLATES UNTIL NEW PLATES ARE AVAILABLE.

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: 2006.03.20 17:27:05 -05'00'

Brad  
Nelson

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED, email=nelsonbe@ornl.gov  
Date: 2006.03.21 00:59:03 -05'00'

Tech. Rep.,

RLM

\\mmap\mmonc14.qrp

**Griffith, Mike**

---

**From:** Larry L. Sutton [lsutton@pppl.gov]  
**Sent:** Wednesday, March 22, 2006 5:58 PM  
**To:** NKHFlowen@aol.com  
**Cc:** Phil Heitzenroeder; royjratc-aol-com-offsite; Frank A. Malinowski  
**Subject:** Subcontract S005242-F - Use of Stellanloy Bearing Plates

Nancy:

Phil directed I dispatch to you the following information.

"This is to confirm the telephone conversation between Nancy Horton, Phil Heitzenroeder, and Larry Sutton on 3/17 and a phone conversation with Phil on 3/22. NCSX is changing the material for the bearing plates to Stellanloy for modular coil winding forms C4-C5, A1-A6, and B1-B6. We realize that implementing this change will not be possible for the next 2-3 winding forms. For those winding forms where the Stellanloy bearing plates are not available at shipment, we would ask that they be shipped with the 316 stainless steel bearing plates currently on hand which have high magnetic permeability. NCR's should be issued to document those shipped with the high permeability bearing plates. These will be replaced with Stellanloy bearing plates when the studs and nuts are replaced with the A286 versions at PPPL. MTM kindly agreed in a telephone conversation this morning which involved Roy to put paint dots on the hardware and bearing plates which will need to be replaced at PPPL."

Regards,

Larry



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

MTM N/C: 19234

Page: 1  
Date: 02/17/06  
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: SE141-138 /  
Drawing ID: SE141-138

Revision: 1

Customer P.O.: S005242-F/Ln:4  
Serial No./Qty: 6

Reported By: MIKE GRIFFITH  
E-Mail: mGriffith@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: PER RFD 14-011 MAGNETIC PERMEABILITY TO BE NO GREATER THAN 1.03.  
BEARING PLATES FOR C4, C5 AND C6 CHECK BETWEEN 1.03 AND 1.05.

Proposed Disposition:  
PROPOSE TO USE AS IS.

Number of additional pages: \_\_\_\_\_

Customer Disposition:  Use As Is  Rework  Repair  Scrap  Replace

Refer also to N/C19233. The material specified for the bearing plates will be changed to Stلالloy. The bearing plates for all MCWFs except C1, C2, C3 (already been accepted by NCSX) shall be made of Stلالloy.

Major Tool Implemented By: Mike Griffith Title: CFT ENGINEER Date: 3/23/06  
Approved by: PER ATTACHED EMAIL, PARTS WILL BE SHIPPED WITH HIGH PERMEABILITY BEARING PLATES UNTIL NEW PLATES ARE AVAILABLE.

Phil  
Heitzenroe  
der

Digitally signed by Phil  
Heitzenroeder  
DN: CN = Phil Heitzenroeder, C  
= US, O = PPPL, OU = Mech.  
Eng. Division  
Reason: I agree to 'specified'  
portions of this document  
Date: 2006.03.20 17:37:02 -  
05'00'

Brad  
Nelson

Digitally signed by Brad  
Nelson  
DN: cn=Brad Nelson,  
c=US, o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.03.21 00:59:46  
-05'00'

Tech. Rep.

RLM

a:\mtmapps\Minonc14.qrp

Major Tool and Machine, Inc. 1458 East 19th Street, Indianapolis, IN 46218-4289 Tel: 317-636-6433 Fax: 317-634-9420

**Griffith, Mike**

---

**From:** Larry L. Sutton [lsutton@pppl.gov]  
**Sent:** Wednesday, March 22, 2006 5:58 PM  
**To:** NKHFlowen@aol.com  
**Cc:** Phil Heitzenroeder; royjratc-aol-com-offsite; Frank A. Malinowski  
**Subject:** Subcontract S005242-F - Use of Stellalloy Bearing Plates

Nancy:

Phil directed I dispatch to you the following information.

"This is to confirm the telephone conversation between Nancy Horton, Phil Heitzenroeder, and Larry Sutton on 3/17 and a phone conversation with Phil on 3/22. NCSX is changing the material for the bearing plates to Stellalloy for modular coil winding forms C4-C5, A1-A6, and B1-B6. We realize that implementing this change will not be possible for the next 2-3 winding forms. For those winding forms where the Stellalloy bearing plates are not available at shipment, we would ask that they be shipped with the 316 stainless steel bearing plates currently on hand which have high magnetic permeability. NCR's should be issued to document those shipped with the high permeability bearing plates. These will be replaced with Stellalloy bearing plates when the studs and nuts are replaced with the A286 versions at PPPL. MTM kindly agreed in a telephone conversation this morning which involved Roy to put paint dots on the hardware and bearing plates which will need to be replaced at PPPL."

Regards,

Larry

**Customer: ENERGY INDUSTRIES OF OHIO**

Contact: NANCY HORTON  
E-Mail: NKHFlowen@aol.com

Telephone: 216-496-2314  
Fax: 216-328-2001

**Part: SE141-116 / MODULAR COIL WINDING FORM TYPE**  
Drawing ID: SE141-116                      Revision: 8

Customer P.O.: S005242-F/Ln:5  
Serial No./Qty: C5

Reported By: MIKE GRIFFITH  
E-Mail: mGriffith@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: Sheet 6, zone F2; 1.125 +/- .010 checks 1.025".

Outer portion of poloidal break between the poloidal break flanges was machined off of centerline approximately .100". The inner portion of the break (T section) was machined on location which caused a mismatch in the break surface.

**Proposed Disposition:**

**PROPOSED REPAIR**

Machine the stock heavy side of the break to the correct location per the drawing. This will blend into the area of the T that is currently undercut. Machine the T section to match the flange surface that was cut off of location (approximately .100"). The slot width will finish at approximately 2.350" rather than 2.250". In order to accommodate the oversized slot, the shim thickness will need to be machined to 2.225 rather than 2.125". The additional .100" of stock will be added to only one surface on the shim and profile machined accordingly. (see attachment)

Number of additional pages: 1 attachment

Customer Disposition:     Use As Is     Rework     Repair     Scrap     Replace

MTM inadvertently undercut the surface of the T by 0.080 inches in C5 as shown in the figure in the attached Rapid Response documentation. A conference call attended by Ray Sheppard of EIO, Mike Griffith of MTM, David Williamson of ORNL, and Phil Heitzenroeder of PPPL was held at approximately 5:30 p.m. on 3/29/06 to discuss this and MTM's proposed resolution. MTM will machine the poloidal break slot width to 2.350 inches rather than 2.250 inches. The cast shim plate will be machined to the 2.350 inch dimension to compensate. Mike Griffith noted that even with this increased slot width the break flange thickness will still be within tolerance.

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 'specified' portions of this document  
Date: 2006.04.19 09:36:25 -04'00'

Brad  
Nelson

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.04.19 22:15:33 -04'00'

Tech. Rep.

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: 2006.04.28 10:08:48 -04'00'

Major Tool Implemented By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

65707/5 (C5)  
SE141-116



*Major*

Tool & Machine, Inc.

**Rapid response NCR disposition for MCWF C5**

MTM inadvertently undercut the surface of the T by 0.080 inches as shown in the following figure. A conference call attended by Ray Sheppard of EIO, Mike Griffith of MTM, David Williamson of ORNL, and Phil Heitzenroeder of PPPL was held at approximately 5:30 p.m. on 3/29/06 to discuss this and MTM's proposed resolution. The right hand figure shows their proposed repair, which is to machine the slot width to 2.350 inches rather than 2.250 inches. The cast shim plate will be machined to the 2.350 inch dimension to compensate. Mike Griffith noted that even with this increased slot width the break flange thicknesses will still be within tolerance. David and Phil agreed with this proposed repair. EIO will write this up as a formal NCR for formal disposition tomorrow.

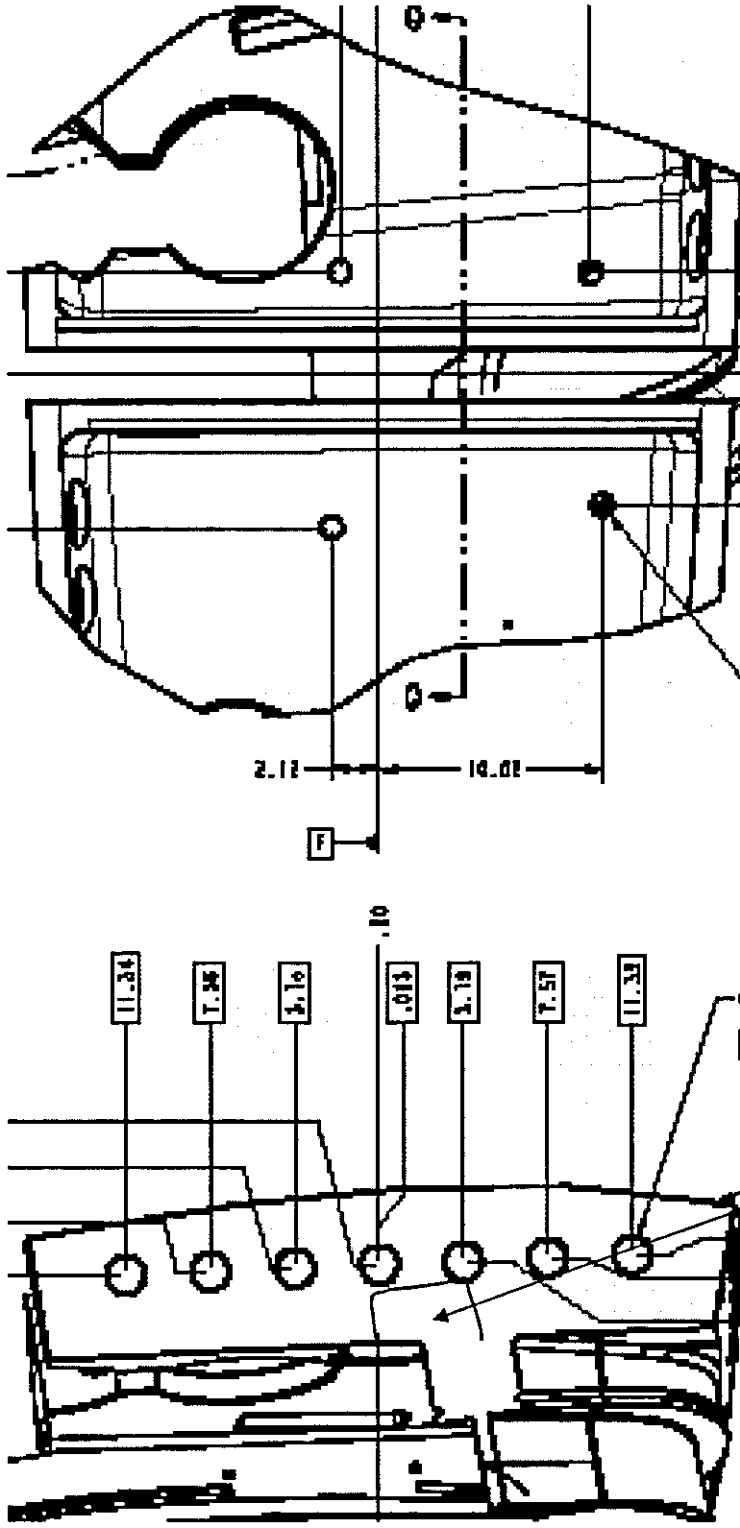
Mike Griffith

65707/5 (C5)  
SE141-116



*Major*  
Tool & Machine, Inc.

Flange area of poloidal break  
finished machined .100" off  
location to this side.



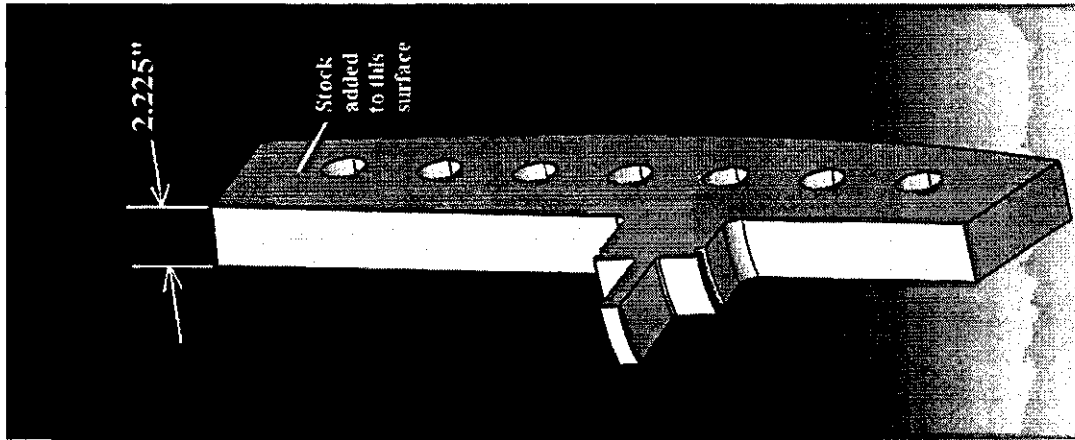
The area of the T section inward including the area highlight in red has been undercut into this surface approximately .08". This area has been cut on location.

**PROPOSED REPAIR**  
Machine the left side of the break above to the correct location per the drawing. This will blend into the area of the T that is currently undercut. Machine the T section on the right side of the break to match the flange surface that was cut off of location (approximately .100"). The slot width will finish at 2.350" rather than 2.250". In order to accommodate the oversized slot, the shim thickness will need to be machined to 2.225 rather than 2.125". The additional .100" of stock will be added to only one surface on the shim and profile machined accordingly (see picture on next page).

65707/5 (C5)  
SE141-116



*Major*  
Tool & Machine, Inc.



Mike Griffith

**Customer: ENERGY INDUSTRIES OF OHIO**

Contact: NANCY HORTON  
E-Mail: NKHFlowen@aol.com

Telephone: 216-496-2314  
Fax: 216-328-2001

**Part: SE141-116 / MODULAR COIL WINDING FORM TYPE**  
Drawing ID: SE141-116                      Revision: 8

Customer P.O.: S005242-F/Ln:5  
Serial No./Qty: C5

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:**  
CUSTOMER TO ADVISE.

Number of additional pages: 11

Customer Disposition:     Use As Is     Rework     Repair     Scrap     Replace

The defects indicated on the attached were reviewed in detail by David Williamson and Phil Heitzenroeder while communicating with Frank Malinowski, Roy Sheppard, and Mike Griffeth at MTM. MTM sent additional photos requested, and each defect was discussed in detail. Based on these discussions, it was jointly decided that the indications should be dispositioned as indicated in the attached Excel spreadsheet.

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 'specified' portions  
of this document  
Date: 2006.04.19 17:52:27 -04'00'

Brad  
Nelson

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US,  
o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.04.19 21:59:39  
-04'00'

Tech. Rep.

RLM

Mike  
Griffith

Digitally signed by Mike Griffeth  
DN: cn=Mike Griffeth, c=US, o=Major Tool  
and Machine, ou=CFE - Welds,  
email=mgriffeth@majortool.com  
Reason: I agree to the terms defined by the  
placement of my signature on this document  
Date: 2006.04.28 11:28:22 -04'00'

Major Tool Implemented By: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

## PT Inspection Results of C5 – NC19587

MTM Workorder #: 65707/5.0

NC19587

SE141-116 C5 MODULAR COIL WINDING FORM TYPE-C

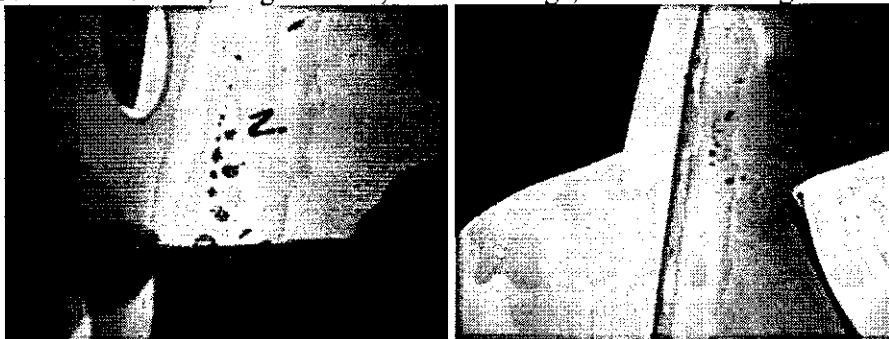
PENETRANT TEST: TYPE II, METHOD A, FORM E

REJECT INDICATIONS PER ASTM A903/A903M

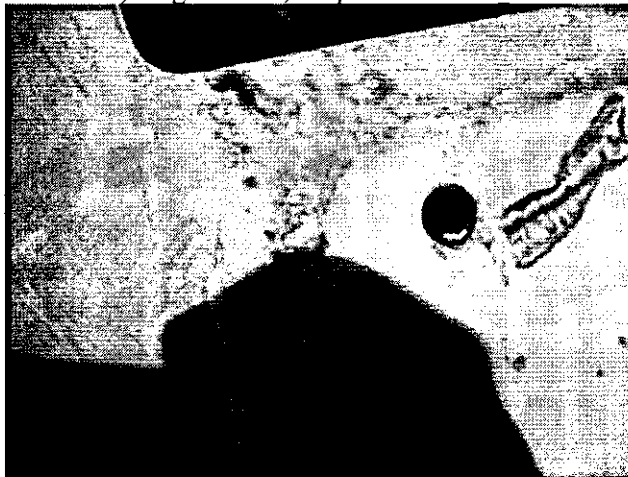
1. Linear cluster, longest 1.250", side D, (1.130 diameter hole in foot)



2. Linear cluster, longest .450", under E flange, under small wing



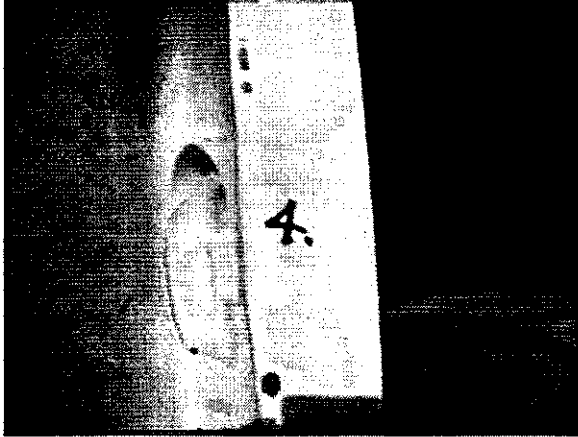
3. Linear, length .300", on pad near lead block slot





## PT Inspection Results of C5 – NC19587

4. Linear cluster, longest .300", O.D. of D flange near hole 7



5. Linear length .500", D flange face near hole 16

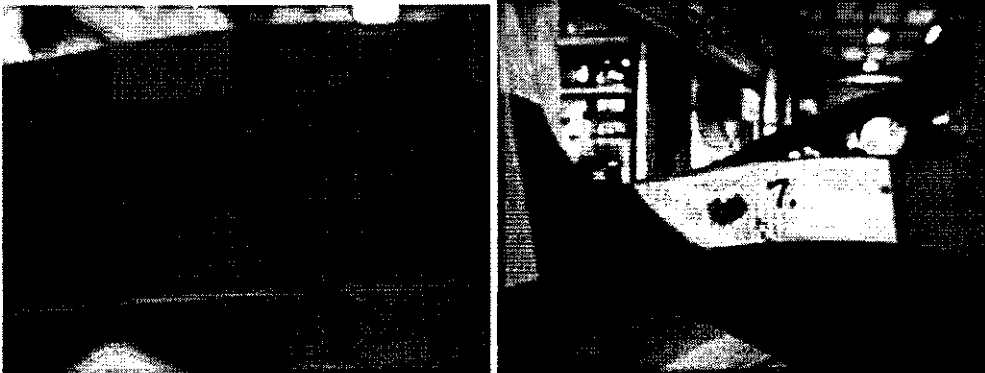


6. Linear w/cluster porosity, longest .800", D-20



## PT Inspection Results of C5 – NC19587

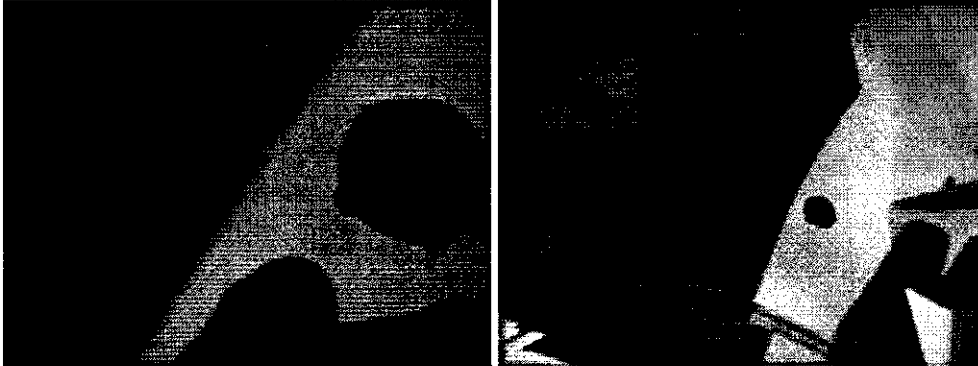
7. Linear (void), length .400"x .100", D-79 (bottom of cutout sheet 4, zone D5)



8. Linear, length 2.00", D-76 (between cooling holes sheet 9, zone D7)

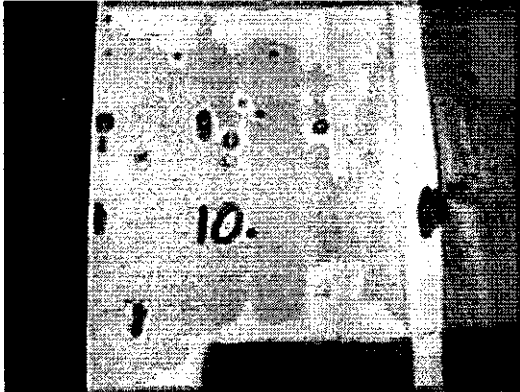


9. Linear, .600" / rounded .125", D-75 (these are below VPI groove in high stress area)



# PT Inspection Results of C5 – NC19587

10. Linear cluster, longest .200", O.D. flange on leg, D-72



11. Linear (void) length .500", O.D. flange, E-64

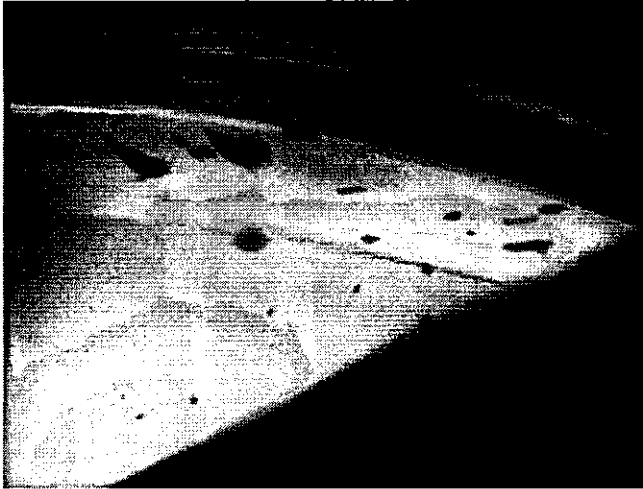


12. Linear cluster w/porosity, longest .800", D-60 (outside of large wing surface)

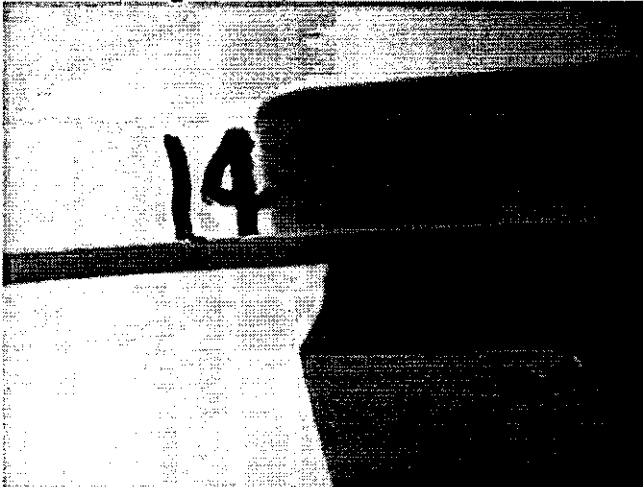


# PT Inspection Results of C5 – NC19587

13. Linear cluster w/porosity, longest .500" D-60



14. Linear, length .150", D-43

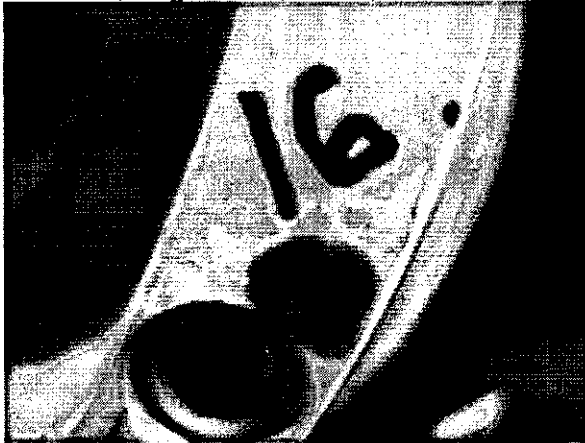


15. Linear cluster, longest .200", T-face, hole 48

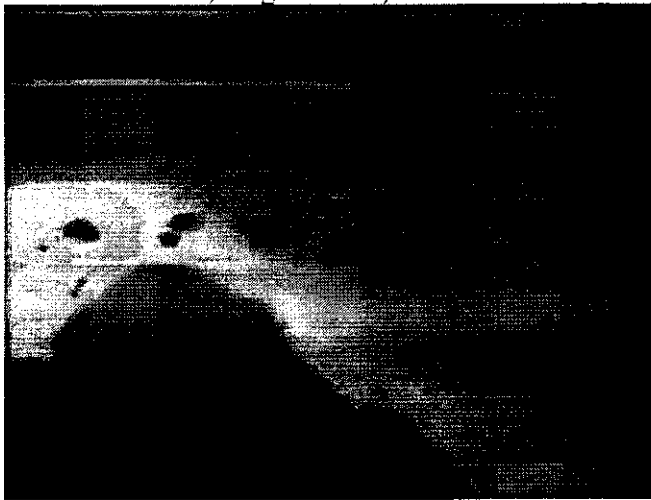


# PT Inspection Results of C5 – NC19587

16. Linear, length .200", T face, hole 61



17. Linear cluster, longest .300", D-30

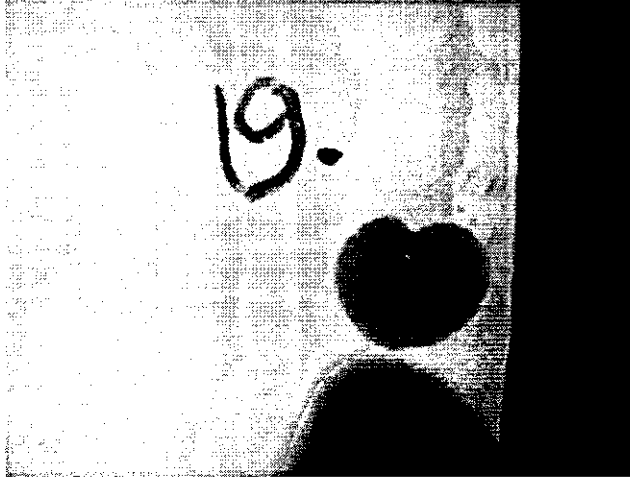


18. Linear cluster w/porosity, longest .200", D-22



# PT Inspection Results of C5 – NC19587

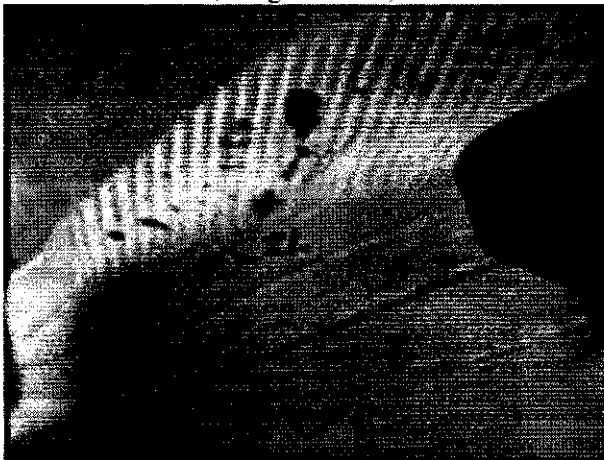
19. Single rounded, .350", D-8 (this is on the long leg of the T near the face)



20. Linear, length .200", D-5

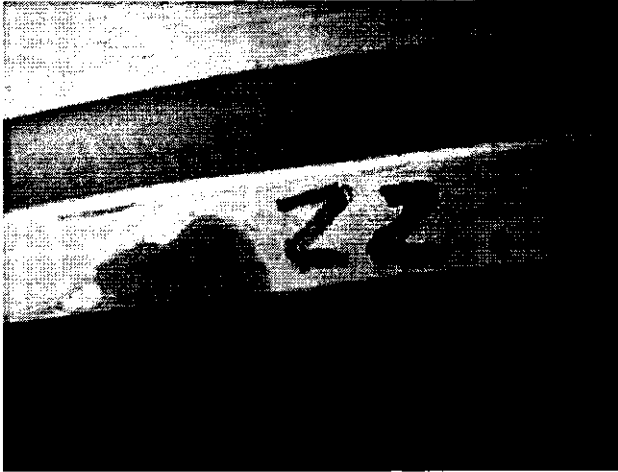


21. Linear cluster, longest .300", D-87

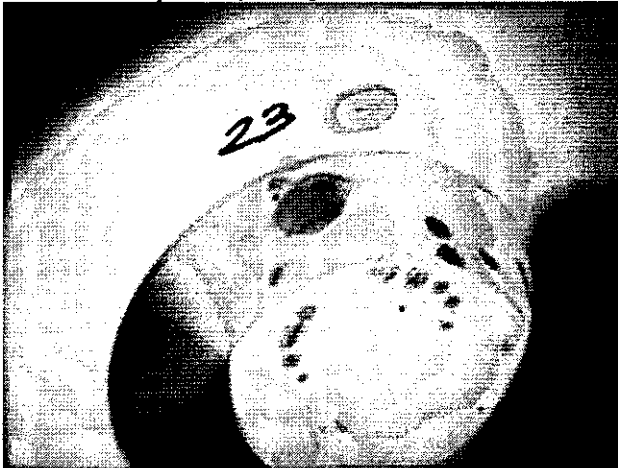


PT Inspection Results of C5 – NC19587

22. Linear, length .200", D-80



23. Linear w/porosity, longest .500", D face, 2" blind hole



24. Linear, length 1.00", O.D. E flange 79

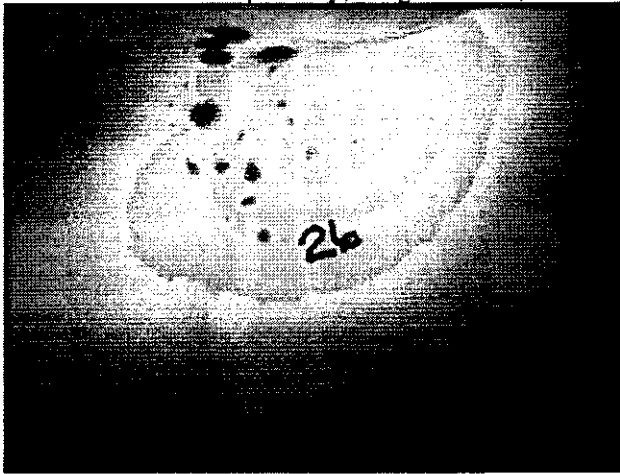


# PT Inspection Results of C5 – NC19587

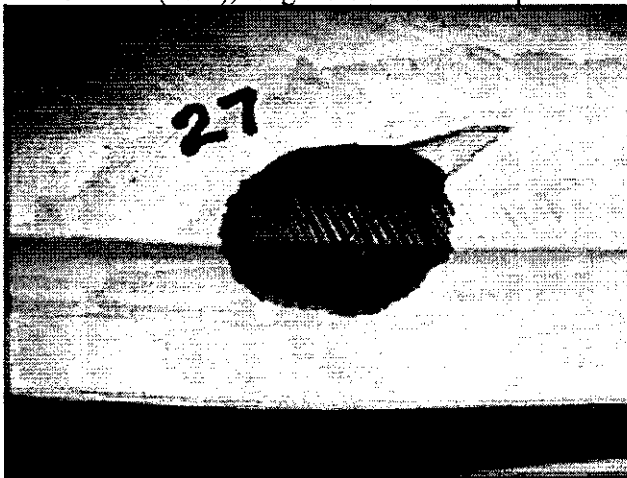
25. Linear, length .550", O.D. E flange 78



26. Linear cluster w/porosity, longest .200", E-60



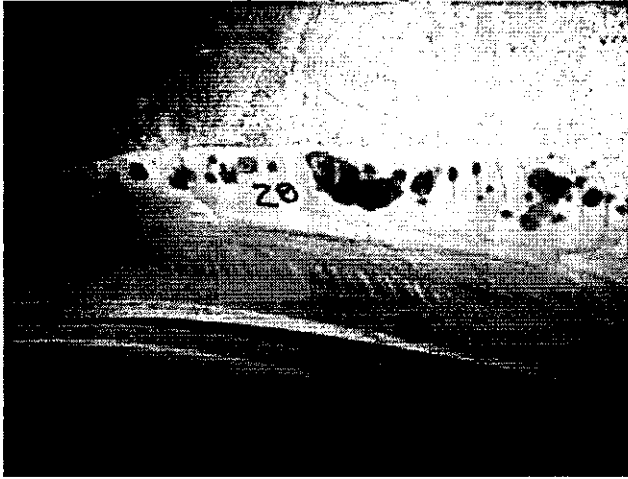
27. Rounded (void), length .150"x .600" depth



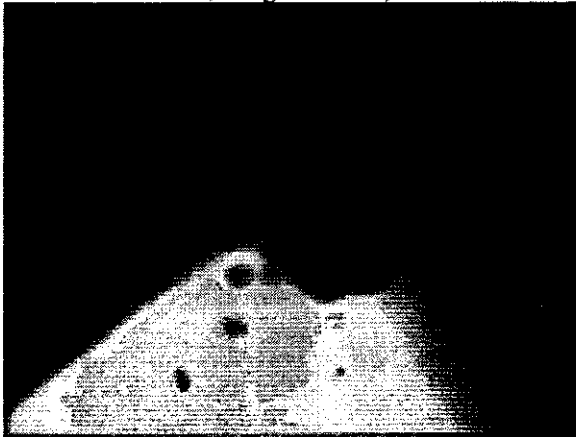


# PT Inspection Results of C5 – NC19587

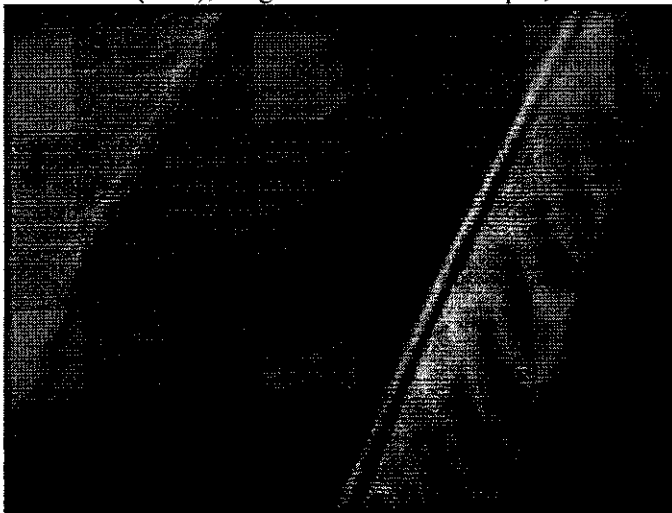
28. Linear cluster w/porosity, longest .600", E-55



29. Linear cluster, longest .600", E-49

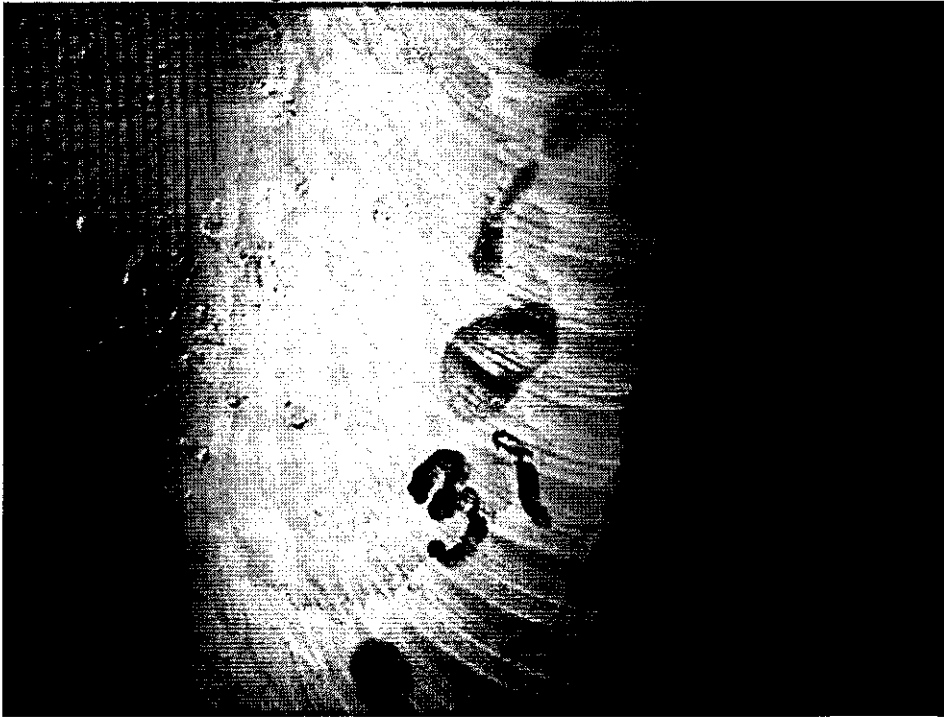


30. Linear (void), length .300" x .250" depth, E-4



# PT Inspection Results of C5 – NC19587

31. Linear cluster, longest .400", E-14





Customer: ENERGY INDUSTRIES OF OHIO

Contact: NANCY HORTON  
 E-Mail: NKHFlowen@aol.com

Telephone: 216-496-2314  
 Fax: 216-328-2001

Part: SE141-103-1 / MOD COIL WINDING FORM ASSEMBLY  
 Drawing ID: MCWF TYPE-C XRAY MA Revision:

Customer P.O.: S005242-F/Ln:5  
 Serial No./Qty: C5

Reported By: MIKE GRIFFITH  
 E-Mail: mGriffith@MajorTool.com

Telephone: 317-636-6433  
 Fax: 317-634-9420

Problem: The radiographic inspection performed on the "T" Section revealed eight (8) entrapped, gas-type discontinuities in film location 0-1.

An "overlay film" was made to represent the location of the indications as they could be found within the casting material.

See attachments:  
 Reader Sheet  
 RT Map  
 Photos of overlay

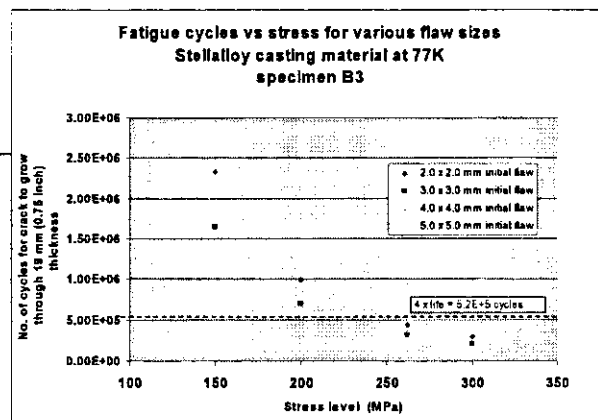
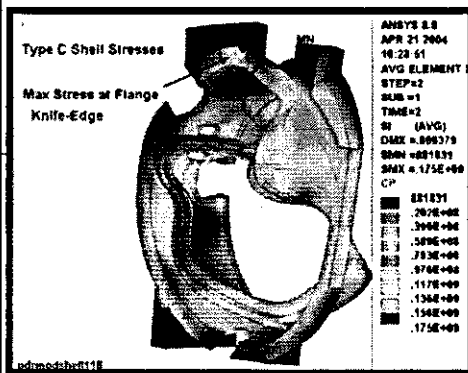
**Proposed Disposition:**

Propose to Use As Is.

Number of additional pages: 5

Customer Disposition:  Use As Is     Rework     Repair     Scrap     Replace

The attached Reader Sheet indicates that the (8) rejectable discontinuities are 0.090-0.110" (2.25-2.75 mm) in diameter. They are located roughly between holes 45 and 50. Since the stress in this region is <100 MPa, the discontinuities can be accepted "as is".



Accepted by:

Phil Heitzenroeder

Digitally signed by Phil Heitzenroeder  
 DN: cn=Phil Heitzenroeder, c=US, o=PPPL, ou=Mech. Eng. Division  
 Reason: I am the author of this document  
 Date: 2006.04.19 17:35:39 -0400'

Brad Nelson

Digitally signed by Brad Nelson  
 DN: cn=Brad Nelson, c=US, o=ORNL, ou=FED, email=nelsonbe@ornl.gov  
 Date: 2006.04.24 11:35:50 -0400'

Tech. Rep.

RLM

Mike Griffith

Digitally signed by Mike Griffith  
 DN: cn=Mike Griffith, c=US, o=Major Tool and Machine, ou=CFT - Whites, email=mgriffith@major-tool.com  
 Reason: I agree to the terms defined by the placement of my signature on this document  
 Date: 2006.06.12 17:11:14 -0400'

Major Tool Implemented By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

4959

10520 Chester Road  
Woodlawn, Ohio 45215

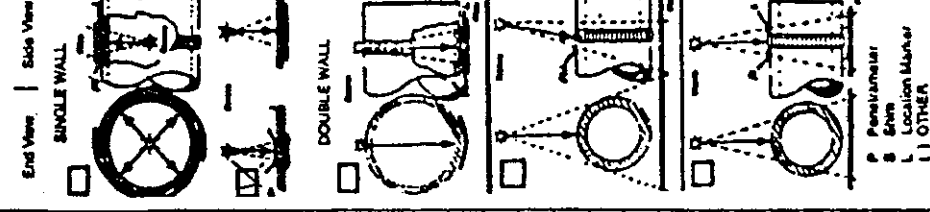


CLIENT Major Tool & Machine	RADIOGRAPHER Robert Weaver II	JOB NO 13860001	P.O. NO N/A	DATE 4/13/06
ISO/EXPOSURE IR 192	ISO 17.25"	FILM PROCESSING Auto	FILM TYPE Kodak AA	FILM TECHNIQUE Double
FILM SIZE .148"	MATERIAL THICKNESS .75"	SHUTTER N/A	ACCEPTANCE STANDARD No indications > .080"	PB SCREENS .010"
WELD PROCESS N/A	MATERIAL DIAMETER N/A	PENETRANT ASTM B		

DESCRIPTION  
65707/5.0/1110/818  
SE 141-116 rev. 8  
page 1 of 2

REMARKS  
Densitometer - 19105  
cal due - 5/2/06  
8 spots .070" - .110" diameter / MTM ref # 19607 NCR

FITTING SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PENETRANT		SLAO	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK OF FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER-FIT	CORROSION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	MISALIGN INDICATIONS	WELD CONTOUR	MISMATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT	
			SIZE	QUALITY LEVEL																									
Form	0-1	N/A	B	.016"	✓																								
	1-2																												
	2-3																												
	3-4																												



P Penetrant  
S Shim  
L Location Marker  
I OTHER

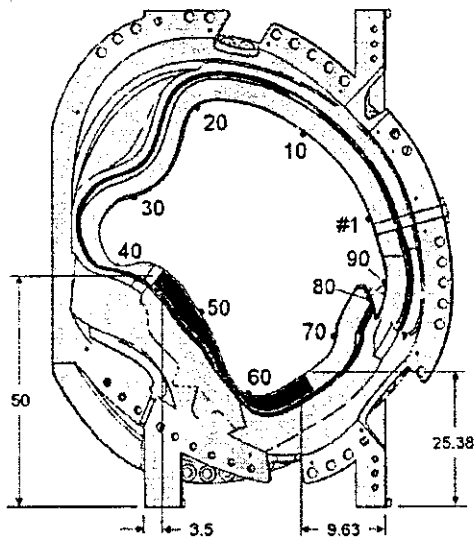
Robert Weaver 655514/II  
Cooperheat MOB Signature

Customer Representative Signature

4/13/06  
Date

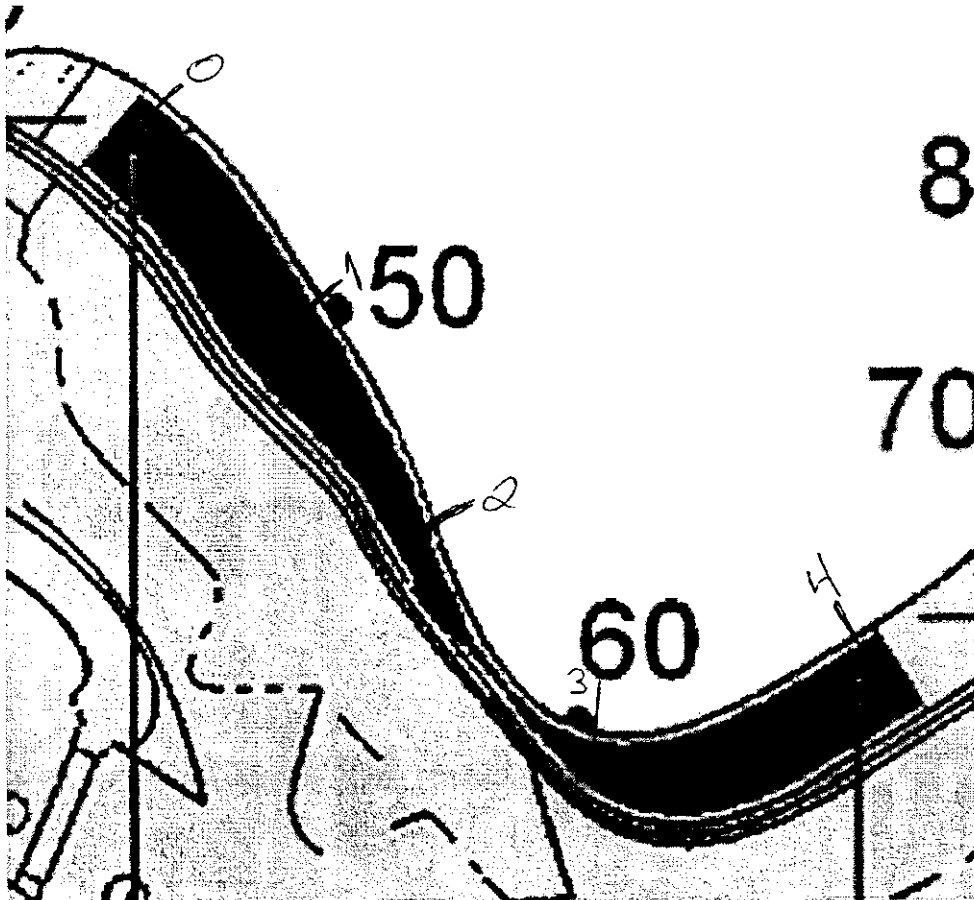
MCWF Type C  
RT Map of High Stress Region

MTM Workorder Number: \_\_\_\_\_

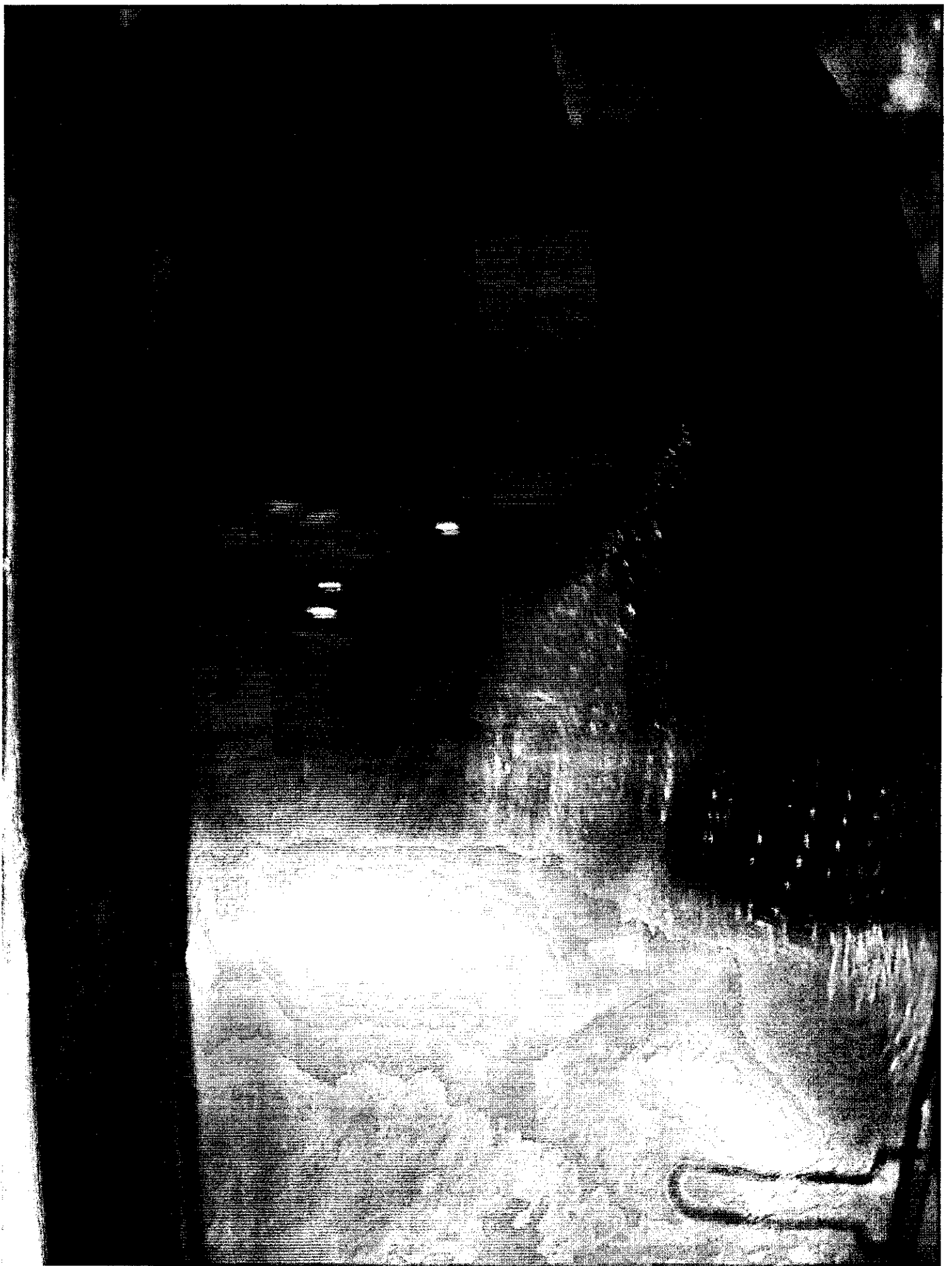


65707/5.0/1/1.0/818  
SE141-116 rev.8  
Page 2 of 2  
4/13/06  
NCR 19607

Figure 7-2 - High Stress Region Identification for Type-C MCWF











**Customer: ENERGY INDUSTRIES OF OHIO**

Contact: NANCY HORTON  
E-Mail: NKHFlowen@aol.com

Telephone: 216-496-2314  
Fax: 216-328-2001

Part: SE141-116 / MODULAR COIL WINDING FORM TYPE  
Drawing ID: SE141-103 Revision: 3

Customer P.O.: S005242-F/Ln:5  
Serial No./Qty: C5

Reported By: MIKE GRIFFITH  
E-Mail: mGriffith@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: SIX SEPARATE AREAS WERE IDENTIFIED FOR MINOR WELD REPAIR. THE LARGEST AREA WAS .300" LONG X .150 WIDE X .040" DEEP (IDENTIFIED AS WELD #5 IN THE ATTACHMENT).

**Proposed Disposition:**

PROPOSE TO ACCEPT AS IS AND WAIVE RT REQUIREMENT.  
AFTER WELDING PT AND MAG PERMEABILITY CHECKS WERE COMPLETED AND DOCUMENTED.  
THE GOUGES WERE SHALLOW TOOL GOUGES FROM ROUGH MACHINING.

Number of additional pages: 3

Customer Disposition:  Use As Is  Rework  Repair  Scrap  Replace

Since these were minor weld repairs, it is agreed that PT and mag permeability without RT is acceptable.

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 'specified' portions  
of this document  
Date: 2006.04.27 14:54:28 -04'00'

Brad  
Nelson

Digitally signed by Brad  
Nelson  
DN: cn=Brad Nelson, c=US,  
o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.04.27 15:19:21  
-04'00'

Tech. Rep.

RLM

Mike  
Griffith

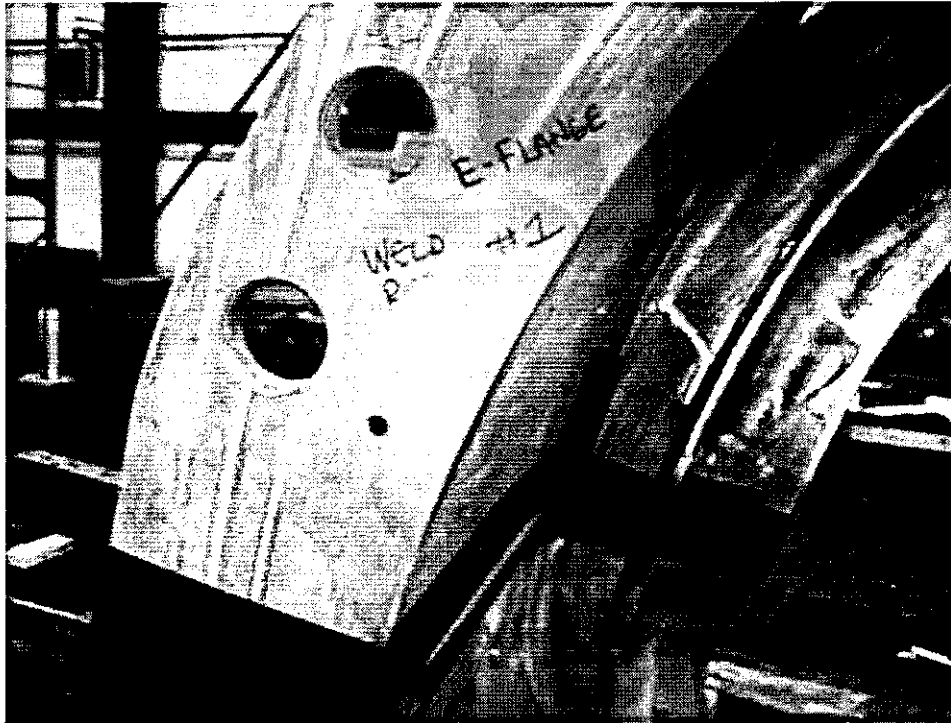
Digitally signed by Mike Griffith  
DN: cn=Mike Griffith, c=US, o=Major  
Tool and Machine, ou=CFT - White,  
email=mgriffith@majortool.com  
Reason: I agree to specified portions  
of this document  
Date: 2006.04.28 06:31:38 -04'00'

Major Tool Implemented By: \_\_\_\_\_

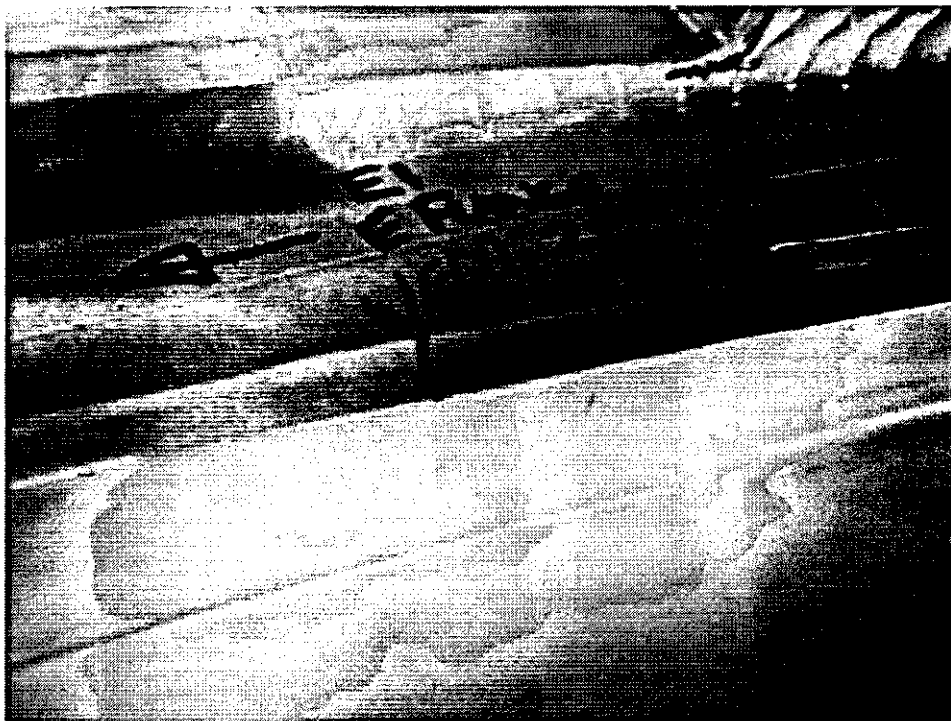
Title: \_\_\_\_\_

Date: \_\_\_\_\_

SE141-116 C5  
Minor Weld Repairs / NC19710 attachment



E Flange Face after Weld



E Flange located by hole #1 near radius between long and short legs

Mike Griffith

Page 1 of 3

4/26/2006

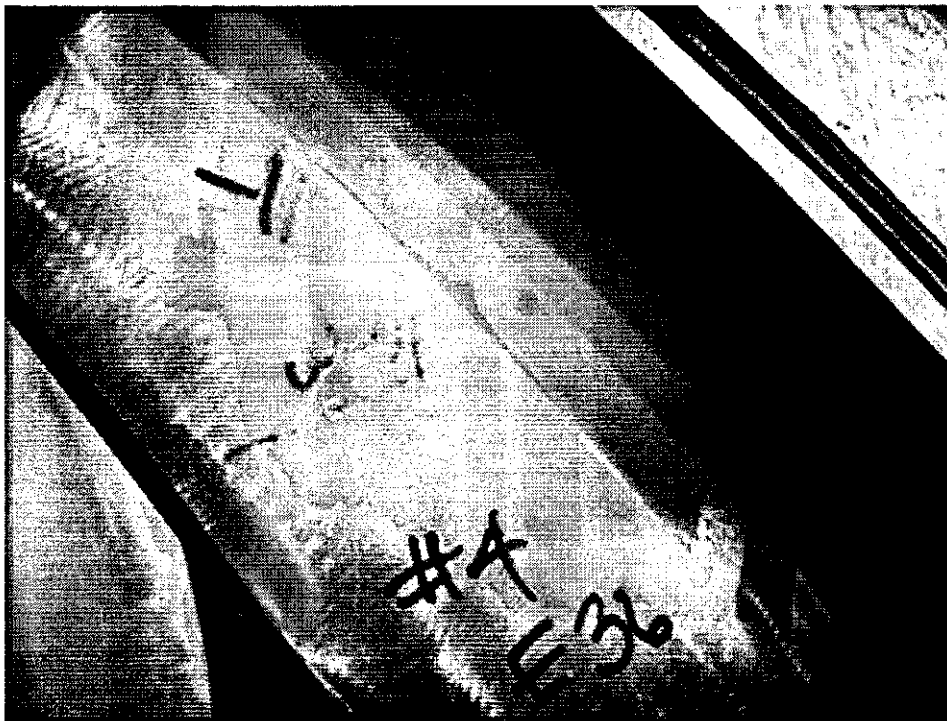


*Major*  
Tool & Machine, Inc.

SE141-116 C5  
Minor Weld Repairs / NC19710 attachment



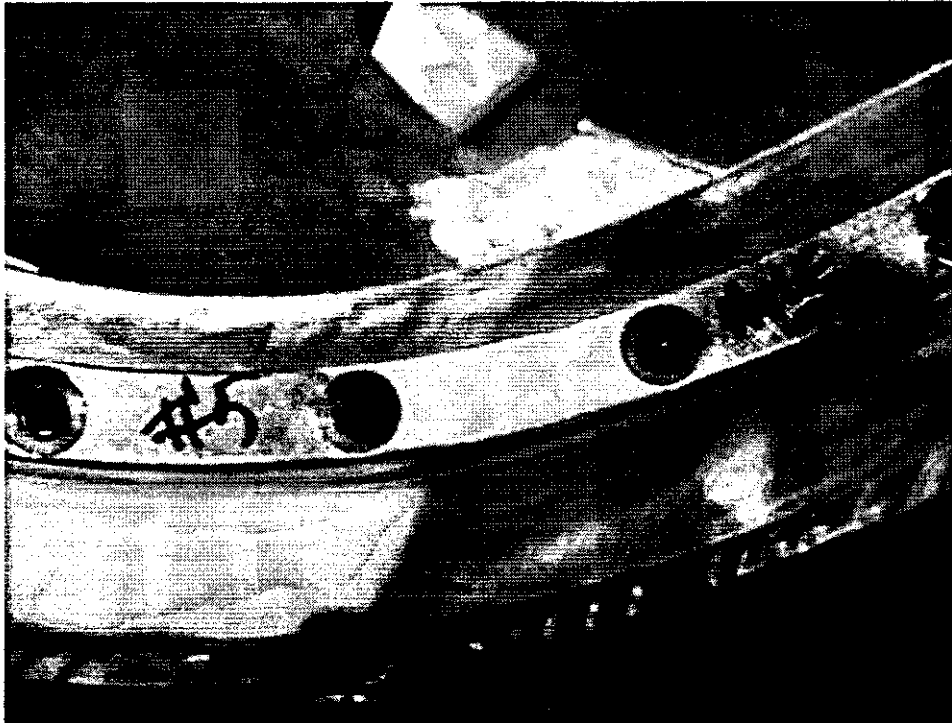
E Flange located by hole #76 near radius between long and short legs



E Flange located by hole #36 near radius between long and short legs



SE141-116 C5  
Minor Weld Repairs / NC19710 attachment



Top of T between holes 75 and 74



D Flange located by hole #48 near radius between long and short legs

Mike Griffith

Page 3 of 3

4/26/2006



*Major*  
Tool & Machine, Inc.



**Major**

Tool & Machine, Inc.

# Nondestructive Test Certification for Liquid Penetrant Examination

1458 E. 19th Street, Indianapolis, In 4621  
TEL:(317)636-6433 FAX:(317)634-9420

Date of Inspection:04/24/2006

Type of Material:CAST STAINLESS

NDT#:16422

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

<b>Part Information:</b> MTM Job Number: 65707/5.0 -Sub:14 -Op:20 Resource ID: 810-LIQUID PENETRANT INSPECTI Part ID: SE141-116 Part Name: MODULAR COIL WINDING FORM Serial Number: Customer P.O.: S005242-F Customer Unit/Plant:	<b>Test Results:</b> Quantity Inspected: 1 Quantity Accepted: 1 Quantity Rejected: 0  Run Hours:
--	---

<b>Customer Inspection PI SEE NOTES</b> Test Step: Revision: Material Test Number:	<b>Inspection Criteria:</b> Customer Specification: ASTM A903/A903M MTM Spec Number: PS582 (REF NDT-WM-09) Acceptance Standard: ASTM A903 (SEE NOTES)
---	--

<b>Inspection Materials Used:</b> Manufacturer: SHERWIN Type of Penetrant: DP-51 Batch Number: 41-E47 Developer: D-100 Batch Number: 520-H6	<b>Penetrant Examination Processes:</b> Type: II (Visible) / Dwell Time: 15 Minutes Method: C (Solvent Wipe) Method of Drying: Normal Evaporation Form: e (nonaqueous for Type II visible dye) / Dwell Time: 15 Min
--	---

**Inspection Requirements:**

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

**Notes:**

INSPECT WELD REPAIR AREAS, AS INSTRUCTED BY ENGINEERING.  
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)

Note: Please reference NC 19710 for additional information.

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

Inspector: 581-D.EDWARDS

Date: 04/24/2006

*Douglas D. Edwards Level II*





INSPECTION DATA CHECKLIST

Workorder: 65707/5-0 Sub:14 Op:30

Revision: 04/25/06 16:40

Part: SE141-103-1 - -

SHEET	ZONE	DRAWING ID: SE141-116 Rev: 8 CHARACTERISTIC	INSPECTION INSTRUCTIONS		RESULTS	INSPECTED BY		
			GAGE/EQUIP	BY SAMPLE		INSP	VERFD	AUDIT
*		N C 19710 RECORD PERMEABILITY RANGE OF THE SIX REPAIRED AREAS. MAG PERMEABILITY TO BE NO GREATER THAN 1.02µ.	MASTER GAGE	QA	LESS THAN 1.02	503-B.HC		A
(10)						04-26-06		*

Employees: 503-B.Houk

NOTE: the recording of false, fictitious, or fraudulent statements or entries on this document may be punished as a felony under federal statutes including federal law, title 18, chapter 47.  
QA003 (n:\ntmapps\ntinspect.qrp)  
Major Tool and Machine, Inc. 1458 East 19th Street, Indianapolis, IN 46218 (317)636-6433 Fax (317)634-9470  
\* To Far Right Indicates Data Package Requirement

---

**Customer: ENERGY INDUSTRIES OF OHIO**

Contact: NANCY HORTON  
E-Mail: NKHFlowen@aol.com

Telephone: 216-496-2314  
Fax: 216-328-2001

Part: SE141-116 / MODULAR COIL WINDING FORM TYPE  
Drawing ID: SE141-116 Revision: 8

Customer P.O.: S005242-F/Ln:5  
Serial No./Qty: C5

Reported By: MIKE GRIFFITH  
E-Mail: mGriffith@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: Workorder: 65707/5.0 Sub:1 Op:132

Inspection Test #: 180 rejected: M TO MI: {g|.02|R|S|T}: -.034 TO .038 (THESE ARE PRE-GRINDING RESULTS, SEE ATTACHMENT)

Inspection Test #: 182 rejected: N TO NI: {g|.02|R|S|T}: -.024 TO .030 (THESE ARE PRE-GRINDING RESULTS, SEE ATTACHMENT)

Inspection Test #: 190 rejected: 96X  
.375-16 UNC .750 DEEP

.625 C'BORE .188 DEEP: {#.06|R|S|T}: .018 TO .075

Inspection Test #: 200 rejected: : 2X .06-.09 X 45': .06" TO .09 (SOME AREAS ARE ROUNDED DUE TO GRINDING)

Inspection Test #: 210 rejected: 8X Ø1-8 UNC THRU: {#.01|A|B|C}: .006 TO .043

Inspection Test #: 230 rejected: DATUM -E- FLANGE: {f|.01}: .019

Inspection Test #: 250 rejected: DATUM -D- FLANGE: {f|.01}: .037

Inspection Test #: 280 rejected: 8X

Ø1.13 THRU

BACK SPOT FACE Ø2.38

MIN DEPTH FOR C'UP: {#.01|A|B|C}: .003 TO .017 / ACCEPT SPOT

Inspection Test #: 291 rejected: 3X Ø1.885 +/- .003

Ø3.00 BACK SPOTFACE

VERIFY MIN CLEANUP: : 1.888 TO 1.892

Inspection Test #: 311 rejected: 3X Ø1.885 +/- .003 THRU

Ø3.00 BACK SPOTFACE

VERIFY MIN CLEANUP: : 1.888 TO 1.895

Inspection Test #: 361 rejected: Ø1.885 +/- .003 THRU

Ø3.00 BACK SPOTFACE

VERIFY MIN CLEANUP: : 1.890 / ACCEPT SPOT

Inspection Test #: 431 rejected: 24X Ø1.885 +/- .003 THRU

Ø3.00 BACK SPOTFACE

VERIFY MIN CLEANUP: : 1.882 TO 1.8893 / ACCEPT SPOT

Inspection Test #: 650 rejected: : 4.00 ~ .010: 3.960

Inspection Test #: 980 rejected: : {g|.125|A|B|C}: .0208 TO .2076

Inspection Test #: 990 rejected: DATUM -D- SIDE INNER CAST: {g|.5|A|B|C}: -.0006 TO -.3923

Inspection Test #: 1010 rejected: DATUM -E- SIDE LARGE WING: {g|.125|A|B|C}: .020 TO .101

Inspection Test #: 1030 rejected: DATUM -E- SIDE INNER CAST: {g|.5|A|B|C}: -.256 TO .258

Inspection Test #: 1035 rejected: MACHINE / GRIND THIS AREA  
TO PROFILE OF +.05/- .10: : -.213 TO .495

Workorder: 65707/5.0 Sub:1 Op:130

Inspection Test #: 10 rejected: CHECK CLEARANCE OF ITEM 5 TO  
ITEM 6.

: d.001 - d.002: DIAMETRICAL GAP CHECKS UP TO .022"

---

**Proposed Disposition:**

PROPOSE TO USE AS IS.



Number of additional pages: Grinding Attachment  
and IDC lists

Approved by:

Customer Disposition:  Use As Is     Rework     Repair     Scrap     Replace

The IDC list of various non-conformances and the results of the corrective grinding on the winding T surfaces were reviewed during a conference call on 4/28/05 attended by N. Horton, M. Griffith, R. Sheppard, T. Brown, J. Chrzanowski, D. Williamson, and P. Heitzenroeder. All were accepted for Use As Is with the exception of the poloidal break bushing to stud fit-ups, which need to be addressed at PPPL .

J. Chrzanowski is to apply cryogenic grade epoxy to the final studs for the poloidal breaks of C1-C5 to assure a zero clearance fit-up between the studs and bushings during replacement of the high permeability fasteners.

Accepted 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: 2008.04.28 10:37:51 -04'00'

Brad  
Nelson

Digitally signed by Brad  
Nelson  
DN: cn=Brad Nelson, c=US,  
o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.04.28 13:54:07  
-04'00'

Tech. Rep.

RLM

Mike  
Griffith

Digitally signed by Mike Griffith  
DN: cn=Mike Griffith, o=PPPL, ou=Mech. Eng. Division  
Reason: I agree to the terms defined by the  
placement of my signature on this document  
Date: 2006.04.28 13:54:07 -04'00'

Major Tool Implemented By: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_



INSPECTION DATA CHECKLIST

Workorder: 657075-0 Sub:1 Op:130

Revision:

Part: SE141-116 - MODULAR COIL WINDING FORM TYPE-C - PRODUCTION MODULAR COIL WINDING FORM TYPE-C

SHEET	ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
			GAGE/EQUIP	BY SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
2*	D3	Ø.001 - Ø.002		QA		FEELER GAGE	DIAMETRICAL GAP CHECKS UP TO .022"	242-M.G		R
(10)		CHECK CLEARANCE OF ITEM 5 TO ITEM 6.						04-26-06		*
*		THE GAP BETWEEN THE POLOIDAL BREAK BUSHINGS AND FLANGE SHALL BE LESS THAN .002"		QA		FEELER GAGE	ACCPET	242-M.G		A
(15)								04-26-06		*
2*	F2	ENSURE THAT THE CUMULATIVE GAP AT ANY SINGLE CROSS SECTION OF THE POLOIDAL FLANGE ELEMENTS IS LESS THAN .005".		QA		FEELER GAGE	LESS THAN .001"	242-M.G		A
(20)								04-26-06		*
*		THE MAX. GAP AT THE POLOIDAL BREAK PERIMETER IS .015" AND CANNOT EXCEED 1/8" FROM THE EDGE		QA		FEELER GAGE	MAX GAP IS .006"	242-M.G		A
(30)								04-26-06		*

Employee: 242-M.Griffith

NOTE: the recording of false, fictitious, or fraudulent statements or entries on this document may be punished as a felony under federal statutes including federal law, title 18, chapter 47. QA-003 (c:\vtrapp\mtnspca.rtf)

\* To Far Right Indicates Data Package Requirement

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



INSPECTION DATA CHECKLIST

Workorder: 657075-0 Sub:1 Op:132

Revision:

Part: SE141-116 - MODULAR COIL WINDING FORM TYPE-C - PRODUCTION MODULAR COIL WINDING FORM TYPE-C

SHEET	ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
			GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
1*	E8	47.19 ± .03	CMM	QA		00064	47.17	339-E.R		A *
1*	B8	47.19 ± .03	CMM	QA		00064	47.18	339-E.R		A *
1*	D6	47.19 ± .03	CMM	QA		00064	47.18	339-E.R		A *
1*	C6	47.19 ± .03	CMM	QA		00064	47.19	339-E.R		A *
1*	E6	// .02 A	CMM	QA		00064	.01	339-E.R		A *
1*	B6	// .02 A	CMM	QA		00064	.02	339-E.R		A *
2*	H6	2X R. 187 + .025 - .005	PIN GAGE	QA		J-651-2	.184 TO .188	533-B.C		A *
2*	G8	2X .03 X 45°		QA		VISUAL	ACCEPT	339-E.R		A *
2*	G8	.40 ± .010	CALPER	QA		J-707	.39 TO .41	339-E.R		A *
2*	G8	2X .030 X 45°		QA		VISUAL	ACCEPT	339-E.R		A *
2*	F7	2X .32	CALPER	QA		P-5075	.310 TO .330	533-B.C		A *
2*	F7	2X R. 11	PIN GAGE	QA		J-652-1	.105 TO .110	533-B.C		A *
2*	G6	□ .02 R   S   T	CMM	QA		00064	-.002 TO .086	339-E.R		A *
2*	G6	P TO M		QA		MIMEX-3473	ACCEPT	339-E.R		A *
		4.790 OR SHELL INTERSECT.		QA						A

NOTE: the recording of false, fictitious, or fraudulent statements or entries on this document may be punished as a felony under federal statutes including federal law, title 18, chapter 47.  
 QA-003 (c:\vntm\app\entm\spct\cfr) Meijor Tool and Machine, Inc. 1458 East 19th Street, Indianapolis, IN 46218 (317)636-6433 Fax (317)634-9420  
 \* To Far Right Indicates Data Package Requirement



**Major**  
Tool & Machine, Inc.

INSPECTION DATA CHECKLIST

SHEET ZONE	DRAWING ID: NCSX-CSPEC-141-03 Rev: 11	INSPECTION INSTRUCTIONS		GAGE/EQUIP	BY SAMPLE	SER#	RESULTS		INSPECTED BY
		CHARACTERISTIC	DATA/REMARKS				INSP	VERFD	
(150)	VERIFY USING TEMPLATE PER DRAWING NOTE 16 (MTMEX-3473)								
2* (160)	G3 $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ Q TO N	CMM	QA			00064		-.003 TO .074	04-26-06 339-E.R
2* (170)	G3 4.790 OR SHELL INTERSECT. VERIFY USING TEMPLATE PER DRAWING NOTE 16 (MTMEX-3473)		QA			MTMEX-3473		ACCEPT	04-26-06 339-E.R
2* (180)	E6 $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ M TO MI	CMM	QA			00064		-.034 TO .038	04-26-06 339-E.R
2* (182)	F3 $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ N TO NI	CMM	QA			00064		-.024 TO .030	04-26-06 339-E.R
2* (185)	E5 $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ MI TO NI	CMM	QA			00064		-.046 TO .019	04-26-06 339-E.R
4* (188)	3.1.1.1/ES THE TWO "L" MACHINED SURFACES OF TEE.	PROFLOMETER	QA			J-1109		33 TO 55	533-B.C 04-20-06
	Drawing ID: SE141-116 Rev: 8								
2* (190)	B5 $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ 96X .375-16 UNC .750 DEEP .625 C'BORE .188 DEEP	CMM	QA	50%		00064		.018 TO .075	339-E.R
2* (195)	B5 .375-16 UNC .750 DEEP GAGE 100% OF THE HOLES AND VERIFY CLEANLINESS.	THREAD PLUG GA	QA	100%		A-444		ACCEPT	04-26-06 339-E.R
2* (200)	B4 2X .06-.09 X 45°	CALIPER	QA			P-5075		.06" TO .09 (SOME A REAS ARE ROUNDED DU E TO GRINDING)	04-26-06 242-M.G
3* (210)	G7 $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ 8X Ø1-8 UNC THRU	CMM	QA			00064		.006 TO .043	04-26-06 339-E.R
3* (215)	H3 $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$ $\square$	CMM	QA			00064		.019	04-26-06 339-E.R

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



**Major**  
Tool & Machine, Inc.

INSPECTION DATA CHECKLIST

Page: 3  
Date: 04/27/06  
User ID: GRIFFITH

Item #	Feature	Method	QA	Inspector	Start Date	End Date	Remarks	Material
(230)	DATUM -E- FLANGE	PROFILOMETER	QA	J-1109	6 TO 30	04-26-06		
3*	H4 ✓ <sup>ES</sup> DATUM -E- FLANGE					533-B.C		A
(240)						04-20-06		
3*	F3 $\square$ 01 DATUM -D- FLANGE	CMM	QA	00064	.037	339-E.R		R
(250)						04-26-06		
3*	F3 ✓ <sup>ES</sup> DATUM -D- FLANGE	PROFILOMETER	QA	J-1109	25 TO 79	533-B.C		A
(260)						04-20-06		
3*	E4 $\square$ 01 A B C 8X Ø1.13 THRU BACK SPOT FACE Ø2.38 MIN DEPTH FOR C'UP	CMM	QA	00064	.003 TO .017 / ACCE PT SPOT	339-E.R		R
(280)								
4*	H8 $\square$ 060 D A N 3X Ø1.885 THRU	CMM	QA	00064	.039 TO .040	339-E.R		A
(290)						04-26-06		
4*	H8 3X Ø1.885 +/- .003 Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	00064	1.888 TO 1.892	533-B.C		R
(291)								
4*	H7 $\square$ 06 D A N 3X 2.000" COUNTERBORE 1.00 DP	DIAL BORE GAGE	QA	J-1400	.020 TO .022	04-20-06		
(300)						339-E.R		A
4*	H7 $\square$ 2.000 - 2.001	DIAL BORE GAGE	QA	J-1401	1.999 TO 2.001	04-26-06		
(305)						04-26-06		
4*	H6 $\square$ 060 D A N 17X Ø1.885 THRU	CMM	QA	00064	.035 TO .055	339-E.R		A
(310)						04-26-06		
4*	H6 3X Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	00064	1.888 TO 1.895	533-B.C		R
(311)								
4*	H5 $\square$ 060 D A N 3X Ø1.13	DIAL BORE GAGE	QA	J-1400	.015 TO .020	04-20-06		
(320)						339-E.R		A
4*	H5 3X Ø1.13 +/- .010 Ø2.38 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	00064	1.1248 TO 1.1278	04-26-06		
(321)						533-B.C		A
4*	E6 $\square$ 060 D A N	CMM	QA	00064	.026 TO .044	339-E.R		A

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(340)	4*	E6	3X Ø1.375-6 UNC THRU Φ Ø060 D   A   N	CMM	QA		00064	.052 TO .056	04-26-06	*
(350)	4*	E6	5X Ø1.885 THRU 5X Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA		00064	1.8857 TO 1.888 / A CCEPT SPOT	04-26-06	A
(361)	4*	D4	Ø1.885 THRU Φ Ø060 D   A   N	CMM	QA		00064	.057	04-26-06	A
(370)	4*	D4	Ø1.885 THRU Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA		00064	1.890 / ACCEPT SPOT	04-26-06	R
(371)	4*	B5	3X Ø1.13 +/- .010 Ø2.38 BACK SPOTFACE VERIFY MIN CLEANUP	DIAL BORE GAGE CMM	QA		J-1400 00064	.005 TO .017	04-26-06	*
(375)	4*	B5	12X .25-20 UNC -2B Φ Ø06 D   A   N	CMM	QA		00064	1.1253 TO 1.1255 / ACCEPT SPOT	04-26-06	A
(376)	4*	D1	SUMMARY OF HOLE POSITIONS. ACTUAL FEATURE CONTROL FRAME IS NOT ON DRAWING.	THREAD PLUG GA	QA		A-234	ACCEPT	04-26-06	*
(380)	5*	E8	Ø1.885 THRU Φ Ø060 E   A   J	CMM	QA		00064	.009 TO .031	04-20-06	A
(381)	5*	E8	Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA		00064	1.888 / ACCEPT SPOT	04-26-06	A
(400)	5*	F6	3X Ø1.375-6 UNC THRU Φ Ø06 E   A   J	THREAD PLUG GA CMM	QA		A-375	ACCEPT	04-20-06	A
	5*	F6	Φ Ø06 E   A   J	CMM	QA		00064	.009 TO .019	04-26-06	A

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INSPECTION DATA CHECKLIST

Page: 5  
Date: 04/27/06  
User ID: GRIFFITH

Item No.	Description	Inspection Method	Inspection Location	Inspection Date	Inspection Result	Inspection Date	Inspection Result
(410)	3X 2.000" COUNTERBORE 1.00 DP	DIAL BORE GAGE	QA			04-26-06	*
5*	∅ 2.000 - 2.001			J-1401	1.999 TO 2.001	339-E.R	A
(412)						04-26-06	*
5*	7X 1/4-20 UNC -2B	THREAD PLUG GA	QA		ACCEPT	339-E.R	A
(415)						04-26-06	*
5*	∅ .06   E   A   J	CMM	QA	00064	.006 TO .028	339-E.R	A
(420)	7X 1/4-20 UNC -2B SUMMARY OF HOLE POSITIONS. ACTUAL FEATURE CONTROL FRAME IS NOT ON DRAWING.						
5*	∅ .060   E   A   J	CMM	QA	00064	.005 TO .023	339-E.R	A
(430)	24X ∅ 1.885 THRU					04-26-06	*
5*	24X ∅ 1.885 +/- .003 THRU ∅ 3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	00064	1.882 TO 1.8893 / A ACCEPT SPOT	339-E.R	R
(431)							
5*	∅ .060   E   A   J	DIAL BORE GAGE	QA	J-1400	.010 TO .016	04-26-06	*
(440)	3X ∅ 1.5 TO 2.00 DEEP ∅ 3.00 TO 1.00 DEEP	CMM	QA	00064		339-E.R	A
5*	3X ∅ 1.885 +/- .003 THRU ∅ 3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	00064	1.883 TO 1.886 / AC CEPT SPOT	339-E.R	A
(450)				MTMFX-3564		04-26-06	*
6*	4X ∅ 1.00 THRU	PIN GAGE	QA	J-921	1.0	533-B.C	A
(470)						04-20-06	*
8*	4.00 ± .010	CALPER	QA	J-1389	3.960	533-B.C	R
(650)						04-20-06	*
8*	6X ∅ .875-16 UNC TO .75 DEEP .08 X 45° CHAMFER	THREAD PLUG GA	QA	A-444	ACCEPT	339-E.R	A
(750)				VISUAL		04-26-06	*
8*	13.6°		QA	VISUAL	SEE IGES	339-E.R	A
(760)						04-26-06	*
8*	5.88 VERIFY THAT PAD MEETS THE	CALPER	QA	J-1389	6.900	533-B.C	A

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**Major**  
Tool & Machine, Inc.

INSPECTION DATA CHECKLIST

(770)		MINIMUM OF 5.88							04-20-06	*
8*	D7	2.19 ± .010		QA		VISUAL	SEE IGES		339-E.R	A
(780)									04-26-06	*
8*	D7	2.19 ± .010		QA		VISUAL	SEE IGES		339-E.R	A
(790)									04-26-06	*
8*	C8	2X 1.56 ± .010 THRU	CALIPER	QA		J-1389	1.555 TO 1.565		533-B.C	A
(830)									04-20-06	*
8*	C8	2X 7.50 ± .010 THRU	CALIPER	QA		J-1389	7.495 TO 7.502		533-B.C	A
(850)									04-20-06	*
8*	C8	8X R.25	PIN GAGE	QA		J-652-1	.250		533-B.C	A
(860)									04-20-06	*
8*	C8	2X 2.52 ± .010	CMM	QA		00064	SEE IGES		339-E.R	A
(870)									04-26-06	*
9*	E7	2.54 ± .010	SCALE	QA		J-922	ACCEPT		339-E.R	A
(900)									04-26-06	*
9*	E7	5.08 ± .010	SCALE	QA		J-922	5.08		339-E.R	A
(910)									04-26-06	*
9*	F3	4X Ø1.0 THRU VERIFY THAT HOLES BREAK COMPLETELY THROUGH INSIDE OF CASTING	PIN GAGE	QA		J-921	1.0		533-B.C	A
(920)										*
9*	F3	2X Ø .50 ± .010 THRU	PIN GAGE	QA		J-652-3	.500		04-20-06	A
(930)									533-B.C	*
9*	E3	2.44 ± .010	SCALE	QA		J-922	2.45		04-20-06	A
(940)									339-E.R	*
9*	E3	1.22 ± .010	SCALE	QA		J-922	ACCEPT		04-26-06	A
(950)									339-E.R	*
9*	C7	4X Ø1.0 THRU VERIFY THAT HOLES BREAK COMPLETELY THROUGH INSIDE OF CASTING	PIN GAGE	QA		J-921	1.0		04-26-06	A
(960)									533-B.C	*
9*	C6	2X Ø 25 T.C. HOLE	PIN GAGE	QA		J-652-1	.250		04-20-06	A
(970)									533-B.C	*
									04-20-06	*

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INSPECTION DATA CHECKLIST

SHEET ZONE	Drawing ID: SE141-116 Rev: 7	INSPECTION INSTRUCTIONS		RESULTS		INSPECTED BY		
		GAGE/EQUIP	BY SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
10* (980)	C8 125 A B C	CMM	QA	00064	.0208 TO .2076	339-E.R		R *
Drawing ID: SE141-116 Rev: 8								
10* (990)	D5 5 A B C DATUM -D- SIDE INNER CAST	CMM	QA	00064	-.0006 TO -.3923	339-E.R		R *
Drawing ID: SE141-116 Rev: 7								
10* (1010)	C4 125 A B C DATUM -E- SIDE LARGE WING	CMM	QA	00064	.020 TO .101	339-E.R		R *
Drawing ID: SE141-116 Rev: 8								
10* (1030)	D1 5 A B C DATUM -E- SIDE INNER CAST	CMM	QA	00064	-.256 TO .258	339-E.R		R *
Drawing ID: SE141-116 Rev: 7								
10* (1035)	E1 MACHINE / GRIND THIS AREA TO PROFILE OF +.05/-10	CMM	QA	00064	-.213 TO .495	339-E.R		R *
Drawing ID: NCSX-CSPEC-141-03 Rev: 10								
4* (1040)	3.1.1. UOS ALL MACHINED SURFACES TO BE 250 RMS SURFACE FINISH RECORD RANGE	PROFLOMETER	QA	J-1109	150 TO 250	242-M.G		A *
Drawing ID: SE141-116 Rev: 8								
1* (1050)	NOTE 9 RECORD THE WEIGHT OF THE PART 6000LBS MAX	SCALE	QA	2270	5.980	242-M.G		A *

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Major  
Tool & Machine, Inc.

INSPECTION DATA CHECKLIST

Page: 8

Date: 04/27/06

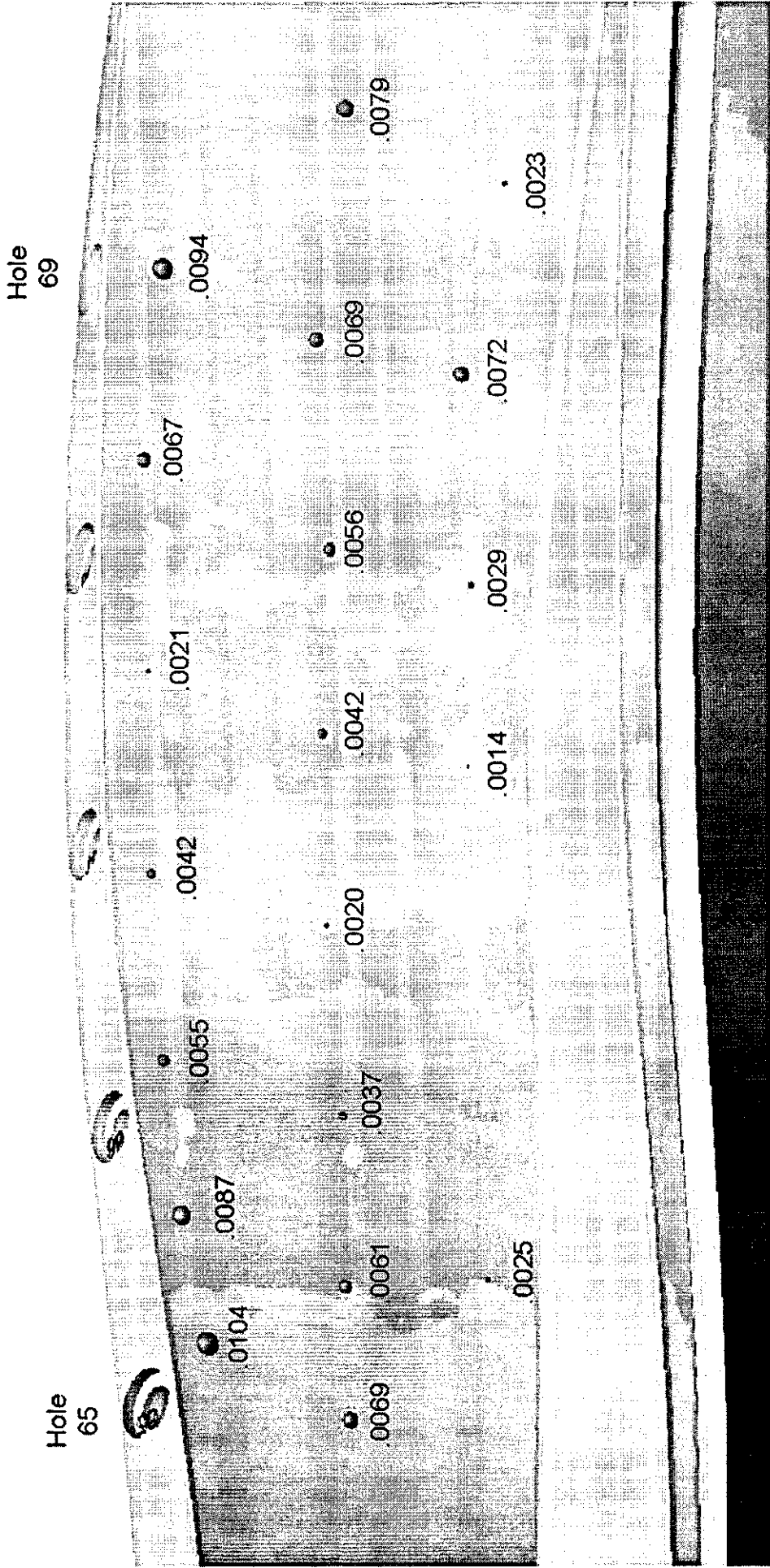
User ID: GRIFFITH

Employees: 242 M. Griffith / 339-E Root / 533-B. C. Evenger

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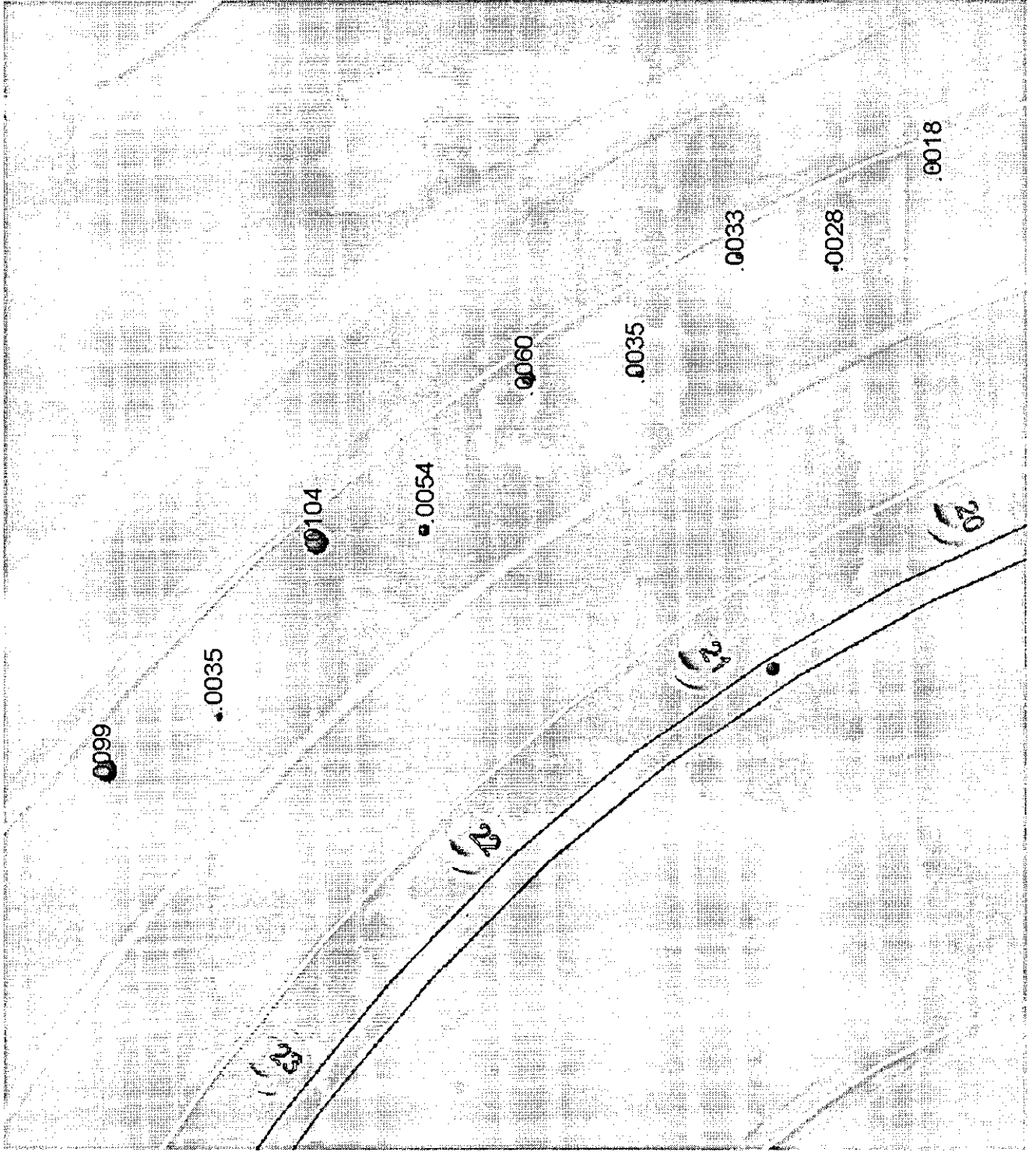
Datum-D tee web between holes 65 and 69

Data indicates C5 high spots beyond +/- .020-in profile tolerance



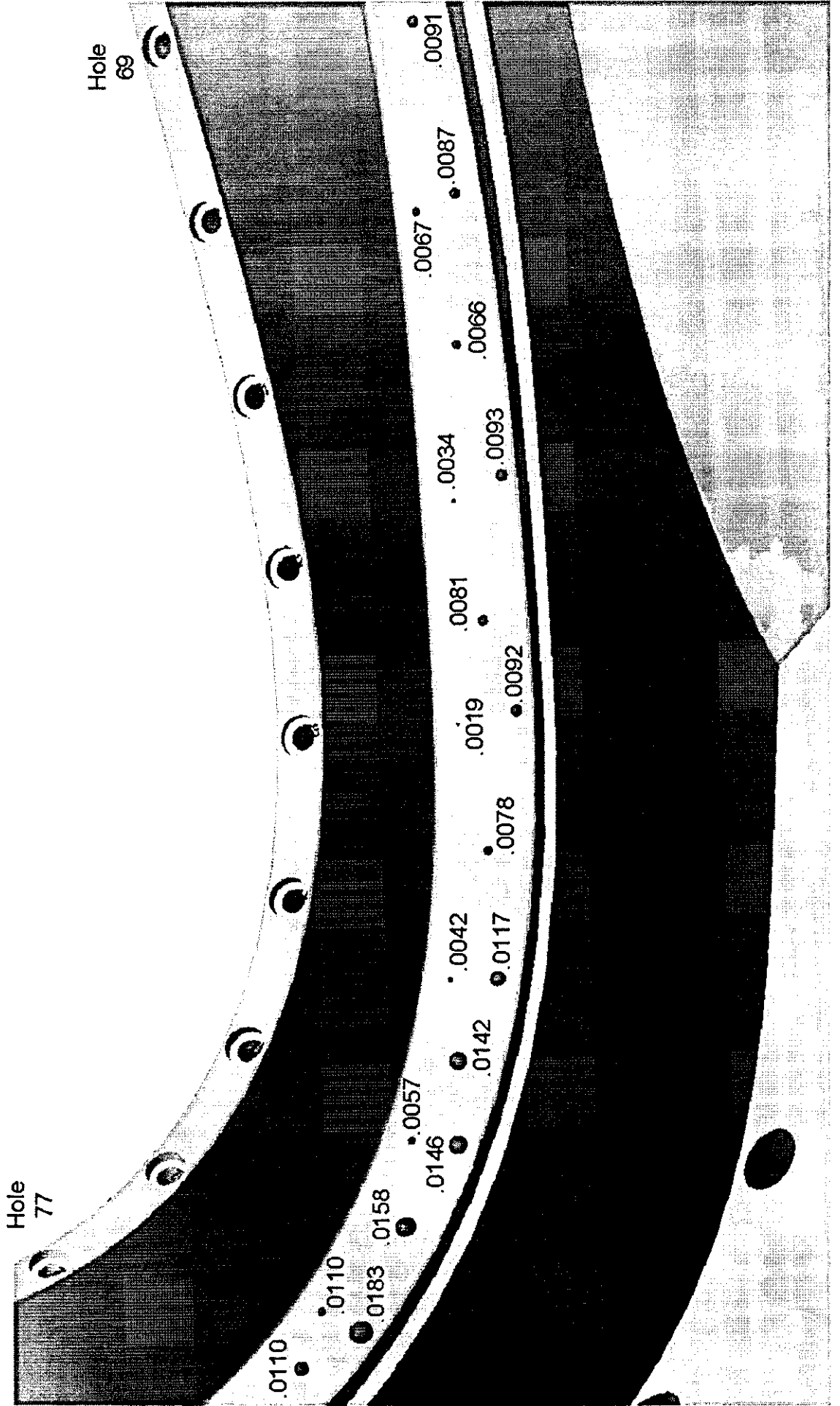
Datum-D tee base between holes 20 and 23

Data indicates C5 high spots beyond  $\pm .020$ -in profile tolerance



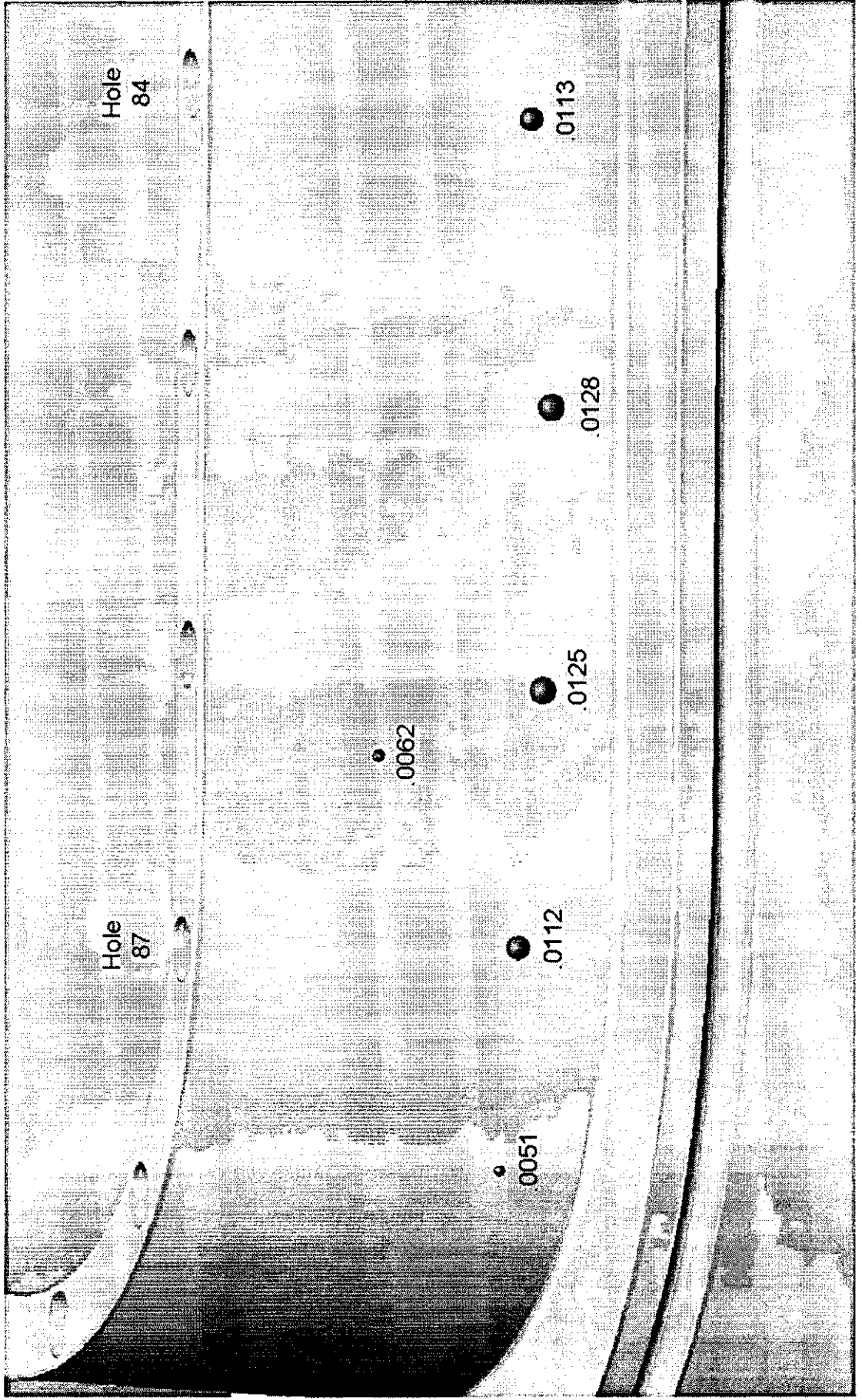
Datum-E tee base between holes 69 and 77

Data indicates C5 high spots beyond  $\pm .020$ -in profile tolerance



Datum-E tee web between holes 84 and 87

Data indicates C5 high spots beyond  $\pm .020$ -in profile tolerance



# Attachment to NC19713

## T section Grinding Summary

Datum -D tee web between holes 65 and 69

Stock to Remove	Before Grind	After Grind	Stock Removed
0.0104	0.774	0.762	0.012
0.0069	0.772	0.764	0.008
0.0061	0.777	0.765	0.012
0.0025	0.762	0.758	0.004
0.0087	0.776	0.762	0.014
0.0037	0.775	0.768	0.007
0.0055	0.774	0.757	0.017
0.0042	0.774	0.758	0.016
0.002	0.774	0.762	0.012
0.0021	0.774	0.766	0.008
0.0042	0.776	0.767	0.009
0.0014	0.773	0.769	0.004
0.0067	0.778	0.767	0.011
0.0056	0.775	0.767	0.008
0.0029	0.773	0.766	0.007
0.0094	0.779	0.765	0.014
0.0069	0.782	0.77	0.012
0.0072	0.773	0.764	0.009
0.0079	0.779	0.764	0.015
0.0023	0.781	0.773	0.008

Datum -D tee base between holes 20 and 23

Stock to Remove	Before Grind	After Grind	Stock Removed
0.0099	4.114	4.129	0.015
0.0035	4.113	4.128	0.015
0.0104	4.111	4.132	0.021
0.0054	4.114	4.125	0.011
0.006	4.12	4.128	0.008
0.0035	4.116	4.128	0.012
0.0033	4.114	4.119	0.005
0.0028	4.122	4.125	0.003
0.0018	4.119	4.121	0.002

**Attachment to NC19713**  
**T section Grinding Summary**  
**Datum -E tee base between holes 69 and 77**

Stock to Remove	Before Grind	After Grind	Stock Removed
0.011	4.128	4.14	0.012
0.011	4.135	4.147	0.012
0.0183	4.13	4.15	0.02
0.0158	4.129	4.148	0.019
0.0146	4.11	4.128	0.018
0.0057	4.135	4.143	0.008
0.0142	4.129	4.145	0.016
0.0117	4.119	4.134	0.015
0.0042	4.135	4.141	0.006
0.0078	4.134	4.146	0.012
0.0019	4.134	4.138	0.004
0.0092	4.127	4.138	0.011
0.0081	4.133	4.144	0.011
0.0034	4.122	4.128	0.006
0.0093	4.118	4.128	0.01
0.0066	4.115	4.125	0.01
0.0067	4.095	4.102	0.007
0.0087	4.095	4.105	0.01
0.0091	4.13	4.143	0.013

**Datum -E tee web between holes 84 and 87**

Stock to Remove	Before Grind	After Grind	Stock Removed
0.0051	0.774	0.766	0.008
0.0112	0.779	0.756	0.023
0.0062	0.763	0.751	0.012
0.0125	0.773	0.754	0.019
0.0128	0.772	0.751	0.021
0.0113	0.777	0.758	0.019





INSPECTION DATA CHECKLIST

Workorder: 65707/S-0 Sub:1 Op:130

Revision:

Part: SE141-116 - MODULAR COIL WINDING FORM TYPE-C - PRODUCTION MODULAR COIL WINDING FORM TYPE-C

SHEET	ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
			GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
2*	D3	$\phi .001 - \phi .002$ CHECK CLEARANCE OF ITEM 5 TO ITEM 6.		QA		FEELER GAGE	DIAMETRICAL GAP CHE CKS UP TO .022"	242-M.G			R
(10)								04-26-06			*
*		THE GAP BETWEEN THE POLOIDAL, BREAK BUSHINGS AND FLANGE SHAL BE LESS THAN .002"		QA		FEELER GAGE	ACCPET	242-M.G			A
(15)								04-26-06			*
2*	F2	ENSURE THAT THE CUMULATIVE GAP AT ANY SINGLE CROSS SECTION OF THE POLOIDAL FLANGE ELEMENTS IS LESS THAN .005".		QA		FEELER GAGE	LESS THAN .001"	242-M.G			A
(20)								04-26-06			*
*		THE MAX. GAP AT THE POLOIDAL BREAK PERIMETER IS .015" AND CANNOT EXCEED 1/8" FROM THE EDGE		QA		FEELER GAGE	MAX GAP IS .006"	242-M.G			A
(30)								04-26-06			*

Employees: 242-M Griffith

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**Customer: ENERGY INDUSTRIES OF OHIO**

Contact: NANCY HORTON  
E-Mail: NKHFlowen@aol.com

Telephone: 216-496-2314  
Fax: 216-328-2001

**Part: SE141-116 / MODULAR COIL WINDING FORM TYPE**  
Drawing ID: SE141-116-1MTM      Revision: 6A

Customer P.O.: S005242-F/Ln:5  
Serial No./Qty: C5

Reported By: MIKE GRIFFITH  
E-Mail: mGriffith@MajorTool.com

Telephone: 317-636-6433  
Fax: 317-634-9420

Problem: THERE ARE MINOR AREAS OF TOOLING NONCLEANUP AND GOUGES ON THE T SECTION AND IN OTHER AREAS AROUND THE CASTING. SEE ATTACHMENT FOR CLARIFICATION.

**Proposed Disposition:**

Propose to Accept As Is.

Number of additional pages: 1 attachment

Customer Disposition:     Use As Is     Rework     Repair     Scrap     Replace

The noncleanup and gouges shown in the attachment were reviewed and accepted as is. NCSX will evaluate each of these and may opt to fill those located in winding surface areas with cryogenic grade epoxy filler.

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 'specified'  
portions of this document  
Date: 2006.04.27 14:43:20 -04'00'

Brad  
Nelson

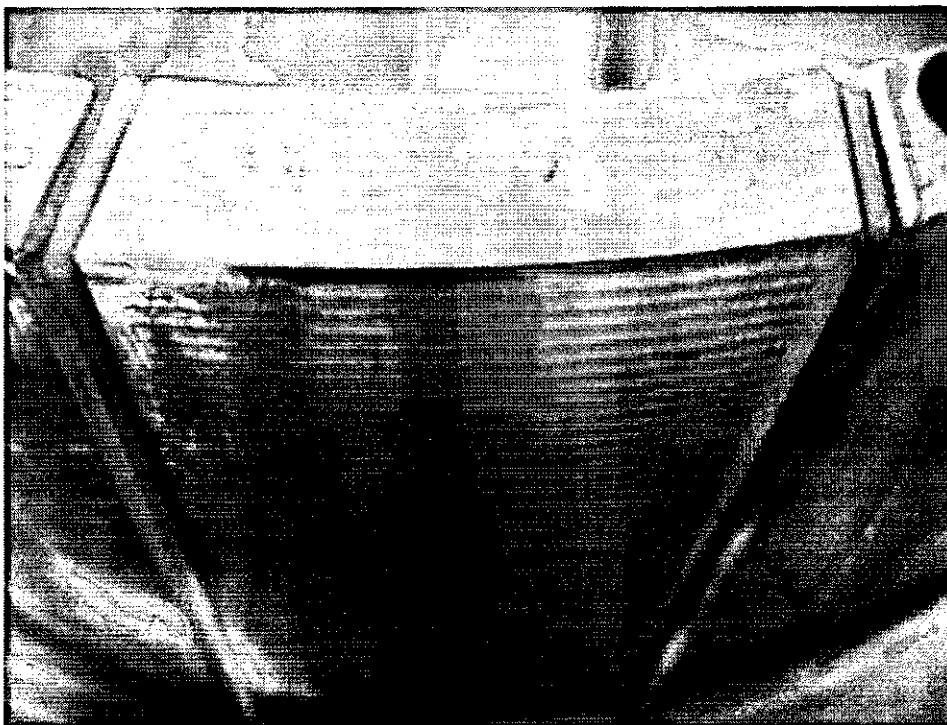
Digitally signed by Brad  
Nelson  
DN: cn=Brad Nelson,  
c=US, o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.04.27 17:56:03  
-04'00'

Tech. Rep.

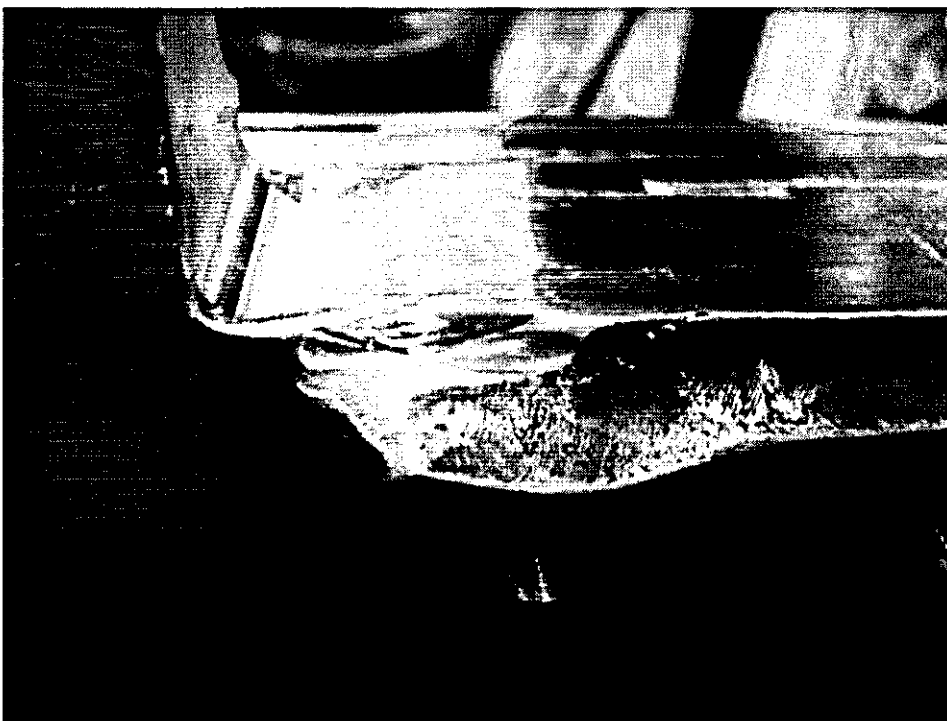
RLM

Major Tool Implemented By: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

SE141-116 C5  
NC19718 attachment.



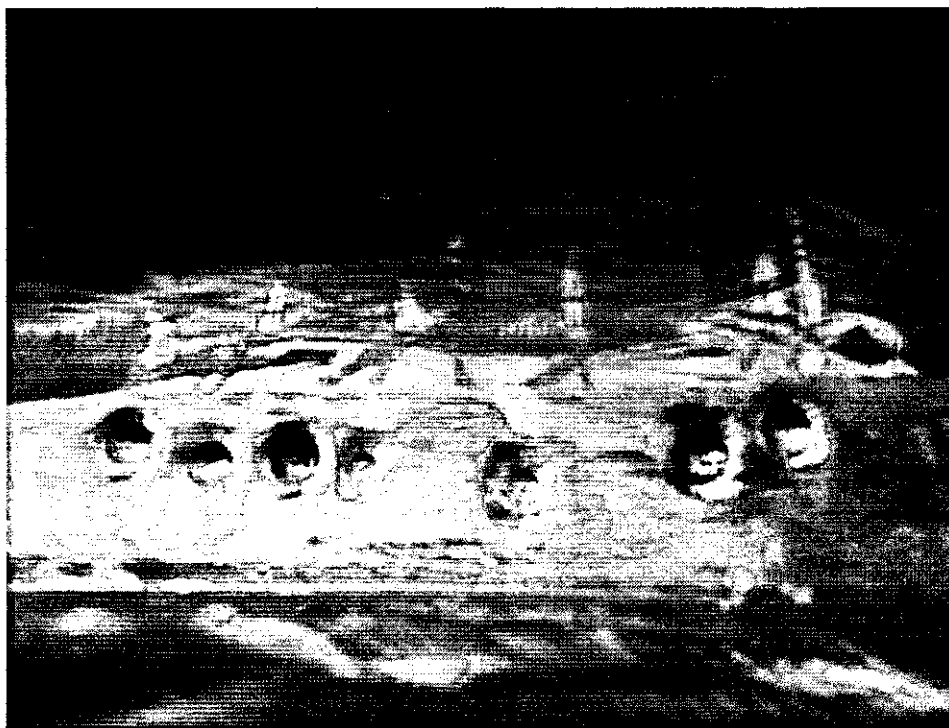
Poloidal Break view – Chamfer on casting (.09”) is larger than chamfer on shim (.06”).



Tool Gouge blended out between pad and lead block slot.



SE141-116 C5  
NC19718 attachment.



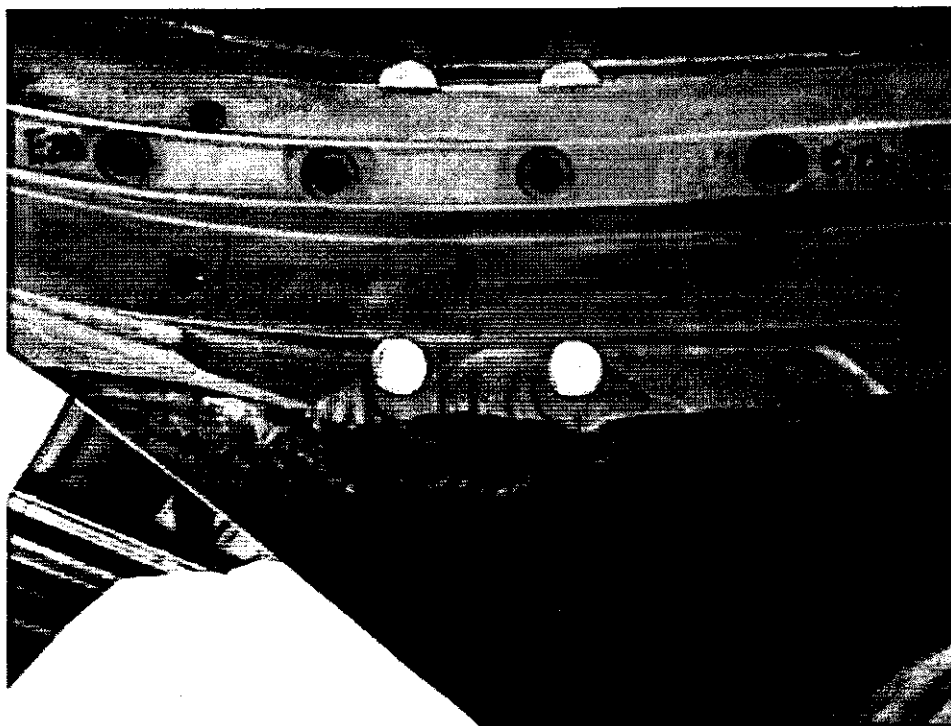
Excavated areas of high permeability beneath VPI groove in radius at casting wall.



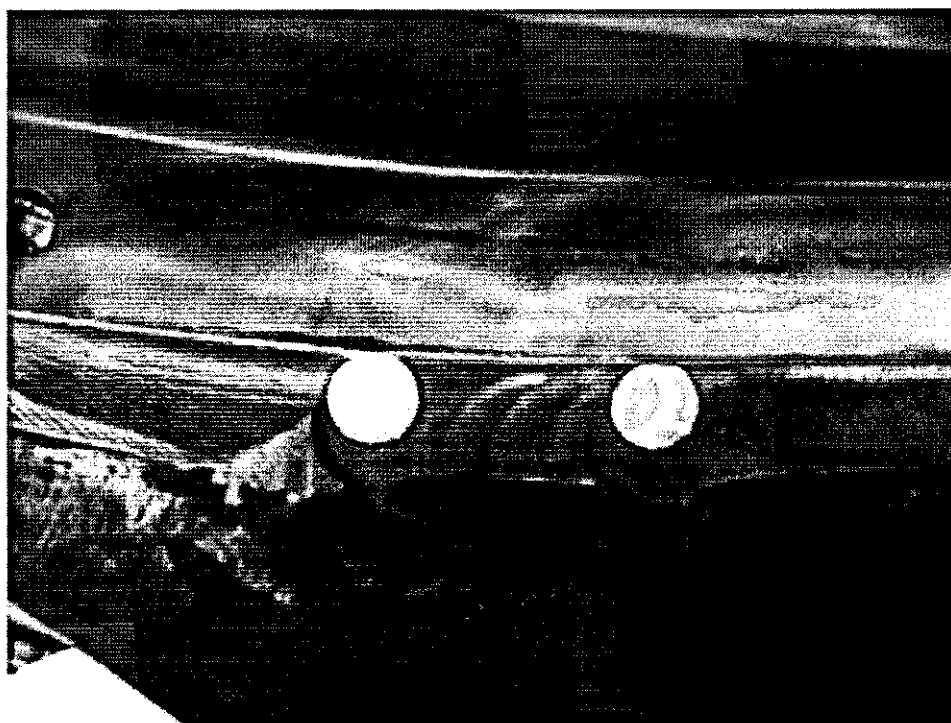
Small cutter noncleanup between long and short legs (.120", .005" deep)



SE141-116 C5  
NC19718 attachment.



Wide view of cutter noncleap on short leg between holes 26 and 29 on E side.



Close up view. Noncleanup is approx. .008" at the max depth and max. of .100" wide.

Mike Griffith

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4/27/2006



*Major*  
Tool & Machine, Inc.

SE141-116 C5  
NCI9718 attachment.



Area of cutter noncleanup near radius between D33 and D35. Approx. .008" max depth.

Mike Griffith

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4/27/2006



EASTWOOD MANUFACTURING  
CERTIFICATION OF COMPLIANCE

CUSTOMER: MAJOR TOOL AND MACHINE  
ORDER # : P05-01160

DATE: 5-23-05  
OUR NUMBER 33388

WE CERTIFY THAT THE MATERIALS SUPPLIED ON YOUR ORDER  
LISTED ABOVE COMPLIES WITH THE REQUIREMENTS OF YOUR ORDER  
AND OF THE SPECIFICATIONS LISTED BELOW

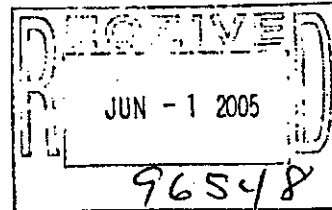
DESCRIPTION :

Lot No.:	Part :	Heat No.:	
32984-1 98 PIECES	DS141-036	8969595	1 7/16 Round, machined to size
	ASTM A286		Heat Treat: 36891
	Silver plated		Silver plate: IMF 00132583
	Per AMS2410		Post plate bake: SEI 38130
			Tensile test: WH 05-0420-01

TENSILE KSI	YIELD KSI	ELONGATION	REDUCTION	HARDNESS
150	120	14	35	
PASS	PASS	PASS	PASS	PASS



DALE STARK  
EASTWOOD MANUFACTURING



Lines 5-18  
B.I.

JUN 01 2005





401 ROSE AVE S E  
MASSILLON, OH 44646

FAX 330-837-7017

CERTIFICATE OF TESTS REPUBLIC ENGINEERED PRODUCTS

JANUARY 26, 2005  
PAGE: 1 OF 3

-----  
PURCHASE ORDER: 42904-3 PURCHASE ORDER DATE: 05/24/04  
PART NUMBER : S# 47670 ACCOUNT NUMBER . . . : 27759001  
ORDER NUMBER: 12-52585-06 821 SCHEDULE . . . . . : 58828-  
HEAT : 8969595  
----- CHARGE ADDRESS ----- SHIP TO -----

*58828*

FRY STEEL COMPANY  
BUNNIE ISAKA  
13325 MOLETTE ST  
SANTA FE SPRINGS CA 90670

FRY STEEL COMPANY  
BUNNIE ISAKA  
C/O CMI  
4201 W 36TH ST  
CHICAGO IL 60623

----- MATERIAL DESCRIPTION -----  
COLD FINISHED STEEL BARS ALLOY DOUGLAS SPEC DMS-1555H GRADE B DTD 07/02/91 EKC  
MARK & PARA 3.4 OIL TEMP & 3.5 BOEING SPEC BMS 7-28G ASTM A 331-95 ASTM A  
108-03 LEVEL 1 MIL S 5000E COND E-4 EKC MARK AMS 6415R EKC BHN AMS 6409B AMS  
2310E AMS 2301J AMS 2304A AMS 6484B AMS -S- 5000 ISS 3/99 COND E-4 EKC MARK &  
PARA 4.3 EF-AISI-E-4340 AIRCRAFT Q DBL TRANSV MECH PROP COLD DRAWN NOR  
M & SUBCRITICAL ANN BEFORE CD REST CHEM

SIZE: RDS 1.4375 X 11 /13FT

LADLE CHEMISTRY %										
C	MN	P	S	SI	CU	NI	CR	MO	AL	
0.42	00.75	.007	.002	0.22	0.10	01.70	00.84	0.21	00.028	
V	N	CB	SN							
0.005	.0064	0.002	.007							

AUSTENITIC GRAIN SIZE  
AUST GRAIN SZ 7.

SEMI-FINISH RESULTS

DEVELOPED TENS	TRANS NORMALIZE	ASTM E8 AUSTENITIZE	ASTM A370 QUENCHANT	TEMPER 1
	DEG F 1650.	DEG F 1550.	OIL	DEG F 900.
	TEMP 1 TIME HOURS 2.0			

	TENSILE	REDUCTION AREA
	PSI	PERCENT
PCE H 10102	185010.	45.5
PCE H 10302	180280.	55.6
PCE T 10503	185540.	55.7
PCE H 30102	180570.	53.4
PCE H 30302	193790.	53.0
PCE T 30504	185240.	46.3

*32984*

DEVELOPED TENS	TENSILE NORMALIZE	ASTM E8 AUSTENITIZE	ASTM A370 QUENCHANT	TEMPER 1
	DEG F 1650.	DEG F 1500.	OIL	DEG F 475.
	TEMPER 2/SR DEG F 475.	TEMP 1. TIME HOURS 2.0	TEMP 2 TIME HOURS 2.0	

*19111*

	TENSILE	YIELD (.2%)	REDUCTION AREA	ELONGATION
	PSI	PSI	PERCENT	PERCENT
PCE H 10102	262320.	223800.	47.0	10.4
PCE H 10302	264250.	222910.	44.6	11.4
PCE T 10503	262170.	225100.	44.6	14.3
PCE H 30102	261840.	218860.	43.8	13.4
PCE H 30302	261260.	222160.	49.3	11.4
PCE T 30504	261050.	225230.	48.2	12.9

AMAN BHATIA  
GEN MGR COLD FINISH OPERATIONS

*Aman Bhatia*

JUN 01 2005







401 ROSE AVE S E  
MASSILLON, OH 44646

FAX 330-837-7017

CERTIFICATE OF TESTS REPUBLIC ENGINEERED PRODUCTS

JANUARY 26, 2005  
PAGE: 2 OF 3

-----  
PURCHASE ORDER: 42904-3 PURCHASE ORDER DATE: 05/24/04  
PART NUMBER : S# 47670 ACCOUNT NUMBER . . . : 27759001  
ORDER NUMBER: 12-52585-06 821 SCHEDULE . . . . . : 58828-  
HEAT . . . . . : 8969595  
-----

SEMI-FINISH RESULTS (CONTINUED)  
DEVELOPED TRANS TENSILE ASTM E8 ASTM A370  
NORMALIZE AUSTENITIZE QUENCHANT TEMPER 1  
DEG F DEG F DEG F  
1650. 1500. OIL 475.

TEMPER 2/SR TEMP 1 TIME TEMP 2 TIME  
DEG F HOURS HOURS  
475. 2.0 2.0

	TENSILE PSI	YIELD (.2%) PSI	REDUCTION AREA PERCENT	ELONGATION PERCENT
PCE H 10102	256220.	218900.	35.8	9.7
PCE H 10302	260560.	223410.	46.3	10.6
PCE T 10503	254270.	220610.	14.6	7.6
PCE H 30102	263550.	222210.	35.4	11.0
PCE H 30302	261190.	223640.	46.8	12.3
PCE T 30504	258710.	221100.	44.3	11.8

JOMINY STD SAE J406 ASTM A255  
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18 20 22 24 26 28 30 32  
58 58 57 57 57 57 56 56 56 56 55 55 55 55 54 53 52 51 51 50 49 49

MACROETCH SRC ASTM E381 MIL STD 430  
AVG SURFACE 1. RANDOM 1. CENTER 1.

MAG PARTICLE 2301 AMS 2301  
AVG AVG FREQ 0.00 AVG SEV 0.00

MAG PARTICLE 2304 AMS 2304  
AVG AVG FREQ 0.00 AVG SEV 0.00

----- FINISH SIZE RESULTS SCHEDULE: 58828  
DECARBURIZATION SAE J419 ASTM E1077

PCE 01 TOTAL DEPTH  
INCHES  
.015

HBW SURFACE (LAB) ASTM E10 ASTM A370  
PCE 01 HBW 217.  
PCE 02 HBW 217.  
PCE 03 HBW 217.  
PCE 04 HBW 217.  
PCE 05 HBW 223.

MATERIAL SOURCES  
RED. RATIO  
TO 1  
73.6

TENSILE HT TRTD ASTM E8 ASTM A370  
NORMALIZE  
DEG F  
PCE 01 1625.

----- NOTES -----  
THE MATERIAL WAS NOT EXPOSED TO MERCURY OR ANY METAL ALLOY THAT IS  
LIQUID AT AMBIENT TEMPERATURE DURING PROCESSING OR WHILE IN OUR  
POSSESSION.  
CHEMICAL ANALYSIS CONFORMS TO APPLICABLE SPECS: ASTM E415, ASTM E1019,  
AND ASTM E1085.

32984

JUN 01 2005

AMAN BHATIA  
GEN MGR COLD FINISH OPERATIONS  
*Aman Bhatia*





401 ROSE AVE S E  
MASSILLON, OH 44646

FAX 330-837-7017

CERTIFICATE OF TESTS

REPUBLIC ENGINEERED PRODUCTS

JANUARY 26, 2005  
PAGE: 3 OF 3

-----  
PURCHASE ORDER: 42904-3  
PART NUMBER : SH 47670  
ORDER NUMBER: 12-52585-06 821  
HEAT : 8969595

-----  
PURCHASE ORDER DATE: 05/24/04  
ACCOUNT NUMBER . . . : 27759001  
SCHEDULE . . . . . : 58828-

----- NOTES (CONTINUED) -----  
NO WELDING OR WELD REPAIR WAS PERFORMED ON THIS MATERIAL.

RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENT OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FED STATUBS TITLE 18 CHAPTER 47.

I HEREBY CERTIFY THAT THE MATERIAL LISTED HEREIN HAS BEEN INSPECTED AND TESTED IN ACCORDANCE WITH THE METHODS PRESCRIBED IN THE GOVERNING SPECIFICATIONS AND BASED UPON THE RESULTS OF SUCH INSPECTION AND TESTING HAS BEEN APPROVED FOR CONFORMANCE TO THE SPECIFICATIONS.

CERTIFICATE OF TESTS SHALL NOT BE REPRODUCED EXCEPT IN FULL.

WHEN EVALUATED, MACRO ETCHES WERE VISUALLY RATED ON SAMPLES ETCHED USING HYDROCHLORIC ACID AT A TEMPERATURE 170 DEGREES (F) (+/- 10 DEGREES F)

ALL TESTING HAS BEEN PERFORMED USING THE CURRENT REVISION OF THE TESTING SPECIFICATIONS.

MFG IN THE U.S.A.

ALISON J. BLONDHEIM  
NOTARY PUBLIC, STATE OF OHIO  
MY COMMISSION EXPIRES MARCH 10, 2009

----- END OF DATA -----  
FAX SHIP TO 1 COPY ATTENTION BUNNIE ISAKA  
MAIL SOLD TO 1 COPY ATTENTION BUNNIE ISAKA  
FILE 1 COPY  
WITH SHIPMENT 1 COPY

----- END OF DATA -----  
562-802-7481

SHIPPING AREA:

32984

FRY STEEL CO. CERTIFIES THAT THIS IS  
A TRUE COPY OF THE ORIGINAL MILL TEST  
REPORT NOW ON FILE.  
RECEIVED AND INSPECTED

FEB 14 2005

*Bunnie Isaka*  
BUNNIE ISAKA, Q.C. MANAGER

JUN 01 2005



AMAN BHATIA  
GEN MGR COLD FINISH OPERATIONS

*Aman Bhatia*

**Tensile Test Report**

Company: Eastwood Mfg. Date: 4/22/2005  
 Attention: Dale Stark Lab Report #: 05-0420-01  
 Identification: AISI 4340 P.O. #: 32984  
 Procedure: \_\_\_\_\_ 1-3/8" O.D.  
 Process: \_\_\_\_\_  
 Filler: \_\_\_\_\_ Heat#8969595  
 Qualification: \_\_\_\_\_  
 Welder: \_\_\_\_\_

32984

32984

**TENSILE TEST**

Lab ID	Dimensions	Area	Yield Lbs	Ultimate Load Lbs	Yield P.S.I.	Tensile P.S.I.
C	.504 round	.1995	31,860	34,700	159,700	174,000

Elongation	Reduction of Area	Fracture	Comments
16.2%	52.3%	Ductile	

Tests performed in accordance with ASTM A370, E8, and WH Laboratories, LLC Quality Assurance Manual.  
 2% Offset Yield - Gage Length 2.000" for 350", and 1.400" for 350" tensile per ASTM A370.  
 Test specimens retained for one (1) week maximum; unused material is retained for one (1) month.

Approved by: Robert French  
 Robert French

JUN 01 2005



# SEI HEAT TREAT

PO BOX 16339 HOUSTON, TX 77222

PHONE (713) 699-3892 FAX (713) 699-7551

<b>CUSTOMER:</b> EASTWOOD MANUFACTURING	<b>CERTIFICATION DATE:</b> May 19, 2005
<b>CERTIFICATION/SO NUMBER:</b> 38130	<b>CUSTOMER ORDER NUMBER:</b> 33388

<b>MATERIAL:</b> N/A	<b>NUMBER OF PIECES:</b> 98
<b>DESCRIPTION:</b> 1-3/8" X 9" STUD SILVER PLATED	<b>PART NUMBER(S):</b> N/A
<b>SPECIFICATION NUMBER:</b> EASTWOOD MANUFACTURING	<b>REFERENCE:</b> N/A

38730,

HEAT TREAT PROCESS	TIME AT HEAT	COOLANT
<i>Bake</i>	<i>950°</i>	<i>1hr</i>
		<i>AIR</i>

<b>HARDNESS TEST:</b>	<b>NUMBER OF PIECES TESTED:</b>

<b>WE HEREBY CERTIFY THAT THE SERVICE FURNISHED ON THE ABOVE PURCHASE ORDER IS PROVIDED IN ACCORDANCE WITH OUR QUALITY CONTROL MANUAL, REVISION B, DATED JANUARY 21, 2001</b>	<b>QUALITY CONTROL:</b> <i>Lucia Flo</i>
---	---

JUN 01 2005





INDUSTRIAL METAL FINISHING

CERTIFICATE OF COMPLIANCE

TO: EASTWOOD MFG. 5/86  
P.O. BOX 41447  
HOUSTON, TX 77241

THIS IS TO CERTIFY THAT THE METAL FINISHING SERVICE RENDERED ON ITEM(S)

126 EA. - 1.375 X 9 DE STUDS  
252 EA. - 2.75 OD WASHERS  
252 EA. - 1.375 12PT NUTS

ON PURCHASE ORDER 32984 LISTED ON OUR INVOICE #00132583

MEETS OR EXCEEDS THE REQUIREMENTS OF SPECIFICATION NUMBER

CERT: SILVER PLATE PER AMS 2410  
NO BAKE REQUIRED

QUALITY PROGRAM DATED: 05/01/93 REVISION: 1 DATED: 04/01/94

NAME:

TITLE

DATE

Tair McPherson

QC Manager 9/10/05

32984

EASTWOOD MANUFACTURING  
CERTIFICATION OF COMPLIANCE

CUSTOMER : MAJOR TOOL AND MACHINE  
ORDER # : P05-01162

DATE : 5-23-05  
OUR NUMBER 33387

WE CERTIFY THAT THE MATERIALS SUPPLIED ON YOUR ORDER  
LISTED ABOVE COMPLIES WITH THE REQUIREMENTS OF YOUR ORDER  
AND OF THE SPECIFICATIONS LISTED BELOW

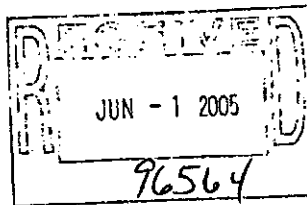
DESCRIPTION :

Lot No.:	Part :	Heat No.:	
32983-1 196 PIECES	DS141-079 ASTM A286 Silver plated Per AMS2411	8990135	2 3/4 Round, machined to size Heat Treat: 36891 Silver plate: IMF 00132583 Post plate bake: SEI 38131 Tensile test: WH 05-0420-01

TENSILE KSI	YIELD KSI	ELONGATION	REDUCTION	HARDNESS
150	120	14	35	
PASS	PASS	PASS	PASS	PASS



DALE STARK  
EASTWOOD MANUFACTURING



Cons 5-18

*BA* JUN 01 2005





401 ROSE AVE S E  
MASSILLON, OH 44646

FAX 330-837-7017

CERTIFICATE OF TESTS REPUBLIC ENGINEERED PRODUCTS

FEBRUARY 14, 2005  
PAGE: 1 OF 3

PURCHASE ORDER: 43004-8 PURCHASE ORDER DATE: 07/13/04  
PART NUMBER : S# 48960 ACCOUNT NUMBER : 27759001  
ORDER NUMBER: 12-52806-08 821 SCHEDULE : 60703-  
HEAT : 8990135  
----- CHARGE ADDRESS ----- SHIP TO -----

5610603

FRY STEEL COMPANY  
BUNNIE ISAKA  
13325 MOLETTE ST  
SANTA FE SPRINGS CA 90670

FRY STEEL COMPANY  
BUNNIE ISAKA  
C/O CMI  
4201 W 36TH ST  
CHICAGO IL 60623

----- MATERIAL DESCRIPTION -----  
COLD FINISHED STEEL BARS ALLOY DOUGLAS SPEC DMS-1555H GRADE B DTD 07/02/91 EXC  
MARK & PARA 3.4 OIL TEMP & 3.5 BOEING SPEC BMS 7-28G LTV VUGHT AERO SPEC CVA  
1-585G & AMD 1 EXC RED/AREA ASTM A 331-95 ASTM A 108-03 LEVEL 1 MIL S 5000E  
COND E-3 EXC MARK AMS 6415R AMS 6409B AMS 2310E AMS 2301J AMS 2304A AMS 6484B  
AMS - S - 5000 ISSUE DTD 3/99 COND E3 EXC MARK EF-AISI-E-4340 AIRCR  
APT O DBL TRANSV MECH PROP ROUGH TURNED NORM & SUBCRITICAL ANN BEFORE TURN S  
STRAIGHT REST CHEM FREE FROM DECARB

SIZE: RDS 2.7500/2.7734 X 11 /13FT  
----- LADLE CHEMISTRY % -----  
C 0.42 MN 00.73 P 0.007 S 0.004 SI 0.26 CU 0.15 NI 01.74 CR 00.86 MO 0.20 AL 00.034  
V N CE SN  
0.003 .0057 0.002 .010  
----- SEMI-FINISH RESULTS -----

AUSTENITIC GRAIN SIZE  
AUST GRAIN SZ 7.

DEVELOPED TENS TRANS NORMALIZE DEG F 1650.	ASTM E8 AUSTENITIZE DEG F 1550.	ASTM A370 QUENCHANT OIL	TEMPER 1 DEG F 900.
TEMP 1 TIME HOURS 2.0			

	TENSILE PSI	REDUCTION AREA PERCENT
PCE H 20102	187750.	42.6
PCE H 20302	190780.	50.8
PCE T 20503	189630.	49.5
PCE H 40102	190530.	49.0
PCE H 40302	190020.	48.4
PCE T 40503	187050.	51.2

DEVELOPED TRANS TENSILE NORMALIZE DEG F 1650.	ASTM E8 AUSTENITIZE DEG F 1500.	ASTM A370 QUENCHANT OIL	TEMPER 1 DEG F 475.
TEMPER 2/SR DEG F 475.	TEMP 1 TIME HOURS 2.0	TEMP 2 TIME HOURS 2.0	

	TENSILE PSI	YIELD (.2%) PSI	REDUCTION AREA PERCENT	ELONGATION PERCENT
PCE H 20102	269150.	229500.	33.4	8.7
PCE H 20302	265160.	228430.	36.0	11.6
PCE T 20503	264570.	227270.	39.0	10.6
PCE H 40102	267580.	228000.	39.0	9.6
PCE H 40302	268390.	228870.	42.0	11.4
PCE T 40503	266130.	220000.	40.3	13.0

32984

2/14/05

JUN 01 2005

AMAN BHATIA  
GEN MGR COLD FINISH OPERATIONS

*Amman Bhatia*







401 ROSE AVE S E  
MASSILLON, OH 44646

FAX 330-837-7017

CERTIFICATE OF TESTS

REPUBLIC ENGINEERED PRODUCTS

FEBRUARY 14, 2005  
PAGE: 2 OF 3

-----  
PURCHASE ORDER: 43004-8  
PART NUMBER : S# 48960  
ORDER NUMBER: 12-52806-08 821  
HEAT : : 8990135  
PURCHASE ORDER DATE: 07/13/04  
ACCOUNT NUMBER : : 27759001  
SCHEDULE : : 60703-  
-----

SEMI-FINISH RESULTS (CONTINUED)

DEVELOPED TRANS TENSILE	ASTM E8	ASTM A370	TEMPER 1
NORMALIZE	AUSTENITIZE	QUENCHANT	DEG F
DEG F	DEG F	OIL	475.
1650.	1500.		
TEMPER 2/SR	TEMP 1 TIME	TEMP 2 TIME	
DEG F	HOURS	HOURS	
475.	2.0	2.0	
TENSILE	YIELD (.2%)	REDUCTION AREA	ELONGATION
PSI	PSI	PERCENT	PERCENT
PCE H 20102 263440.	226720.	23.3	9.3
PCE H 20302 262050.	225300.	10.9	6.3
PCE T 20503 263070.	223390.	37.1	10.0
PCE H 40102 261610.	225430.	10.9	3.0
PCE H 40302 260030.	225620.	33.3	10.6
PCE T 40503 262820.	230000.	36.0	11.5

JOMINY STD	SAE J406	ASTM A255
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 18 20 22 24 26 28 30 32	57 57 56 56 56 56 56 56 55 55 54 54 53 52 52	

MACROETCH SRC SURFACE 1. RANDOM 1. CENTER 1.      ASTM E381      MIL STD 430  
AVG

MAG PARTICLE 2301      AMS 2301  
AVG      AVG FREQ 0.00      AVG SEV 0.00

MAG PARTICLE 2304      AMS 2304  
AVG      AVG FREQ 0.00      AVG SEV 0.00

----- FINISH SIZE RESULTS      SCHEDULE: 60703 -----

HBW HT TRTD (LAB)	ASTM E10	ASTM A370
PCE 01 SURFACE 197.		
PCE 02 SURFACE 192.		
PCE 03 SURFACE 192.		
PCE 04 SURFACE 192.		
PCE 05 SURFACE 197.		

MATERIAL SOURCES  
RED. RATIO  
TO 1  
20.9

TENSILE HT TRTD      ASTM E8      ASTM A370  
NORMALIZE  
DEG F  
PCE 01      1625.

----- NOTES -----  
DECARB NIL

THE MATERIAL WAS NOT EXPOSED TO MERCURY OR ANY METAL ALLOY THAT IS LIQUID AT AMBIENT TEMPERATURE DURING PROCESSING OR WHILE IN OUR POSSESSION.

CHEMICAL ANALYSIS CONFORMS TO APPLICABLE SPECS: ASTM E415, ASTM E1019, AND ASTM E1085.

NO WELDING OR WELD REPAIR WAS PERFORMED ON THIS MATERIAL.

RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENT OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHED AS A FELONY UNDER FED STATUES TITLE 18 CHAPTER 47.

AMAN BHATIA  
GEN MGR COLD FINISH OPERATIONS

*Amn Bhatia*

JUN 01 2005



*32984*



401 ROSE AVE S E  
MASSILLON, OH 44646

FAX 330-837-7017

CERTIFICATE OF TESTS REPUBLIC ENGINEERED PRODUCTS

FEBRUARY 14, 2005  
PAGE: 3 OF 3

PURCHASE ORDER: 43004-8  
PART NUMBER : S# 48960  
ORDER NUMBER: 12-52806-08 821  
HEAT : 8990135

PURCHASE ORDER DATE: 07/13/04  
ACCOUNT NUMBER : 27759001  
SCHEDULE : 60703-

NOTES (CONTINUED)

I HEREBY CERTIFY THAT THE MATERIAL LISTED HEREIN HAS BEEN INSPECTED AND TESTED IN ACCORDANCE WITH THE METHODS PRESCRIBED IN THE GOVERNING SPECIFICATIONS AND BASED UPON THE RESULTS OF SUCH INSPECTION AND TESTING HAS BEEN APPROVED FOR CONFORMANCE TO THE SPECIFICATIONS.

CERTIFICATE OF TESTS SHALL NOT BE REPRODUCED EXCEPT IN FULL.

WHEN EVALUATED, MACRO ETCHES WERE VISUALLY RATED ON SAMPLES ETCHED USING HYDROCHLORIC ACID AT A TEMPERATURE 170 DEGREES (F) (+/- 10 DEGREES F)

ALL TESTING HAS BEEN PERFORMED USING THE CURRENT REVISION OF THE TESTING SPECIFICATIONS.

MFG IN THE U.S.A.

ALISON J. BLONDHEIM  
NOTARY PUBLIC, STATE OF OHIO  
MY COMMISSION EXPIRES MARCH 10, 2009

----- END OF DATA ----- CC ----- END OF DATA -----  
FAX SHIP TO 1 COPY ATTENTION BUNNIE ISAKA 562-802-7481  
MAIL SOLD TO 1 COPY ATTENTION BUNNIE ISAKA  
FILE 1 COPY  
WITH SHIPMENT 1 COPY

SHIPPING AREA:

22984

FRY STEEL CO. CERTIFIES THAT THIS IS  
A TRUE COPY OF THE ORIGINAL MILL TEST  
REPORT NOW ON FILE.  
RECEIVED AND INSPECTED

FEB 21 2005

*Bunnie Isaka*  
BUNNIE ISAKA - MGR. OPERATIONS

JUN 01 2005



AMAN BHATIA  
GEN MGR COLD FINISH OPERATIONS

*Aman Bhatia*



**Tensile Test Report**

Company: Eastwood Mfg. Date: 4/27/2005  
 Attention: Dale Stark Lab Report #: 05-0428-20  
 Identification: AISI 4140 P.O. #: 32082  
 Procedure: 1-5/8" Diameter Bar  
 Process: \_\_\_\_\_  
 Filler: \_\_\_\_\_  
 Qualification: \_\_\_\_\_  
 Welder: \_\_\_\_\_

**TENSILE TEST**

Lab ID	Dimensions	Area	Yield Lbs	Ultimate Load Lbs	Yield P.S.I.	Tensile P.S.I.
E	.252 round	.0499	7,140	8,000	143,100	160,400

Elongation	Reduction of Area	Fracture	Comments
18.9%	61.2%	Ductile	

Tests performed in accordance with ASTM A370, E8, and WH Laboratories, LLC Quality Assurance Manual  
 2% Offset Yield - Gage Length 2.000" for .500", and 1.400" for .360" tensile per ASTM A370.  
 Test specimens retained for one (1) week maximum; unused material is retained for one (1) month.

Approved by: Robert French  
 Robert French

MUN 01 2005



# SEI HEAT TREAT

PO BOX 16339 HOUSTON, TX 77229  
 PHONE (713) 699-3892 FAX (713) 699-3893

~~33387~~ 33387

<b>CUSTOMER:</b> EASTWOOD MANUFACTURING	<b>CERTIFICATION DATE:</b> May 19, 2005
<b>CERTIFICATION/SO NUMBER:</b> 38131	<b>CUSTOMER ORDER NUMBER:</b> 33387

<b>MATERIAL:</b> N/A	<b>NUMBER OF PIECES:</b> 98
<b>DESCRIPTION:</b> 2-3/4" WASHERS SILVER PLATED	<b>PART NUMBER(S):</b> N/A
<b>SPECIFICATION NUMBER:</b> EASTWOOD MANUFACTURING	<b>REFERENCE:</b> N/A

HEAT TREAT PROCESS	TIME AT HEAT	COOLANT
<i>BAKE</i>	<i>900°</i>	<i>40 min</i>
		<i>AIR</i>

~~33387~~ 33387

<b>HARDNESS TEST:</b>	<b>NUMBER OF PIECES TESTED:</b>

<b>WE HEREBY CERTIFY THAT THE SERVICE FURNISHED ON THE ABOVE PURCHASE ORDER IS PROVIDED IN ACCORDANCE WITH OUR QUALITY CONTROL MANUAL, REVISION B, DATED JANUARY 21, 2001</b>	<b>QUALITY CONTROL:</b> <i>Jami</i>
---	--

JUN 01 2005





INDUSTRIAL METAL FINISHING

CERTIFICATE OF COMPLIANCE

TO: EASTWOOD MFG. 5/86  
P.O. BOX 41447  
HOUSTON, TX 77241

THIS IS TO CERTIFY THAT THE METAL FINISHING SERVICE RENDERED ON ITEM(S)

126 EA. - 1.375 X 9 DE STUDS  
252 EA. - 2.75 OD WASHERS  
252 EA. - 1.375 12PT NUTS

ON PURCHASE ORDER 32984 LISTED ON OUR INVOICE #00132583

MEETS OR EXCEEDS THE REQUIREMENTS OF SPECIFICATION NUMBER

CERT: SILVER PLATE PER AMS 2410  
NO BAKE REQUIRED

QUALITY PROGRAM DATED: 05/01/93 REVISION: 1 DATED: 04/01/94

*Tara McElroy*  
NAME:

*QC Manager* *7/10/05*  
TITLE DATE

*32984*

JUN 01 2005



MAJOR TOOL & MACHINE INC  
1458 E 19TH ST  
INDIANAPOLIS IN 46218

**YOUR PURCHASE  
ORDER NUMBER**  
P05-01260

MCMASTER-CARR  
600 COUNTY LINE ROAD  
ELMHURST IL 60126-2001  
IF THERE ARE ANY QUESTIONS ABOUT THIS  
SHIPMENT CONTACT OUR SALES DEPARTMENT  
(630)833-0300

PAGE 1  
MCH NUMBER 6148181-02

Warehouse Location	McMaster Carr Part Number	FR Quantity	Item Description	Your Line	Your Order	This Shipment
PACKING LIST EXTRA	74765 A86	1 EA	LOCTITE PRISM SUPER BLUE TOUGHENED, NUMBER 411, 1-POUND BOTTLE, CLEAR	3	1 EA	1
	74765 A86	1 EA	LOCTITE PRISM SUPER BLUE TOUGHENED, NUMBER 411, 1-POUND BOTTLE, CLEAR	4	1 EA	1
	74765 A86	1 EA	LOCTITE PRISM SUPER BLUE TOUGHENED, NUMBER 411, 1-POUND BOTTLE, CLEAR	5	1 EA	1
	74765 A86	1 EA	LOCTITE PRISM SUPER BLUE TOUGHENED, NUMBER 411, 1-POUND BOTTLE, CLEAR	6	1 EA	1

3/9/05  
94076  
Lines 3-6  
B.J.

3/9/05

REFER TO: 6148181-02  
MAJOR TOOL & MACHINE INC

TAG  
CCP

PAPER	NUMBER OF CARTONS	FILLER

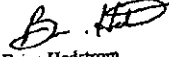
LNS: 4

CYCLE

**CERTIFICATION OF COMPLIANCE**

This is to certify that, according to our records, the above item(s) furnished on your purchase order was supplied in accordance with the description and as illustrated in our catalog.

Sincerely,



Brian Hedstrom  
Quality Manager

MCH NO. 6148181-02 04

**PURCHASE ORDER**  
P05-01260

FROM:  
MCMASTER-CARR  
600 COUNTY LINE ROAD  
ELMHURST IL 60126-2001 USA

SHIP TO:

MAJOR TOOL & MACHINE INC  
1458 E 19TH ST  
INDIANAPOLIS IN 46218

CCP

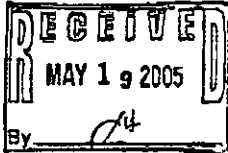
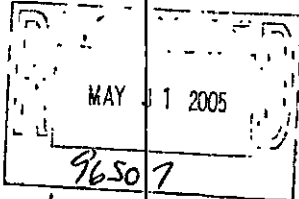



55 Nadeau Drive  
 Rochester, NH 03867  
 Ph: (603) 332-6555 Fax: (603) 332-5357  
 www.spauldingcom.com

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	80624	065171-00	1	0	YELLOW	072435	DE
Item	Part / Description / Details				Order Quantity	Ship Qty	
000001	39GTCNY7312SANMWF UMSHT SO Item 4				1.00000		
	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  <i>Sheet Len 3.55076</i>					1.00000	
					 96507 Lines 1, 2 B.I.  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 DESCRIBED ABOVE.

LOT # \_\_\_\_\_ DOM \_\_\_\_\_  
 Authorized By: Mark L. Canillo Date: 05/17/2005

Customer Copy

Page # 1

Form: SCSHIP Rev: 8/99





55 Nadeau Drive  
 Rochester, NH 03867  
 Ph: (603) 332-6555 Fax: (603) 332-5397  
 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	Shp VIA	Bill of Lading	FOB
05/17/2005	60624	063189-00	1	716	YELLOW	072434	DE
Item	Part / Description / Details					Order Quantity	Ship Qty
000001	39G1CNT71850NMWLF U/M SHT SO Item 5					1.00000	
	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

RECEIVED  
 MAY 19 2005  
 By: *[Signature]*

5/31/05  
 (MTR 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 DESCRIBED ABOVE.

LOT #

DOM.

Authorized By:

*Mark A. Caudillo*

Date: 5/17/2005

Customer Copy

Page # 1

Form: SCSHIP Rev: 8/99

000/000

ATLAS FIBRE CO.

847 674 1723

05/26/05 13:00

INSPECTION DATA CHECKLIST

Quality Assurance Documentation for Part ID: SE141-103 - Item: 15

Workorder: 65707/5-0 Sub:1 Op:140

Part: SE141-103 - MODULAR COIL WINDING FORM TYPE-C - PRODUCTION MODULAR COIL WINDING FORM TYPE-C

SHEET	ZONE	DRAWING ID: SE141-103 Rev: 3	INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
			CHARACTERISTIC	GAGE/EQUIP	BY SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		TEST 1 RESISTANCE TO BE >500 kohms CHECK RESISTANCE BETWEEN THE MID-PLANE POLOIDAL BREAK SHIM AND THE WINDING FORM.	MULTIMETER	QA	J-1358	110 MEG-OHMS	840-G.M			A
(10)							04-17-06			
*		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	110 MEG-OHMS	840-G.M			A
(20)							04-17-06			



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

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



TEST CERTIFICATE NUMBER 194277

DESPATCHED TO:

EUROWELD LTD  
255 ROLLING HILLS ROAD  
MOORESVILLE  
NC 28117  
USA

INVOICE TO:

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.

DELIVERY NOTE DOCUMENT NO.

DN0106163

CUSTOMER ORDER NO.

N. 05-39

QUANTITY (Kg)

17.5000

CHEMICAL ANALYSIS (WEIGHT %)		TYPE		CERTIFIED MATERIAL TEST REPORT: BS EN 10204: 3.1.B			
C	Mn	Si	S	P	Cr	Mo	N
0.015	7.43	0.42	0.006	0.014	19.9	15.4	0.14
						2.62	0.20

TYPICAL ALL-WELD METAL MECH. PROPERTIES, AS WELDED:-  
TS: >600 N/mm<sup>2</sup>; 0.2%PS: >400 N/mm<sup>2</sup>; EL. ON 4D: 40 %;  
CVN @ -196 DEG.C: 70 J.

3/23/05  
3/23/05  
44554  
line 1  
β-2

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

B. KYIET  
Q.A. MANAGER

*Kyiet*

All test articles issued by METRODE will contain the enclosed seal  
(Any recipient of a copy of METRODE Test Certificate without the seal should  
return from the supplier that it is true and accurate reproduction  
of the original)

NOTES: \*An unaltered original Co unless otherwise specified  
\*\*No. (05) indicates material is unless otherwise specified  
For a full list of EN (British) numbers and measured on all-weld post-curing instrument  
calibrated against NBS retainers (See AWS A5.8.1P) unless otherwise specified

METRODE PRODUCTS LIMITED  
HANWORTH LANE, CHERTSEY

SURREY, UK, KT16 9LL

Tel: +44 (0) 1832 586721

Fax: +44 (0) 1832 585188

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

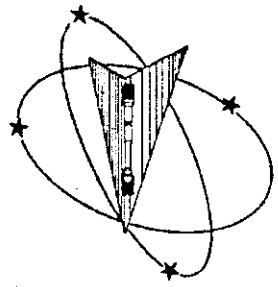
CUSTOMER ORDER NUMBER	N.05-34
DELIVERY NOTE DOCUMENT NUMBER	DN0105859
QUANTITY (KG)	15.0000
OUR ORDER REFERENCE	SO1787730 / 1
DATE	02/03/05

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	0.008	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	R <sub>max</sub> (MPa)	R <sub>m</sub> (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.		ASME SFA-5.01; Lot classification: S4										
This document is produced electronically and is valid without signature.		3/3/05 93911 Linc I B.1										
IMPORTANT: Any liability arising from other reliance on this certificate, or use of our products, is strictly limited and governed by our conditions of business.		Notes: % In inclusive instead of Co unless otherwise specified. % In (Ch) inclusive instead of % unless otherwise specified. Parts is given as % (Part number) and measured on standard part using instrument calibrated against a gain MRS-related secondary standards (see ISO 9001:2000) unless otherwise specified.										
Barrie Kyte - Q.A. Manager												

3/3/05  
93911  
Linc I B.1



**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](http://www.wmtr.com)

WMTR is a technical leader in the material testing industry.



621-01 & 621-02



April 22, 2005

Major Tool & Machine Inc.  
1456 East 19th Street  
Indianapolis, IN 46218

**CERTIFICATION**

Corrected Date  
May 4, 2005

Page IM1 of 1  
WMTR Report No. 5-25008  
P.O. No. P05-01764  
PCR No. 434  
Welder Jason Bever #465

Attention: Josh Mayne  
Subject: All processes, performed upon the material as received, were conducted at WMTR, Inc. in accordance with the WMTR 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: Metatek CF8MNMN MOD  
SAMPLE TYPE: Charpy V-Notch

DISPOSITION: Report

Specimen ID	Test Log Number	Sample Size	Temp. °F/C	Energy ft-lbs	Energy joules	Mils Lat Exp	AIUR Report
Weid-1	B65835	Standard	68/20	173	234.6	84	Report
Weid-2	B65836	Standard	68/20	160	216.9	68	Report
Weid-3	B65837	Standard	68/20	157	212.9	81	Report

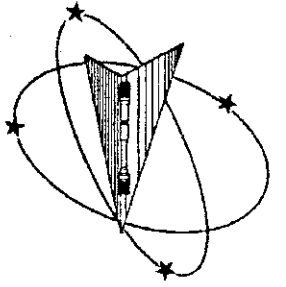
AIUR: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

KNOWING OR WILLFULLY FAILING OR CONCEALING A MATERIAL FACT ON THIS FORM OR MAKING FALSE STATEMENTS OR FRAUDULENT STATEMENTS OR REPRESENTATIONS HEREIN COULD CONSTITUTE A FELONY VIOLATING FEDERAL STATUTES AND REGULATIONS. THIS CERTIFICATE OR REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF WMTR, INC.

Testing Specialists for Aerospace, Automotive, and Material Testing Fields  
Locations in Youngstown, PA U.S.A. ~ Tel. (724) 537-3131 and  
Danbury, V.A. ~ Tel. +44 (0) 1295 261211

Richard G. Parks  
Project Manager/Industrial Technology Engineer

5/4/05  
May 4, 2005



April 20, 2005

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

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 ER316Mnnt

DISPOSITION: Report

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

Specimen ID	Test Log 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

Specimen ID	Test Log 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	AU/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

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

DISPOSITION: Report

**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](http://www.wmtr.com)  
WMT&R is a technical leader in the material testing industry.

**CERTIFICATION**



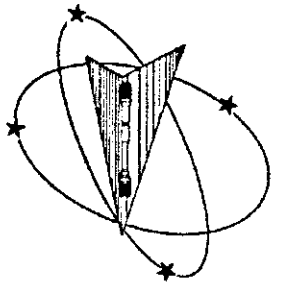
Section 1 of 2  
WMT&R Report No. 5-25008  
P.O. No. P05-01764  
PQR No. 434  
Welder Jason Bever #465

KNOWINGLY OR WILLFULLY FALSIFYING OR CONCEALING A MATERIAL FACT ON THIS FORM OR MAKING FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR REPRESENTATIONS HEREIN COULD CONSTITUTE A FELONY PUNISHABLE UNDER FEDERAL STATUTES. THIS CERTIFICATE OR REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF WMTR, INC.

Testing Specialists for Aerospace, Automotive, and Material Testing Fields  
Locations in Youngstown, PA U.S.A. ~ Tel. (724) 537-3131 and  
Ganbury U.K. ~ Tel. +44 (0) 1295 261211

Roy E. Stant/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](http://www.wmtr.com)  
 WMTR is a technical leader in the material testing industry.

Section 2 of 2  
 WMT&R Report No. 5-25008  
 P.O. No. P05-01764



April 20, 2005  
 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./in./in.**

**MATERIAL: Metrode ER316Mnrf**

Specimen ID	TestLog Number	Temp. *F/C	UTS KSI/MPa	0.2% YS KSI/MPa	Elong %	RA %	Modulus MS/GPa	Ult. Load LBS/NEWTONS	0.2% YLD. LBS/NEWTONS
T2	B65834	-320/-196	204,714/10	156,511/080	29	34	29,9/206	5095/22664	3894/17323

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

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

KNOWINGLY OR WILLFULLY FALSIFYING OR CONCEALING A MATERIAL FACT ON THIS FORM OR MAKING FALSE, MISLEADING OR FRAUDULENT STATEMENTS OR REPRESENTATIONS HEREIN COULD CONSTITUTE A FELONY PUNISHABLE UNDER FEDERAL STATUTES. THIS CERTIFICATE OR REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF WMTR, INC.

Testing Specialists for Aerospace, Automotive, and Material Testing Fields  
 Locations in Youngstown, PA U.S.A. ~ Tel. (724) 537-3131 and  
 Ranbury U.K. ~ Tel. +44 (0) 1295 261211

*Matt Wipiton*  
 Roy E. Starr/Matt Wipiton  
 Technical Services Manager  
 April 20, 2005

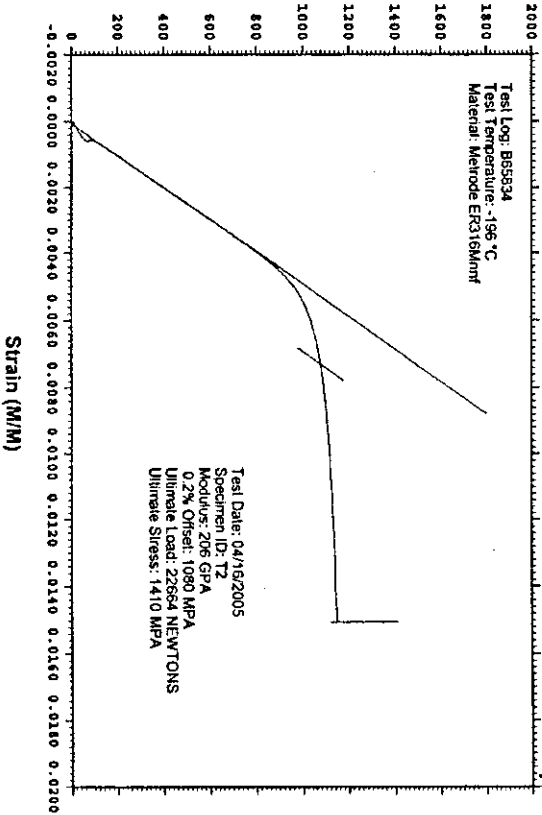
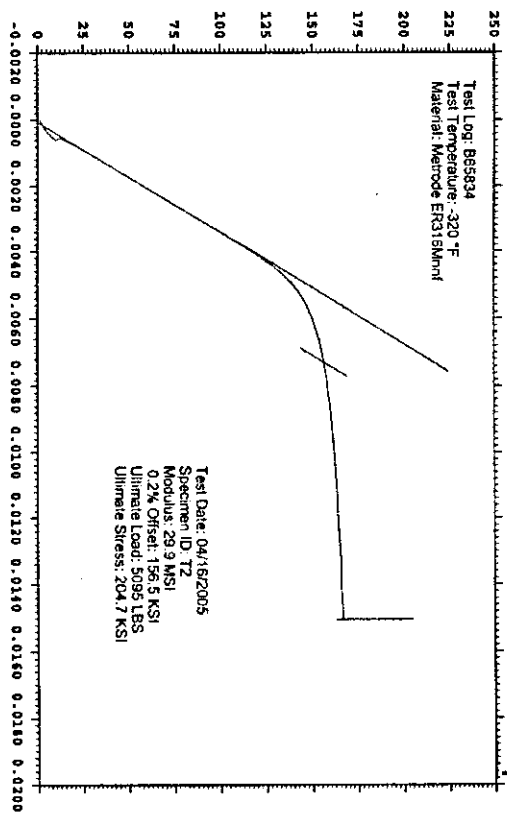
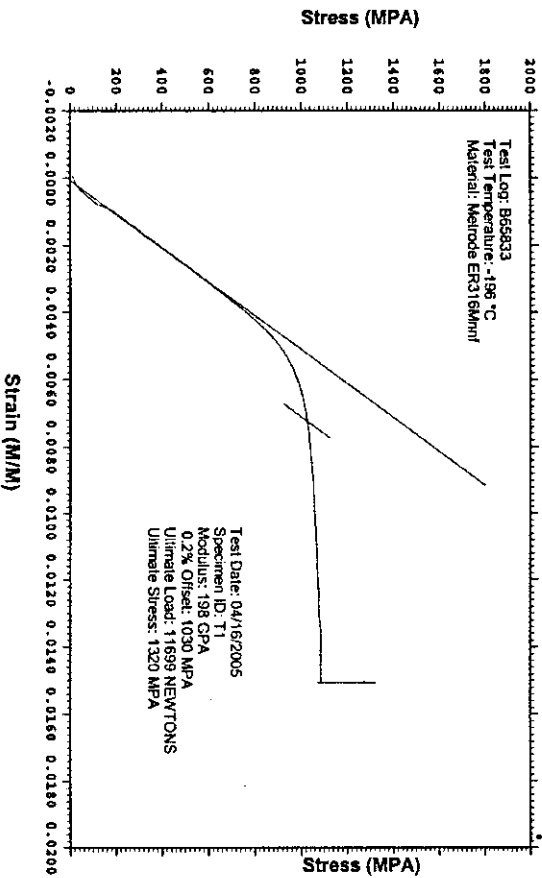
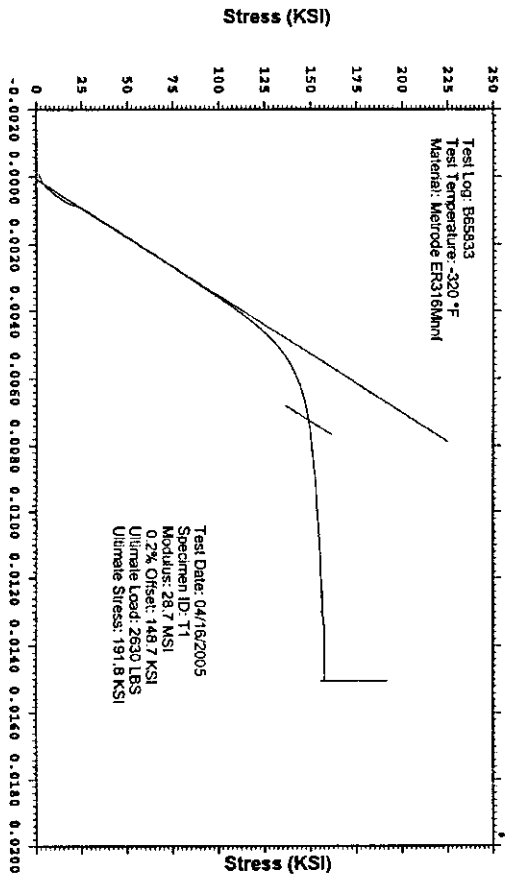
**WESTMORELAND MECHANICAL TESTING & RESEARCH, Inc**

Stress vs. Strain

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

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

Phone: (724)537-3131



KNOWINGLY OR WILLFULLY FALSIFYING OR CONCEALING A MATERIAL FACT ON THIS FORM OR MAKING FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR REPRESENTATIONS HEREIN COULD CONSTITUTE A FELONY PUNISHABLE UNDER FEDERAL STATUTES.







Major  
Tool & Machine, Inc.

### INSPECTION DATA CHECKLIST

Page: 2  
Date: 06/13/06  
User ID: GRIFFIT#

Quality Assurance Documentation for Part ID: SE141-116 - Item: 20

Workorder: 65707/5-0 Sub:1 Op:40

Part: SE141-116 - MODULAR COIL WINDING FORM TYPE-C - PRODUCTION MODULAR COIL WINDING FORM TYPE-C

SHEET	ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY	
			GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD
*		RECORD MAG PERMEABILITY RANGE (IN-PROCESS INSPECTION)	MASTER GAGE	QA		J-1165	<1.02	854-R.U	
(10)								03-08-06	A



INSPECTION DATA CHECKLIST

Quality Assurance Documentation for Part ID: SE141-116 - Item: 21

Workorder: 65707/5-0 Sub:1 Op:88

Part: SE141-116 - MODULAR COIL WINDING FORM TYPE-C - PRODUCTION MODULAR COIL WINDING FORM TYPE-C

SHEET	ZONE	DRAWING ID: SE141-116 Rev: 8	CHARACTERISTIC	INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY				
				GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT		
*			VERIFY CLEARANCE BELOW VPI GROOVE ON BOTH SIDES OF THE T SECTION USING MTMFX-3473		MFG		MTMFX-3473	ACCEPT		219-T.L		A	
(10)										04-12-06			
*			22 P L A C E S D A T U M E F L A N G E VERIFY 2" CLEARANCE ABOVE 3" COUNTERBORE SURFACE USING MTMFX-3564.		MFG		MTMFX-3564	ACCEPT		219-T.L			A
(20)										04-12-06			
*			26 P L A C E S D A T U M D F L A N G E VERIFY 2" CLEARANCE ABOVE 3" COUNTERBORE SURFACE USING MTMFX-3564.		MFG		MTMFX-3564	ACCEPT		219-T.L			A
(30)										04-12-06			
6*	F3		VERIFY THAT 1" DIAMETER COOLING HOLES PASS COMPLETELY THROUGH CASTING WITH NO INTERFERENCE FROM CASTING STOCK.		MFG	4	VISUAL	ACCEPT		219-T.L			A
(40)										04-12-06			
9*	D7		VERIFY THAT 1" DIAMETER COOLING HOLES PASS COMPLETELY THROUGH CASTING WITH NO INTERFERENCE FROM CASTING STOCK.		MFG	4	VISUAL	ACCEPT		219-T.L			A
(50)										04-12-06			
9*	F3		VERIFY THAT 1" DIAMETER COOLING HOLES PASS COMPLETELY THROUGH CASTING WITH NO INTERFERENCE FROM CASTING STOCK.		MFG	4	VISUAL	ACCEPT		219-T.L			A
(60)										04-12-06			

# Nondestructive Test

## Certification for Liquid Penetrant Examination

Quality Assurance Documentation for Part ID: SE141-116 - Item: 22

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

**Date of Inspection:** 04/12/2006

**Type of Material:** CAST STAINLESS

**NDT#:** 16421

<b>Stage of Inspection:</b> <input type="checkbox"/> Incoming Inspection <input type="checkbox"/> In-Process Inspection <input type="checkbox"/> After Repair <input checked="" type="checkbox"/> Final Inspection	<b>Manufacturing Process:</b> <input type="checkbox"/> Weldment <input checked="" type="checkbox"/> Casting <input type="checkbox"/> Bar Stock <input type="checkbox"/> Plate <input type="checkbox"/> Forging <input type="checkbox"/> Other	<b>Surface Condition:</b> <input checked="" type="checkbox"/> Machined <input type="checkbox"/> Rough <input type="checkbox"/> Other FINAL MACHINED	<b>Test Being Run to:</b> <input checked="" type="checkbox"/> Router Instructions <input checked="" type="checkbox"/> Drawing <input type="checkbox"/> Test Plan <input type="checkbox"/> Technique Card SEE NOTES	<b>Heat Treated:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	--	---	---	--

<b>Part Information:</b> MTM Job Number: 65707/5.0 -Sub:1 -Op:100 Resource ID: 810-LIQUID PENETRANT INSPE Part ID: SE141-116 Part Name: MODULAR COIL WINDING FOR Serial Number: Customer P.O.: S005242-F Customer Unit/Plant:	<b>Test Results:</b> Quantity Inspected: 1 Quantity Accepted: 0 Quantity Rejected: 1  Run Hours: 0.0	<b>Inspection Results:</b> Customer N/C #: <input type="checkbox"/> Accepted <input checked="" type="checkbox"/> Rejected <input type="checkbox"/> N/C-Report <input type="checkbox"/> Rework MTM N/C #: 19587
--	---	--

<b>Customer Inspection Plan:</b> SEE NOTES <b>Test Step:</b> <b>Revision:</b> <b>Material Test Number:</b>	<b>Inspection Criteria:</b> <b>Customer Specification:</b> ASTM A903/A903M <b>MTM Spec Number:</b> PS582 (REF NDT-WI-09) <b>Acceptance Standard:</b> ASTM A903 (SEE NOTES)
---	---

<b>Inspection Materials Used:</b> <b>Manufacturer:</b> SHERWIN <b>Type of Penetrant:</b> DP-51 <b>Batch Number:</b> 41-E47 <b>Developer:</b> D-100 <b>Batch Number:</b> 65-C6	<b>Penetrant Examination Processes:</b> <b>Type:</b> II (Visible) / Dwell Time: 15 Minutes <b>Method:</b> A (Water Wash) <b>Method of Drying:</b> Forced Air Fan <b>Form:</b> e (nonaqueous for Type II visible dye) / Dwell Time: 15 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-C.  
 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 REJECTABLE INDICATIONS PER CUSTOMER REQUIREMENTS ON MACHINED AND AS CAST SURFACES. SEE NCR-19587 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:** 04/12/2006

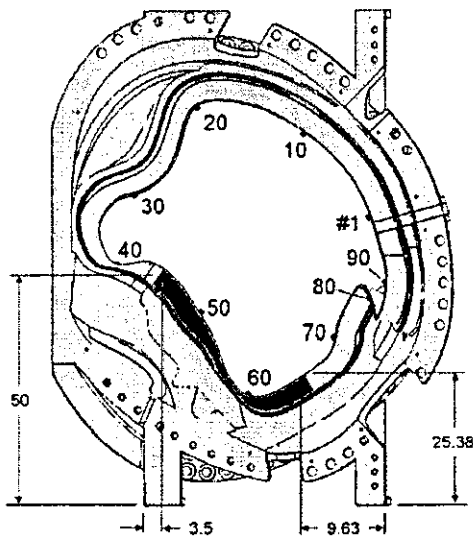
*Douglas D. Edwards Level II*





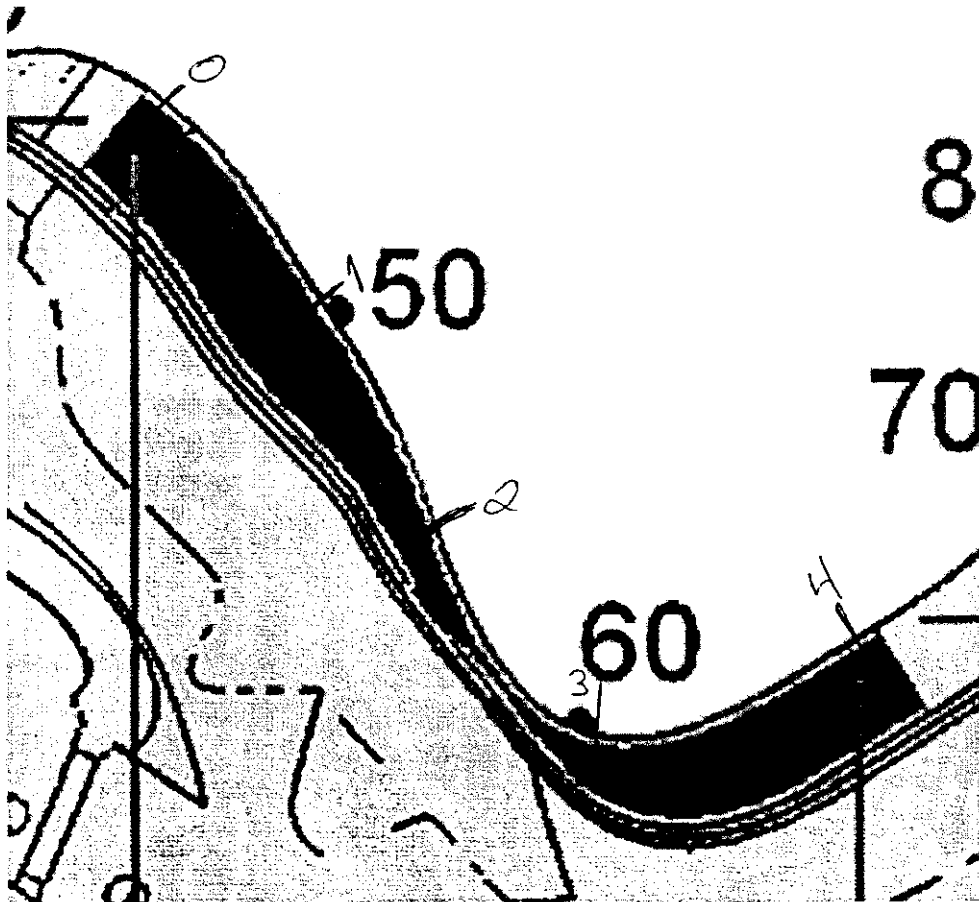
MCWF Type C  
RT Map of High Stress Region

MTM Workorder Number: \_\_\_\_\_



65707/5.0/1/110/818  
SE141-116 rev.8  
Page 2 of 2  
4/13/06  
NCR 19607

Figure 7-2 - High Stress Region Identification for Type-C MCWF













**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE141-116 - Item: 24

Workorder: 65707/5-0 Sub:1 Op:120

Part: SE141-116 - MODULAR COIL WINDING FORM TYPE-C - PRODUCTION MODULAR COIL WINDING FORM TYPE-C

SHEET	ZONE	DRAWING ID: SE141-116 Rev: 8	INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY			
			GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
*		CHARACTERISTIC D A T U M - E - S I D E MAG PERMEABILITY TO BE NO GREATER THAN 1.02µ. CHECK 3 PLACES ADJACENT TO EVERY 5TH HOLE IN T SECTION.	MASTER GAGE	QA		J-1270	57 PLACES CHECKED. ALL <1.02	854-R.U			A
(10)											
*		CHARACTERISTIC D A T U M - D - S I D E MAG PERMEABILITY TO BE NO GREATER THAN 1.02µ. CHECK 3 PLACES ADJACENT TO EVERY 5TH HOLE IN T SECTION.	MASTER GAGE	QA		J-1270	57 PLACES CHECKED. ALL <1.02	854-R.U			A
(20)											



INSPECTION DATA CHECKLIST

Quality Assurance Documentation for Part ID: SE141-116 - Item: 25

Workorder: 65707/5-0 Sub:1 Op:130

Part: SE141-116 - MODULAR COIL WINDING FORM TYPE-C - PRODUCTION MODULAR COIL WINDING FORM TYPE-C

SHEET	ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
			GAGE/EQUIP	BY SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
2*	D3	Ø.001 - Ø.002 CHECK CLEARANCE OF ITEM 5 TO ITEM 6.		QA	FEELER GAGE	DIAMETRICAL GAP C CKS UP TO .022"	242-M.G			R
*		THE GAP BETWEEN THE POLOIDAL BREAK BUSHINGS AND FLANGE SHAL BE LESS THAN .002"		QA	FEELER GAGE	ACCPEP	242-M.G			A
(15)							04-26-06			
2*	F2	ENSURE THAT THE CUMULATIVE GAP AT ANY SINGLE CROSS SECTION OF THE POLOIDAL FLANGE ELEMENTS IS LESS THAN .005".		QA	FEELER GAGE	LESS THAN .001"	242-M.G			A
(20)							04-26-06			
*		THE MAX. GAP AT THE POLOIDAL BREAK PERIMETER IS .015" AND CANNOT EXCEED 1/8" FROM THE EDGE		QA	FEELER GAGE	MAX GAP IS .006"	242-M.G			A
(30)							04-26-06			



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE141-116 - Item: 26

Workorder: 65707/5-0 Sub:1 Op:132

**Part: SE141-116 - MODULAR COIL WINDING FORM TYPE-C - PRODUCTION MODULAR COIL WINDING FORM TYPE-C**

SHEET	ZONE	Drawing ID: SE141-116 Rev: 8	CHARACTERISTIC	INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY				
				GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT		
1*	E8	47.19 ± .03		CMM	QA		00064	47.17		339-E.R			A
(10)										04-26-06			
1*	B8	47.19 ± .03		CMM	QA		00064	47.18		339-E.R			A
(20)										04-26-06			
1*	D6	47.19 ± .03		CMM	QA		00064	47.18		339-E.R			A
(30)										04-26-06			
1*	C6	47.19 ± .03		CMM	QA		00064	47.19		339-E.R			A
(40)										04-26-06			
1*	E6	$\frac{.02}{.02}$ A		CMM	QA		00064	.01		339-E.R			A
(50)										04-26-06			
1*	B6	$\frac{.02}{.02}$ A		CMM	QA		00064	.02		339-E.R			A
(60)										04-26-06			
2*	H6	2X R.187 +.025 -.005		PIN GAGE	QA		J-651-2	.184 TO .188		533-B.C			A
(80)										04-20-06			
2*	G8	2X .03 X 45°			QA		VISUAL	ACCEPT		339-E.R			A
(90)										04-26-06			
2*	G8	.40 ± .010		CALIPER	QA		J-707	.39 TO .41		339-E.R			A
(100)										04-26-06			
2*	G8	2X .030 X 45°			QA		VISUAL	ACCEPT		339-E.R			A
(110)										04-26-06			
2*	F7	2X .32		CALIPER	QA		P-5075	.310 TO .330		533-B.C			A
(120)										04-20-06			
2*	F7	2X R.11		PIN GAGE	QA		J-652-1	.105 TO .110		533-B.C			A
(130)										04-20-06			
2*	G6	$\frac{.12}{.12}$ R S T		CMM	QA		00064	-.002 TO .086		339-E.R			A
(140)										04-26-06			
2*	G6	4.790 OR SHELL INTERSECT. VERIFY USING TEMPLATE PER DRAWING NOTE 16 (MTMFx-3473)			QA		MTMFx-3473	ACCEPT		339-E.R			A
(150)													
2*	G3	$\frac{.12}{.12}$ R S T		CMM	QA		00064	-.003 TO .074		339-E.R			A





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**INSPECTION DATA CHECKLIST**

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(250)	DATUM -D- FLANGE	PROFILOMETER	QA					04-26-06	
3* (260)	F3 ✓ <sup>125</sup> DATUM -D- FLANGE		QA	J-1109	25 TO 79			533-B.C 04-20-06	A
3*	E4 Φ.01   A   B   C 8X Ø1.13 THRU BACK SPOT FACE Ø2.38 MIN DEPTH FOR 'C'UP	CMM	QA	00064	.003 TO .017 / ACCE PT SPOT [N/C:19713]			339-E.R	R
(280)				MTMFX-3564				04-26-06	
4* (290)	H8 Φ.060   D   A   N 3X Ø1.885 THRU	CMM	QA	00064	.039 TO .043			339-E.R 04-26-06	A
4*	H8 3X Ø1.885 +/- .003 Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	00064	1.888 TO 1.892 [N/C :19713]			533-B.C	R
(291)		DIAL BORE GAGE		J-1400				04-20-06	
4* (300)	H7 Φ.06   D   A   N 3X 2.000" COUNTERBORE 1.00 DP	CMM	QA	00064	.020 TO .022			339-E.R 04-26-06	A
4* (305)	H7 Ø 2.000 - 2.001	DIAL BORE GAGE	QA	J-1401	1.999 TO 2.001			339-E.R 04-26-06	A
4* (310)	H6 Φ.060   D   A   N 17X Ø1.885 THRU	CMM	QA	00064	.035 TO .055			339-E.R 04-26-06	A
4*	H6 3X Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	00064	1.888 TO 1.895 [N/C :19713]			533-B.C	R
(311)		DIAL BORE GAGE		J-1400				04-20-06	
4* (320)	H5 Φ.060   D   A   N 3X Ø1.13	CMM	QA	00064	.015 TO .020			339-E.R 04-26-06	A
4*	H5 3X Ø1.13 +/- .010 Ø2.38 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	00064	1.1248 TO 1.1278			533-B.C	A
(321)								04-20-06	
4* (340)	E6 Φ.060   D   A   N 3X Ø1.375-6 UNC THRU	CMM	QA	00064	.026 TO .044			339-E.R 04-26-06	A
4* (350)	E6 Φ.060   D   A   N 5X Ø1.885 THRU	CMM	QA	00064	.052 TO .056			339-E.R 04-26-06	A
4*	E6 5X Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	00064	1.8857 TO 1.888 / A CCEPT SPOT			339-E.R 04-26-06	A
(351)				MTMFX-3564				04-26-06	



**Major**  
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**INSPECTION DATA CHECKLIST**

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4*	D4	Φ   Ø   .060   D   A   N	CMM	QA	00064	.057	339-E.R	A
(360)	D4	Ø1.885 THRU	CMM	QA	00064	1.890 / ACCEPT SPOT [N/C:19713]	04-26-06	R
(361)		Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	DIAL BORE GAGE		J-1400		04-26-06	
4*	B5	Φ   Ø   .060   D   A   N	CMM	QA	00064	.005 TO .017	339-E.R	A
(370)		3X Ø1.13					04-26-06	
4*	B5	3X Ø1.13 +/- .010 Ø2.38 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	00064	1.1253 TO 1.1255 / ACCEPT SPOT	339-E.R	A
(371)					MTMFX-3564			
4*	D1	12X .25-20 UNC -2B	THREAD PLUG GA	QA	A-234	ACCEPT	533-B.C	A
(375)							04-20-06	
4*	G8	Φ   Ø   .06   D   A   N	CMM	QA	00064	.009 TO .031	339-E.R	A
(376)		12X .25-20 UNC -2B SUMMARY OF HOLE POSITIONS. ACTUAL FEATURE CONTROL FRAME IS NOT ON DRAWING.					04-26-06	
5*	E8	Φ   Ø   .060   E   A   J	CMM	QA	00064	.007	339-E.R	A
(380)		Ø1.885 THRU					04-26-06	
5*	E8	Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	00064	1.888 / ACCEPT SPOT	339-E.R	A
(381)								
5*	F6	Φ   Ø   .060   E   A   J	THREAD PLUG GA	QA	A-375	ACCEPT	533-B.C	A
(400)		3X Ø1.375-6 UNC THRU			MTMFX-3564		04-26-06	
5*	F6	Φ   Ø   .06   E   A   J	CMM	QA	00064	.009 TO .019	339-E.R	A
(410)		3X 2.000" COUNTERBORE 1.00 DP					04-26-06	
5*	F6	Ø   L   2.000 - 2.001	DIAL BORE GAGE	QA	J-1401	1.999 TO 2.001	339-E.R	A
(412)							04-26-06	
5*	F7	7X 1/4-20 UNC -2B	THREAD PLUG GA	QA	A-715	ACCEPT	339-E.R	A
(415)							04-26-06	
5*	F7	Φ   Ø   .06   E   A   J	CMM	QA	00064	.006 TO .028	339-E.R	A
(420)		7X 1/4-20 UNC -2B SUMMARY OF HOLE POSITIONS. ACTUAL FEATURE CONTROL FRAME IS NOT ON DRAWING.					04-26-06	



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**INSPECTION DATA CHECKLIST**

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S*	E7	Φ .060 [E   A   J]	CMM	QA	00064	.005 TO .023	339-E.R	A
(430)	E7	24X Ø1.885 THRU	CMM	QA	00064	1.882 TO 1.8893 / A	04-26-06	R
(431)	E7	24X Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	DIAL BORE GAGE	QA	J-1400	CCEPT SPOT [N/C:197 13]	339-E.R	R
5*	E7	Φ .060 [E   A   J]	CMM	QA	00064	.010 TO .016	04-26-06	A
(440)	E7	3X Ø1.5 TO 2.00 DEEP Ø3.00 TO 1.00 DEEP	CMM	QA	00064		339-E.R	A
5*	D7	3X Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	00064	1.883 TO 1.886 / AC CEPT SPOT	04-26-06	A
(450)	E3	4X Ø1.00 THRU	PIN GAGE	QA	J-921	1.0	533-B.C	A
(470)	G7	4.00 ± .010	CALIPER	QA	J-1389	3.960 [N/C:19713]	04-20-06	R
(650)	D7	6X Ø.375-16 UNC TO .75 DEEP .03 X 45° CHAMFER	THREAD PLUG GA	QA	A-444	ACCEPT	339-E.R	A
(750)	D7	13.6 °		QA	VISUAL	SEE IGES	04-26-06	A
(760)	D7	5.88		QA	VISUAL	SEE IGES	339-E.R	A
8*	D7	2.19 ± .010	CALIPER	QA	J-1389	6.900	04-26-06	A
(770)	D7	VERIFY THAT PAD MEETS THE MINIMUM OF 5.88		QA	J-1389		533-B.C	A
(780)	D7	2.19 ± .010		QA	VISUAL	SEE IGES	04-20-06	A
8*	D7	2.19 ± .010		QA	VISUAL	SEE IGES	339-E.R	A
(790)	C8	2X 1.56 ± .010 THRU	CALIPER	QA	J-1389	1.555 TO 1.565	04-26-06	A
(830)	C8	2X 7.50 ± .010 THRU	CALIPER	QA	J-1389	7.495 TO 7.502	533-B.C	A
(850)	C8	8X R.25	PIN GAGE	QA	J-652-1	.250	04-20-06	A
(860)	C8			QA			533-B.C	A
							04-20-06	





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**INSPECTION DATA CHECKLIST**

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8* (870)	C8	2X 2.52 ± .010	CMM	QA		00064	SEE IGES	339-E.R 04-26-06	A
9* (900)	E7	2.54 ± .010	SCALE	QA		J-922	ACCEPT	339-E.R 04-26-06	A
9* (910)	E7	5.08 ± .010	SCALE	QA		J-922	5.08	339-E.R 04-26-06	A
9*	F3	4X Ø1.0 THRU VERIFY THAT HOLES BREAK COMPLETELY THROUGH INSIDE OF CASTING	PIN GAGE	QA		J-921	1.0	533-B.C	A
(920)									
9* (930)	F3	2X Ø .50 ± .010 THRU	PIN GAGE	QA		J-652-3	.500	04-20-06	A
9* (940)	E3	2.44 ± .010	SCALE	QA		J-922	2.45	339-E.R 04-26-06	A
9* (950)	E3	1.22 ± .010	SCALE	QA		J-922	ACCEPT	339-E.R 04-26-06	A
9*	C7	4X Ø1.0 THRU VERIFY THAT HOLES BREAK COMPLETELY THROUGH INSIDE OF CASTING	PIN GAGE	QA		J-921	1.0	533-B.C	A
9* (970)	C6	2X Ø.25 T.C. HOLE	PIN GAGE	QA		J-652-1	.250	04-20-06	A
Drawing ID: SE141-116 Rev: 7									
SHEET ZONE	CHARACTERISTIC		INSPECTION INSTRUCTIONS		SER#		DATA/REMARKS	INSPECTED BY	
10* (980)	C8	☐.125   A   B   C	CMM	QA		00064	.0208 TO .2076 [N/C :19713]	339-E.R 04-26-06	R
Drawing ID: SE141-116 Rev: 8									
SHEET ZONE	CHARACTERISTIC		INSPECTION INSTRUCTIONS		SER#		DATA/REMARKS	INSPECTED BY	
10* (990)	D5	☐.5   A   B   C	CMM	QA		00064	-.0006 TO -.3923 [N /C:19713]	339-E.R 04-26-06	R
Drawing ID: SE141-116 Rev: 7									
SHEET ZONE	CHARACTERISTIC		INSPECTION INSTRUCTIONS		SER#		DATA/REMARKS	INSPECTED BY	
10* (1010)	C4	☐.125   A   B   C	CMM	QA		00064	.020 TO .101 [N/C:1 9713]	339-E.R 04-26-06	R
Drawing ID: SE141-116 Rev: 8									
SHEET ZONE	CHARACTERISTIC		INSPECTION INSTRUCTIONS		SER#		DATA/REMARKS	INSPECTED BY	
10* (1010)	C4	☐.125   A   B   C	CMM	QA		00064	.020 TO .101 [N/C:1 9713]	339-E.R 04-26-06	R
Drawing ID: SE141-116 Rev: 8									
SHEET ZONE	CHARACTERISTIC		INSPECTION INSTRUCTIONS		SER#		DATA/REMARKS	INSPECTED BY	
10* (1010)	C4	☐.125   A   B   C	CMM	QA		00064	.020 TO .101 [N/C:1 9713]	339-E.R 04-26-06	R



**Major**  
Tool & Machine, Inc.

**INSPECTION DATA CHECKLIST**

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SHEET ZONE	CHARACTERISTIC	GAGE/EQUIP	BY SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
10* (1030)	D1 [5] [A] [B] [C] DATUM -E- SIDE INNER CAST Drawing ID: SE141-116 Rev: 7	CMM	QA	00064	-256 TO .258 [N/C: 19713]	339-E.R 04-26-06		R
SHEET ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS	BY SAMPLE	SER#	RESULTS	INSP	VERFD	BY
10* (1035)	E1 MACHINE / GRIND THIS AREA TO PROFILE OF +.05/-.10 Drawing ID: NCSX-CSPEC-141-03 Rev: 10	CMM	QA	00064	-213 TO .495 [N/C: 19713]	339-E.R 04-26-06		R
SHEET ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS	BY SAMPLE	SER#	RESULTS	INSP	VERFD	BY
4* (1040)	3.1.1. UOS ALL MACHINED SURFACES TO BE 250 RMS SURFACE FINISH RECORD RANGE Drawing ID: SE141-116 Rev: 8	PROFILOMETER	QA	J-1109	150 TO 250 [N/C:197 13]	242-M.G 04-26-06		A
SHEET ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS	BY SAMPLE	SER#	RESULTS	INSP	VERFD	BY
1* (1050)	NOTE 9 RECORD THE WEIGHT OF THE PART 6000LBS MAX	SCALE	QA	2270	5,580	242-M.G 04-26-06		A



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: SE141-116 - Item: 27

**Date of Inspection:** 04/24/2006

**Type of Material:** CAST STAINLESS

**NDT#:** 16422

**Inspection Requirements:**

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

NDT001

n:\mntnapps\mntndt\ipi.qrp

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Uscr ID: GRIFFIT# Date: 06/13/06



**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE141-116 - Item: 28

Workorder: 65707/5-0 Sub:14 Op:30

**Part: SE141-116 - MODULAR COIL WINDING FORM TYPE-C - PRODUCTION MODULAR COIL WINDING FORM TYPE-C**

SHEET ZONE	Drawing ID: SE141-116 Rev: 8 CHARACTERISTIC	INSPECTION INSTRUCTIONS			RESULTS		INSPECTED BY		
		GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*	N C19710 RECORD PERMEABILITY RANGE OF THE SIX REPAIRED AREAS. MAG PERMEABILITY TO BE NO GREATER THAN 1.02µ.	MASTER GAGE	QA		J-1165	LESS THAN 1.02	503-B.H		A
(10)							04-26-06		



**CERTIFICATE OF TEST**

Certification Date  
9-JAN-2006

**CUSTOMER ORDER NUMBER**

PO6-00025

2301 AIRWEST BLVD  
PLAINFIELD IN 46168

Invoice Number  
T479315

**CUSTOMER PART NUMBER**

Ship# T731400

**SOLD TO:** MAJOR TOOL & MACHINE INC **SHIP TO:** MAJOR TOOL & MACHINE INC  
1458 E 19TH ST 29267  
INDIANAPOLIS IN 46218 1458 EAST 19TH STREET  
INDIANAPOLIS IN 46218

Description: 316/316L HRAP BAR **ASTM A479**  
1 X 3 X 12' R/L Line Total: 259 LB  
HEAT: M11443 ITEM: 522335

Specifications:  
ASTM A479 03 **ASTM A276 03** **ASME SA479 01**  
QQ S 763 98 **AMS 5648 K02** **AMS 5653 F02**  
AS TM A4 **AMS QQ S 763 98** **ASTM A182 03**  
ASTM A193 03 **SATM A322 03** **ASME SB182 00B**

CHEMICAL ANALYSIS

C	SI	MN	P	S	CR	MO	NI
0.03	0.57	1.25	0.037	0.024	16.84	2.0	10.63
V	W	CO	TI	AL	NB	N	CU
0.03	0.07	0.057	3.05	0.059	0.01	0.04	0.27

RCPT: R534135  
MILL : AMS SPECIALTY STEEL **COUNTRY OF ORIGIN : AUSTRIA**

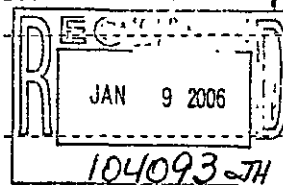
MECHANICAL PROPERTIES

DESCRIPTION	YLD STR KSI	ULT TEN KSI	%ELONG IN 02 IN	%RED IN AREA	HARDNESS BHN
	58.0	91.0	44.0	71.0	194

GRAIN SIZE : 10 -



JAN 09 2006



Material did not come in contact with mercury while in our possession

DAMIAN GURRI

MANAGER, QUALITY ASSURANCE

The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination.

We hereby certify that the material covered by this report will meet the applicable requirements described herein, including any specification forming a part of the description.

The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punishable as a felony under federal statutes.



# CERTIFICATE OF TEST

Page 02 of 02

Certification Date  
9-JAN-2006

**CUSTOMER ORDER NUMBER**

PO6-00025

2301 AIRWEST BLVD  
PLAINFIELD IN 46168

**Invoice Number**

T479315

**CUSTOMER PART NUMBER**

Ship# T731400

**SOLD TO:** MAJOR TOOL & MACHINE INC  
1458 E 19TH ST  
INDIANAPOLIS IN 46218

**SHIP TO:**

MAJOR TOOL & MACHINE INC  
29267  
1458 EAST 19TH STREET  
INDIANAPOLIS IN 46218

Description: 316/316L HRAP BAR  
1 X 3 X 12' R/L  
HEAT: M11443

ITEM: S22335

ASTM A479  
Line Total: 259 LB

THERMAL TREATMENT: OK  
HT TRT QUENCHED 1040 DEG C 30 MIN WATER  
CORROSION: OK  
MACRO: OK  
MICRO1: OK



JAN 09 2006

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We hereby certify that the material covered by this report will meet the applicable requirements described herein, including any specification forming a part of the description.

The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punishable as a felony under federal statutes.

Material did not come in contact with mercury while in our possession.

DAMIAN GURRI

MANAGER, QUALITY ASSURANCE

ABNAHMEPRUEFZEUGNIS B  
INSPECTION CERTIFICATE B  
CERTIFICAT DE RECEPTION B

ISO 9001  
BSI Registration  
No. FM00777



nach/according to/selon EN 10204-3.1  
Blatt/Sheet/Feuille 1 von/Of/De 2

Nr./No./No.: 010.350 05.06.23  
Seite/Page/Page: 01/01 16/ACK

Besteller/Purchaser/Commandant  
AMB SPECIALITY STEEL, INC.

3304 COLLINS RD, PO BOX 1021  
28173 WAXHAW, NC 28173-  
USA  
Bestell-Nr./Purchaser's Order No./No. de commande  
2898/P791235

RS34135  
S22335

Unsere Auftrags-Nr./Works Order No./No. de commande d'usine  
354.175/USA vom 05.02.23/01/  
Anforderungen/Requirements/Cuissance  
+ :

Lieferschein/Dispatch note/Avis d'expédition  
20/511.846/K vom 05.06.20

Prüfgegenstand/Objekt of tests/Objet d'examen  
AISI 316/316L, UNS-S-31600, UNS-S-31603, DIN 1017  
STAINLESS STEEL FLAT BARS,  
HOT ROLLED, QUENCHED/SOLUTION ANNEALED AND PICKLED

Umfang der Lieferung/Volume of delivery/Liste descriptive

03 FL 76,200MM X 25,400MM  
1" X 3" 11,33 - 12,97 FT

Gewicht kg Schmelze Prüf-Nr  
Weight/lb No. de soude Test No  
Poids/lb Essais  
2415.00 M11443 I067  
5324,1 LBS

"MATERIAL IS FREE OF MERCURY CONTAMINATION"  
"NO WELD REPAIR"

+ :  
ASTM A484/A484M-03, ASTM A276-03, AMS-QQ-S-763-98, AMS 5653F-02,  
AMS 5648K-02, ASTM A479/A479H-03, ASTM A182/A182M-03, ASTM A193/A193M-03,  
ASTM A320/A320M-03, ASME SA479-01, ASME SA 182-00b,

COUNTRY OF ORIGIN: AUSTRIA

Erschmelzungsart/Steelmaking Process/Procédé d'acieration EAF

Kennzeichnung/Marking/Marque

Markenbezeichnung/Grade of Material/nuance du materiel:  
Werkstoff Nr./Material No./Materiaux No. X  
Schmelztext No./No. de soude X

Besichtigung und Nachmessung: Kein Anstand  
Inspection and Checking of Dimensions: satisfactory  
Inspection of Control des dimensions: satisfaisant

Ergebnis der Prüfungen/Test Results/Resultat des essais  
Die gestellten Anforderungen sind erfüllt.  
The material has been furnished in accordance with  
the requirements.  
Le materiel a été trouve conforme aux exigences.

Zeichen des Lieferwerkes  
Brand of Manufacturer  
Marque de l'usine



Zeichen des Prüfers  
Symbol of Inspector  
Symbole de l'inspecteur



BOEHLER  
Edelstahl GmbH

(BGR 400/AMM/BSI/EN 10204)  
DIN EN 10204 CERTIFICATE

MTM  
016

JAN 09 2006

ABNAHMEPRUEFZEUGNIS B  
INSPECTION CERTIFICATE B  
CERTIFICAT DE RECEPTION B

ISO 9001  
BSI Registration  
No. FM00777



Ergebnis der Pruefungen/Test results/Resultat des essais  
Blatt/Sheet/Feuille 2 Von/Of/De 2

Nr./No./No.: 010.350 05.06.23  
Seite/Page/Page: 01/01

Chemische Zusammensetzung/Chemical Composition/Composition chimique (%)

Schmelze Heat No. No. de coulée	C	SI	MN	P	S	CR	MO	NI	V	W
M11443	0,03	0,57	1,25	0,037	0,024	16,84	2,00	10,63	0,03	0,07
CO=0,057 TI= 0,05 AL=0,059 NB=0,010 N = 0,04 CU=0,27										

Mechanische Eigenschaften/Mechanical Properties/Caracteristiques mecaniques

Pruef-Nr Test No L'essai	TEMP ° C	YIELD ST. KSI	TENS. ST KSI	ELONG. A4 %	R/A %
I067	0020	058	075-115	>40	>50
			091	44	71

BRINELLHARDNESS : 194 BHN

MACRO AND MICRO TESTS : SATISFACTORY

CONFUSION-TEST : SATISFACTORY

GRAIN SIZE ACC. TO ASTM E112 : 10

INTERCRYSTALLINE CORROSION TEST ACC. TO ASTM A262 PR.E : SATISFACTORY

HEAT-TREATMENT:  
QUENCHED: 1040 ° C - 30 MIN - WATER

Anlagen:  
Appareils:  
Règles:

BOEHLER  
Edelstahl GmbH  
DER ARBEITENVERMITTLER  
INSPECTOR REPRESENTATIVE

MIM 016 JAN 09 2006





Major  
Tool & Machine, Inc.

### INSPECTION DATA CHECKLIST

Page: 14  
Date: 06/13/06  
User ID: GRIFFIT#

Quality Assurance Documentation for Part ID: SE141-137 - Item: 30

Workorder: 65707/5-0 Sub:9 Op:40

Part: SE141-137 - -

SHEET	ZONE	DRAWING ID: SE141-137 Rev: 1 CHARACTERISTIC	INSPECTION INSTRUCTIONS		RESULTS	INSPECTED BY		
			GAGE/EQUIP	BY SAMPLE		INSP	VERFD	AUDIT
1*	G2	RECORD MAGNETIC PERMEABILITY. RESULTS TO BE NO GREATER THAN 1.03µ PER RFD 14-011.	MASTER GAGE	QA	BETWEEN 1.03 AND 1. 05 [N/C:19233]	503-B.H		
(10)						02-08-06		R



**Major**  
Tool & Machine, Inc.

**INSPECTION DATA CHECKLIST**

Quality Assurance Documentation for Part ID: SE141-138 - Item: 32

Workorder: 65707/5-0 Sub:10 Op:40

Part: SE141-138 - -

SHEET	ZONE	Drawing ID: SE141-138 Rev: 1 CHARACTERISTIC	INSPECTION INSTRUCTIONS		RESULTS	INSPECTED BY		
			GAGE/EQUIP	BY SAMPLE		INSP	VERFD	AUDIT
1*	G2	RECORD MAGNETIC PERMEABILITY. RESULTS TO BE NO GREATER THAN 1.03µ PER RFD 14-011.	MASTER GAGE	QA	BETWEEN 1.03 AND 1. 05 [N/C:19234]	503-B.H		
(10)						02-08-06		R

Employees: 219-T.Laird / 242-M.Griffith / 339-E.Root / 503-B.Houk / 533-B.Clevenger / 840-G.Masood / 854-R.Upchurch