



# ENERGY INDUSTRIES OF OHIO

Purchase Order Number:

S005242-F

Part Number:

SE141-116

Part Name:

MCWF C-3

MTM Work Order Number:

65707/3.0



*Major*

**Tool & Machine, Inc.**

**Customer: 8909 - ENERGY INDUSTRIES OF OHIO**  
**Customer P.O.: S005242-F**  
**Customer Part ID: SE141-116 - MCWF C-3**

Item#	Document Description / Material Description / File Name / Heat Lot
1	CERTIFICATE OF CONFORMANCE
2	Completed Shop Travelers: - 65707-3 completed shop travelers.xls
3	NC18607 Dispositioned: - NC18607_S5242_2_C3 weld repair.pdf
4	NC18654 Dispositioned: - NC18654_S5242_C3Gouges.pdf
5	NC18776 Dispositioned: - NC18776_C3INdications_MTM.pdf
6	NC18889 Dispositioned: - NC18889 dispositioned.pdf
7	NC19215 Dispositioned: - NC19215_Signed_.pdf
8	NC19269 Dispositioned: - NC19269_C3 indications_030306.pdf
9	NC19290 Dispositioned: - NC19290_disposition_022306.pdf
10	NC19291 Dispositioned: - NC19291_C3 indications_022306.pdf
11	NC19298 Dispositioned: - NC19298_signed_off_2-21-06.pdf

**DS141-036 - STUD**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
12	4	10	30	Material Certification: TEST REPORTS / DS141-036 - STUD - mc108260.tif / 8969595

**DS141-060 - NUT**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
13	4	10	50	Material Certification: / DS141-060 - NUT - mc108258.tif / 8977349

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
14	2	30	20	Certificate of Conformance: / LOCTITE 411 - LOCKING COMPOUND - mc106229.tif / CERTIFIED

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
15	3	10	10	Certificate of Conformance: / G11CR_1 - ROUND, BAR, 1.75 DIA - mc108545.tif / CERTIFIED

**SE141-103 - MCWF ASSEMBLY TYPE-C**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
16	1	140		Inspection Data Checklist: 2 steps

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
17	0	10	10	Material Certification: Trace ID: 116254 / ER316MNNF_093_GTAW - WELD WIRE,GTAW .093 DIA - mc106579.tif / W020132 / WO20132
18	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**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
19	7	10	10	Certificate of Conformance: G11CR / G11CR_3 - SHEET, FLAT - mc107081.tif / CERTIFIED



Customer: 8909 - ENERGY INDUSTRIES OF OHIO  
Customer P.O.: S005242-F  
Customer Part ID: SE141-116 - MCWF C-3

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
20	5	10	10	Certificate of Conformance: / G11CR_1 - ROUND, BAR, 1.75 DIA - Same as Item #15 / CERTIFIED

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

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
21	1	100		Nondestructive Liquid Penetrant Test Certification #15679
22	1	130		Inspection Data Checklist: 2 steps
23	1	134		Inspection Data Checklist: 114 steps
24	1	160		MTM NDT Cert: RADIOGRAPHIC INSPECTION - 65707-3 SUB 1 OP 160.PDF
25	1	160		Non-Conformance: 19290 Customer document: - car05581.pdf
26	1	170		MTM NDT Cert: XRAY PER DISP. OF NC18776 - 657073-3 SUB 1 OP170.PDF
27	1	170		Non-Conformance: 19291 Customer document: - car05582.pdf
28	1	190		Inspection Data Checklist: 3 steps
29	12	20		Nondestructive Liquid Penetrant Test Certification #15062

**SE141-137 - BEARING PLATE DETAIL**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
30	13	10	10	Material Certification: / 316_17 - BAR, FLAT, 1"X3", 316 SST - mc115096.tif / M11443
31	13	40		Inspection Data Checklist: 1 steps

**SE141-138 - BEARING PLATE DETAIL**

Item#	Sub	Op	Pc	Document Description / Material Description / File Name / Heat Lot
32	14	10	10	Material Certification: / 316_17 - BAR, FLAT, 1"X3", 316 SST - Same as Item #30 / M11443
33	14	40		Inspection Data Checklist: 1 steps

CERTIFICATE OF CONFORMANCE

Page: 1  
Date: 03/30/06  
User ID: MASOOD#

TO: ENERGY INDUSTRIES OF OHIO

DATE: 02/21/2006

ATTENTION: Receiving Department

Seller certifies that:

Part Number: SE141-116

Purchase Order: S005242-F

Part Name: MCWF C-3

Workorder: 65707/3.0

Part Serial Number: C3

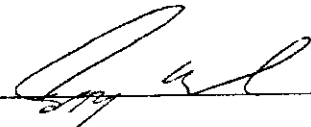
Quantity: 1

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: Quality Mgr

Date: 3/30/06



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**Tool & Machine, Inc.**

Activity	Visual Mfg Ref.	Op Status	Close Date	Emp ID
<p>***SPECIAL INSTRUCTIONS***--Insert cap plugs into the 35 counterbores in the T section that were written up in NC19215. Customer has asked that these holes be identified.----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.</p> <p>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.</p> <p>Receive customer supplied material. -----Part Number: SE141-116 Rev: 6--Part Description: PRODUCTION WINDING FORM TYPE-C</p>	65707/3.0 -Sub:0 Op#:20	Closed	2/22/2006	854-R.Upchurch
<p>Setup the machining fixture on the rotary table. Load casting into the machining fixture with the initial pickup pads facing up. Indicate the pickup pads and orient the casting for machining. ----Rough machine the top flange face and the outer periphery leaving .25- +.060/-.000-. The outside surfaces of the flange will serve as qualifiers for the next operation. Record the qualifier dimensions on the IDC.----Install the lifting holes per the MTM drawing.----Rough machine the top side of the T- section leaving .25- +.060/-.000-.----Remove the casting from the machining fixture and flip over with the bottom flange facing up. Re-load into the machining fixture. Pickup the qualifiers and orient the casting for machining.----Rough machine the bottom flange face leaving .25- +.060/-.000-. ----Rough machine the poloidal break leaving a minimum of .25- of stock per side.----Install temporary shim filling in the poloidal break and hold together with temporary c-clamps. Tack weld in place.----Rough machine the bottom side of the -T- section leaving .25- +.060/-.000-.----Finish machine both sides of the entire casting with the exception</p>	65707/3.0 -Sub:1 Op#:10	Closed	10/3/2005	437-J.Hiatt
<p>DEBURR THE UPPER AND LOWER FLANGES AND FLANGE HOLES COMPLETE.</p>	65707/3.0 -Sub:1 Op#:20	Closed	12/22/2005	465-J.Bever
	65707/3.0 -Sub:1 Op#:30	Closed	12/23/2005	219-T.Laird



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<p>Perform an in-process inspection of the magnetic permeability of the material using the Severn Permeability Indicator Gage. Inspect a minimum of (8) points on the rough machined flange face and an additional (8) points on the rough machined -T- section. Record the upper and lower range values on the IDC's. Values that exceed 1.02 must be documented with a non-conformance record and dispositioned prior to continuing.</p>	<p>65707/3.0 -Sub:1 Op#:40</p>	<p>Closed</p>	<p>12/23/2005</p>	<p>503-B.Houk</p>
<p>Finish machine the -T- section and wings. Run a probe pass to inspect the surface for stock.----Remove the casting from the machining fixture and flip over with the bottom flange facing up. Re-load the casting into the machining fixture. Pickup the qualifiers and orient the casting for machining.----Finish machine the -T- section and wings. Run a probe pass to inspect the surface for stock.----Obtain sketches SE141-116 FLATNESS D and SE141-116 FLATNESS E from the team leader. Use this sketch as a map and record indicator readings at each tooling ball location and near each point. Record information on the IDC prior to moving the part to the next workcenter.</p>	<p>65707/3.0 -Sub:1 Op#:70</p>	<p>Closed</p>	<p>2/4/2006</p>	<p>445-J.Purkhiser</p>
<p>Setup the machining fixture with the casting installed. Machine the inspection fiducials per the MTM drawing. Finish machine the poloidal break to drawing requirements. Remove the casting from the machining fixture.----Install temporary shims in the poloidal break. Use the temporary shim 1.75 thick with additional shims as necessary and C-clamp before moving the part.</p>	<p>65707/3.0 -Sub:1 Op#:80</p>	<p>Closed</p>	<p>2/10/2006</p>	<p>591-C.Pritchett</p>



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<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.--Part Number: SE141-116 Rev: 8--Part Description: PRODUCTION WINDING FORM TYPE-C</p>	<p>65707/3.0 -Sub:1 Op#:85</p>	<p>Closed</p>	<p>2/15/2006</p>	<p>164-L.Freeland</p>
<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.-- HAND GRIND VPI GROOVE AND AREAS OF CAST STOCK THAT WERE NOT REMOVED BY MACHINING. SEE ROB BACKEK FOR DETAILS.</p>	<p>65707/3.0 -Sub:1 Op#:88</p>	<p>Closed</p>	<p>2/15/2006</p>	<p>219-T.Laird</p>
	<p>65707/3.0 -Sub:1 Op#:89</p>	<p>Closed</p>	<p>2/10/2006</p>	<p>890-M.Vislay</p>



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<p>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>	65707/3.0 -Sub:1 Op#:90	Closed	2/15/2006	219-T.Laird
<p>PT 100% OF THE AS-CAST SURFACES AS WELL AS FINISHED MACHINE SURFACES. SEE PS582 FOR PROCESSING INSTRUCTIONS. ----SPECIFICATION: ASTM A903/A903M---- METHOD: ASTM E165----ACCEPTANCE CRITERIA: ASTM A903/A903M LEVEL II FOR AS CAST SURFACES----ACCEPTANCE CRITERIA: ASTM A903/A903M LEVEL I FOR MACHINED SURFACES INCLUDING THE ENTIRE -T- SECTION (HIGH STRESS AREAS)---- CERTIFICATION: MTM CERTIFICATION TO INCLUDE THE INFORMATION PER SUPPLEMENTARY REQUIREMENTS S1 OF ASTM A903/A903M----MTM NDT Cert: LPI CERTIFICATION</p>	65707/3.0 -Sub:1 Op#:100	Closed	2/16/2006	581-D.Edwards
<p>GOVERNMENT SOURCE INSPECTOR TO WITNESS PT RESULTS.</p> <p>- SET PART ON RISERS WITH EITHER DATUM -D- OR -E- FLANGE DOWN. STRADDLE THE POLOIDAL BREAK WITH ONE OF THE RISERS TO ENABLE CLAMPING TO ENSURE THAT THE DATUMS ARE COPLANER. --- DISASSEMBLE CLAMPS FROM POLOIDAL BREAK. THE OUTER PERMIMETER OF EACH POLOIDAL</p>	65707/3.0 -Sub:1 Op#:105	Closed	2/15/2006	219-T.Laird
	65707/3.0 -Sub:1 Op#:130	Closed	2/15/2006	825-B.Jarrett





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<p>GMM INSPECT AND COMPLETE IDC. OUTPUT INSPECTION RESULTS FOR VERIFICATION USING VERISURF SOFTWARE.--Part Number: SE141-116 Rev: 8--Part Description: WINDING FORM TYPE-</p>	<p>65707/3.0 -Sub:1 Op#:134 65707/3.0 -Sub:1 Op#:138</p>	<p>Closed Closed</p>	<p>2/24/2006 2/20/2006</p>	<p>339-E.Root 840-G.Masood</p>
<p>C SOURCE FOR DIMENSIONAL</p> <p>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-</p>	<p>65707/3.0 -Sub:1 Op#:140 65707/3.0 -Sub:1 Op#:150</p>	<p>Closed Closed</p>	<p>2/17/2006 2/20/2006</p>	<p>503-B.Houk 840-G.Masood</p>
<p>C SOURCE FOR ELECTRICAL TEST</p>				



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<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 SHEET (1) OF THE CUSTOMER DRAWING SE141-116 TO MAINTAIN SHOT AND FILM TRACEABILITY.----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.----Part Number: SE141-116 Rev: 8--Part Description: WINDING FORM TYPE-C--Material Type: 316 SST--Material Thickness: VARIES--MTM NDT Cert: RADIOGRAPHIC INSPECTION</p>	<p>65707/3.0 -Sub:1 Op#:160</p>	<p>Closed</p>	<p>2/18/2006</p>	<p>010-M.Contractor</p>
<p>XRAY THE AREA OF THE DATUM -D- FLANGE INDICATED ON THE ATTACHED XRAY MAP.----USE X-RAY MAP TO NUMBER THE SHOTS. THE CERTIFICATION AND X-RAY MAP ARE TO BE SCANNED AND LINKED TO THE QAP REQUIREMENTS OF THIS OPERATION.----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.----Part Number: SE141-116 Rev: 8--Part Description: WINDING FORM TYPE-C--Material Type: 316 SST--Material Thickness: VARIES--MTM NDT Cert: XRAY PER DISP. OF NC18776</p>	<p>65707/3.0 -Sub:1 Op#:170</p>	<p>Closed</p>	<p>2/18/2006</p>	<p>010-M.Contractor</p>
<p>GOVERNMENT SOURCE INSPECTOR TO WITNESS RT RESULTS.</p>	<p>65707/3.0 -Sub:1 Op#:180</p>	<p>Closed</p>	<p>2/21/2006</p>	<p>840-G.Masood</p>



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<p>PERFORM A MAG PERMEABILITY CHECK OF THE MACHINED SURFACES USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE NO GREATER THAN 1.02µ.----CHECK THE PERMEABILITY IN 3 PLACES ON EACH SIDE OF THE T SECTION AT LOCATIONS ADJACENT TO EVERY 5TH HOLE STARTING WITH HOLE 5 AND ENDING WITH HOLE 95. INSPECT ONE POINT ON THE T SECTON- ANOTHER BELOW THE VPI GROOVE AND THE LAST POINT ON THE FLANGE. REPEAT THIS PROCESS ON BOTH SIDES OF THE PART. THERE WILL BE A TOTAL OF 57 POINTS INSPECTED PER SIDE. ----COMPLETE THE IDC INDICATING THE PERMEABILITY RANGE.--Part Number: SE141-116 Rev: 8--Part Description: PRODUCTION WINDING FORM TYPE-C SOURCE FOR MAG PERMEABILITY</p>	<p>65707/3.0 -Sub:1 Op#:190 65707/3.0 -Sub:1 Op#:200 65707/3.0 -Sub:8 Op#:10</p>	<p>Closed Closed Closed</p>	<p>2/20/2006 2/21/2006 2/10/2006</p>	<p>503-B.Houk 840-G.Masood 578-S.Martinez</p>
<p>PRIOR TO WELDING- PERFORM A LOCAL DYE CHECK TO ENSURE COMPLETE REMOVAL OF DEFECT.----WELD REPAIR THE EXCAVATED REGION TO ENSURE A SMOOTH THE TRANSITION INTO THE SURROUNDING MATERIAL.----AFTER WELDING- BLEND TO MATCH SURROUNDING MACHINED SURFACES. PENETRANT INSPECT WELD REPAIR.--Specification: ASTM A903/A903M LEVEL 1</p>	<p>65707/3.0 -Sub:10 Op#:10 65707/3.0 -Sub:10 Op#:20</p>	<p>Closed Closed</p>	<p>11/30/2005 2/21/2006</p>	<p>465-J.Bever 840-G.Masood</p>
<p>PLACE INDICATORS ON BOTH SIDES OF THE T SECTION TO MONITOR PART MOVEMENT WHILE PERFORMING THE WELD REPAIR. ALTERNATE WELDING FROM SIDE TO SIDE AS REQUIRED TO MINIMIZE THE AMOUNT OF MOVEMENT. GRIND ANY EXCESS WELD BACK FLUSH TO THE SURROUNDING FINISH MACHINED SURFACES (ALL MACHINED SURFACES SHOULD HAVE A MINIMUM OF .030- STOCK). PENETRANT INSPECT WELD REPAIR.--Specification: ASTM A903/A903M LEVEL 1--MTM NDT Cert: REPAIR OF DEFECT NC18889</p>	<p>65707/3.0 -Sub:12 Op#:10</p>	<p>Closed</p>	<p>2/16/2006</p>	<p>170-D.Rothenberger</p>
<p></p>	<p>65707/3.0 -Sub:12 Op#:20</p>	<p>Closed</p>	<p>1/14/2006</p>	<p>854-R.Upchurch</p>



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PERFORM A RELATIVE MAGNETIC PERMEABILITY CHECK OF THE REPAIRED AREA. VERIFY PERMEABILITY IS LESS THAN 1.02. PERMEABILITY TO BE CHECKED AT A MINIMUM OF 1 POINT EVERY 2 SQ. INCHES IN THE REPAIRED REGION.--Test Certification: PERMEABILITY CHECK - NC18889 Rev: --Specification: ASTM A703/A703M	65707/3.0 -Sub:12 Op#:30	Closed	1/14/2006	854-R.Upchurch
RECEIVE CUSTOMER SUPPLIED CASTING	65707/3.0 -Sub:2 Op#:10	Closed	1/14/2006	854-R.Upchurch
MACHINE THE SHIM COMPLETE PER THE DRAWING AND CNC PROGRAMS.	65707/3.0 -Sub:2 Op#:20	Closed	1/31/2006	234-E.Booher
GRIND A .060- CHAMFER ON ALL EDGES OF SHIM AND BOTH ENDS OF HOLES.	65707/3.0 -Sub:2 Op#:22	Closed	2/7/2006	524-G.Davis
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.	65707/3.0 -Sub:2 Op#:30	Closed	2/15/2006	219-T.Laird
SAW OFF 16- AND MOVE TO NEXT WORK CENTER.	65707/3.0 -Sub:3 Op#:10	Closed	6/1/2005	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.	65707/3.0 -Sub:3 Op#:20	Closed	2/8/2006	357-B.Donnelly
RECEIVE MATERIAL--NOTIFY CFT AND FORWARD MATERIAL STORES.	65707/3.0 -Sub:4 Op#:10	Closed	5/19/2005	825-B.Jarrett
SAW OFF 30- LENGTH AND MOVE TO NEXT WORK CENTER.	65707/3.0 -Sub:5 Op#:10	Closed	6/1/2005	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.	65707/3.0 -Sub:5 Op#:20	Closed	2/13/2006	236-M.Jennings
SAW 13- LENGTH AND MOVE TO NEXT WORK CENTER.	65707/3.0 -Sub:6 Op#:10	Closed	6/1/2005	227-D.Bockover
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.	65707/3.0 -Sub:7 Op#:20	Closed	9/14/2005	129-E.Taina
SAW TO A LENGTH OF 6.75-	65707/3.0 -Sub:13 Op#:10	Closed	1/10/2006	227-D.Bockover



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<p>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--Part Description: BEARING PLATE--Dimensional Report: VENDOR SUPPLIED</p>	<p>65707/3.0 -Sub:13 Op#:30</p>	<p>Closed</p>	<p>1/20/2006</p>	<p>subcontact</p>
<p>PER DRAWING NOTE 5.--PERFORM A MAGNETIC PERMEABILITY CHECK USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE NO GREATER THAN 1.02μ.--AUDIT VENDOR-SUPPLIED INSPECTION FORM.--Part Number: SE141-137--Part Description: BEARING PLATE DETAIL SAW TO A LENGTH OF 10.5.</p>	<p>65707/3.0 -Sub:13 Op#:40 65707/3.0 -Sub:14 Op#:10</p>	<p>Closed Closed</p>	<p>1/20/2006 1/10/2006</p>	<p>503-B.Houk 227-D.Bockover</p>
<p>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--Part Description: BEARING PLATE--Dimensional Report: VENDOR SUPPLIED</p>	<p>65707/3.0 -Sub:14 Op#:30</p>	<p>Closed</p>	<p>1/20/2006</p>	<p>subcontact</p>
<p>PER DRAWING NOTE 5.--PERFORM A MAGNETIC PERMEABILITY CHECK USING A SEVERN PERMEABILITY INDICATOR GAGE. PERMEABILITY SHOULD BE NO GREATER THAN 1.02μ.--AUDIT VENDOR-SUPPLIED INSPECTION FORM.--Part Number: SE141-138--Part Description: BEARING PLATE DETAIL</p>	<p>65707/3.0 -Sub:14 Op#:40</p>	<p>Closed</p>	<p>1/20/2006</p>	<p>503-B.Houk</p>

**Customer: ENERGY INDUSTRIES OF OHIO**

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

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

**Part: /**  
Drawing ID: SE141-116

Revision: 6

Customer P.O.: S005242-F/Ln:3  
Serial No./Qty:

Reported By: KEVIN BOWLING  
E-Mail: kBowling@MajorTool.com

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

**Problem:** Casting defect uncovered during machining (see attached pictures).

The defect was detected visually during machining and confirmed using Liquid Penetrant Inspection. The size of the indication is about 1.5" long by approximately .5" wide from the base of the T in both directions (defect is on the corner). It appears that it will be in the area where we will be cutting the VPI groove. Reference sheet 4 of SE141-116 for specific location on the casting. The indication is directly below the hole located at 20.52 and 86.10 (zone F5).

After complete excavation of the defect the affected area is now approximately 1.600" long by .500" across the face of the base section and .200" in depth along the edge. (see pictures). Confirmation of defect removal was accomplished using Liquid Penetrant Inspection.

Recommend weld repair of defective area and LPI after repair rather than LPI and radiographic inspection.

**Proposed Disposition:**

Number of additional pages: 3

**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

Agree with recommended disposition to weld repair and LPI after repair in lieu of LPI and RPI since this is not a high stress region.

**Technical Contact Approval:** Phil  
Heitzenroeder

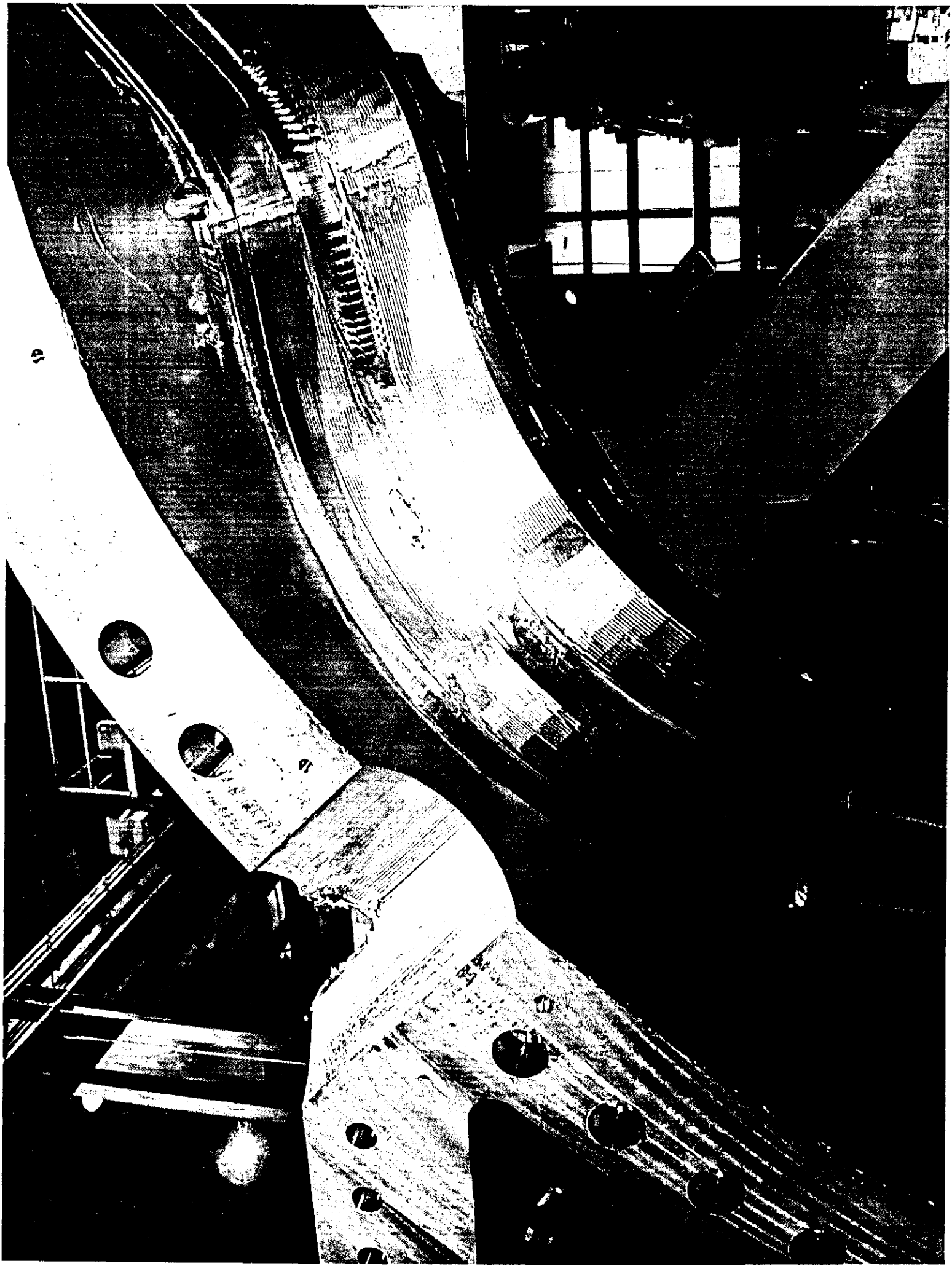
Digitally signed by Phil Heitzenroeder  
DN: CN = Phil Heitzenroeder, C = US,  
O = PPPL, OU = Mech. Eng. Division  
Reason: I am approving this document  
Date: 2005.11.18 09:01:27 -05'00'

**Eng. Mgr. Approval:** Brad  
Nelson

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US,  
o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2005.11.18 11:14:05 -05'00'

**Major Tool Implemented By:** Mike  
Griffith

Digitally signed by Mike Griffith  
DN: CN = Mike Griffith, C = US, O  
= Major Tool and Machine, OU =  
CFT White Team  
Reason: I agree to the terms  
defined by the placement of my  
signature on this document  
Date: 2006.03.29 13:34:02 -05'00'











# 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:**02/16/2006      **Type of Material:**CAST STAINLESS      **NDT#:**15679

<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 checked="" type="checkbox"/> Other FINAL MACHINED & AS CAST	<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: 65707/3.0 -Sub:1 -Op:100 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: 0 Quantity Rejected: 1  Run Hours:	<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 #: 19269
--	---	--

<b>Customer Inspection PI</b> SEE NOTES Test Step: Revision: Material Test Number:	<b>Inspection Criteria:</b> Customer Specification: ASTM A903/A903M MTM Spec Number: PS582 (REF NDT-WI-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: A (Water Wash) Method of Drying: Forced Air Fan Form: 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:**  
 PT 100% OF SURFACES ON PRODUCTION MODULAR COIL WINDING FORM TYPE-C.  
 SPECIFICATION: ASTM A903/A903M  
 METHOD: ASTM E165

ACCEPTANCE CRITERIA: ASTM A903/A903M LEVEL II FOR AS CAST SURFACES

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-19269 AND PHOTOS FOR MORE DETAILED INFO.

THIS PENETRANT INSPECTION ALSO INCLUDES THE REINSPECTION OF DISCONTINUITES THAT WERE WELD-REPAIRED THAT WERE DISCOVERED DURING MACHINING OPERATION, AS NOTED IN NC 18607.

THE THE LPI EXAMINATION OF THE WELD REPAIR AREA(S) WAS FOUND TO BE ACCEPTABLE.

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

**Inspector:** 581-D.EDWARDS
**Date:** 02/16/2006
*Douglas D. Edwards Level II*

INSPECTION DATA CHECKLIST



Workorder: 65707/3-0 Sub:1 Op:190  
Revision: 02/20/06 7:37

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		
*		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-1165	LESS THAN 1.02	503-B.HC				A
(10)												*
*		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-1165	LESS THAN 1.02	503-B.HC				A
(20)												*
*		INSPECT PERMEABILITY OF WELD REPAIR PER NC18607. MAG PERMEABILITY TO BE NO GREATER THAN 1.02µ.	MASTER GAGE	QA		J-1165	LESS THAN 1.02	503-B.HC				A
(30)												*

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.  
\* To Far Right Indicates Data Package Requirement  
QA003 (n:\ntmapps\unitsinspct.qpp) Major Tool and Machine, Inc. 1458 East 19th Street, Indianapolis, IN 46218 (317)636-6433 Fax (317)634-9420

**Customer: ENERGY INDUSTRIES OF OHIO**

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

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

**Part: /**

Drawing ID: SE141-116

Revision: 6

Customer P.O.: S005242-F/Ln:3  
Serial No./Qty: C3

Reported By: MIKE GRIFFITH

E-Mail: mGriffith@MajorTool.com

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

Problem: There are two tool gouges in the edge of T section as shown in the attached picture.

The size of the first gouge is approximately 1" long x .500" wide across the face of the T and approximately .200" in depth along the edge of the T. There is .030" stock left on the top and side of the T and therefore this gouge will not clean up completely during final machining.

The second gouge is insignificant in the fact that it will clean up during final machining.

Recommend hand blending area around the gouge after final machining.

**Proposed Disposition:**

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

Customer Disposition:     Use As Is     Rework     Repair     Scrap     Replace

Agree with recommended disposition to blend the area around the gouge after final machining to eliminate any sharp edges and stress concentrations.

Technical Contact Approval: **Phil Heitzenroeder**

Digitally signed by Phil Heitzenroeder  
DN: cn=Phil Heitzenroeder, c=US,  
o=PPPL, ou=Mech. Eng. Division  
Reason: I am approving this document  
Date: 2005.11.18 09:09:51 -0500

Eng. Mgr. Approval: **Brad Nelson**

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US, o=ORNL,  
ou=FED, email=nelsonbe@ornl.gov  
Date: 2005.11.18 11:15:31 -0500

Major Tool Implemented By: **Mike Griffith**

Digitally signed by Mike Griffith  
DN: cn=Mike Griffith, c=US, o=Major  
Tool and Machine, ou=QCI, email=Mike.Griffith@mtm.com  
Reason: I agree to the terms defined by the  
placement of my signature on this document  
Date: 2005.03.25 17:22:50 -0500

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

NC 18654  
65707/3 (C3)



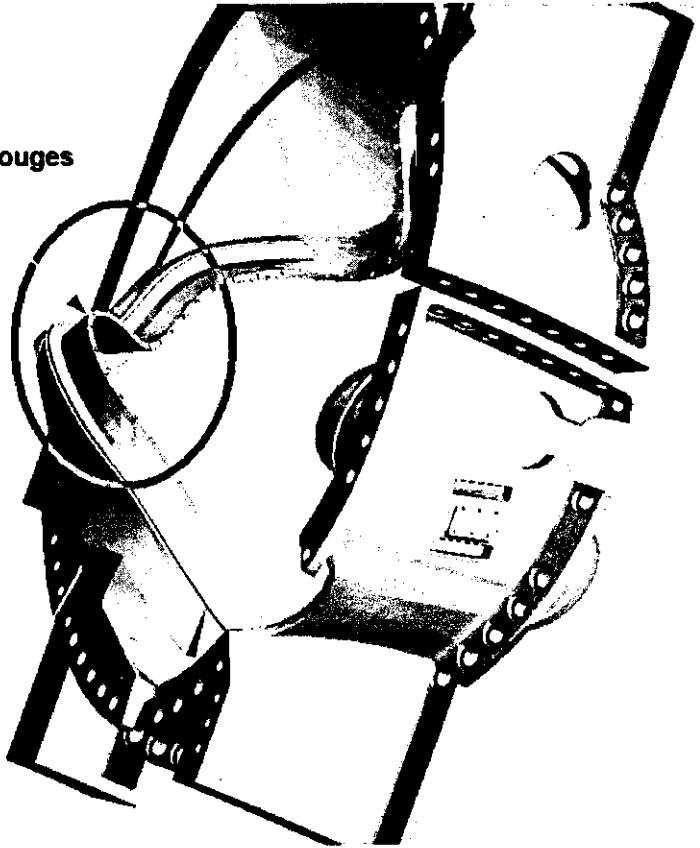
The photo above shows the tooling gouge as reported on the NC and the photo below shows the gouge with the edges blended after final machining.



Mike Griffith

Page 1 of 1

**Tooling Gouges**



**Customer: ENERGY INDUSTRIES OF OHIO**

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

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

Part: /  
Drawing ID: SE141-116

Revision: 6

Customer P.O.: S005242-F/Ln:3  
Serial No./Qty:

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

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

Problem: THERE ARE NUMEROUS INDICATIONS ON THE MACHINED SURFACE OF THE DATUM -D- FLANGE THAT EXCEED THE ALLOWABLE INDICATION SIZE PER ASTM A 903/A 903M LEVEL 1. SEE ATTACHED MAP FOR SIZE AND LOCATION OF INDICATIONS.

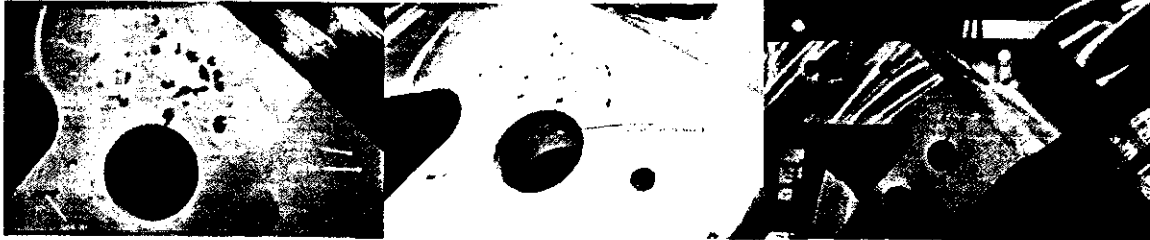
**Proposed Disposition:**

INDICATIONS WILL BE SUBMITTED TO CUSTOMER FOR REVIEW. CONTINUE MACHINING OF CASTING.

Number of additional pages: 3

Customer Disposition:     Use As Is     Rework     Repair     Scrap     Replace

**THIS REFERS TO THE C3 CASTING.** Since these indications are in a low stress area, they can be accepted in this case. However, EIO is requested to radiograph ~18" of the adjacent flange region to assure that those regions do not have unacceptable indications also.. EIO is also requested to investigate why these defects were not identified during NDT testing at the foundry.



Technical Rep. Approval: **Phil Heitzenroeder**

Digitally signed by Phil Heitzenroeder  
DN: CN = Phil Heitzenroeder, C = US,  
O = PPPL, OU = Mech. Eng. Division  
Reason: I am approving this document  
Date: 2005.12.08 13:36:48 -05'00'

RLM Approval: **Brad Nelson**

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US,  
o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2005.12.09 09:14:40 -05'00'

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

**Mike Griffith**

Digitally signed by Mike Griffith  
DN: CN = Mike Griffith, C = US, O =  
Major Tool and Machine, OU =  
CFI Mike Team  
Reason: I agree to the terms  
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signature on this document  
Date: 2006.03.29 13:50:09 -05'00'

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

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

4880  
10520 Cheater Road  
Woodlawn, Ohio 45215



pg 1 of 2

COOPERHEAT Major Tool & Machine IR 192 WELD PROCESS N/A DESCRIPTION 65707/30/11/170/818 SE141-116 rev.8 Page 1 of 2	INTERPRET LEVEL Robert Weaver / II JOB NO 13860001 P.O. NO N/A DATE 2/18/06	FOCUS .137" FOCAL SPOT SIZE .137" CURR/AMP 51 MATERIAL SPEC 316SS7 MATERIAL THICKNESS 1.75" / 1.375" ASTM 1B PENETRANT ASTM 1B DEVELOPER N/A FILM TYPE Kodak AA Double FILM PROCESSING Auto SHIM N/A ACCEPTANCE STANDARD NO Defects > .080"	END VIEW SINGLE WALL DOUBLE WALL Penetrant S L Location Marked OTHER	
FITTING SEAM OR FITTING FLANGE 20-1 FLANGE 20-1	WELDER IDENTIFICATION N/A N/A	PENETRANT SIZE 1B QUALITY LEVEL .032" SLAG ✓ ✓	POROSITY WITH T.M. CRACK LACK OF PEN LACK OF FUSION INTERNAL CONVEYITY INTERNAL CONVEYITY TUNGSTEN MELT-THROUGH BURST-THROUGH CRATER/FIT CRACK INTERNAL UNDERCUT EXTERNAL UNDERCUT ALIGNED INDICATIONS WELD CONTOUR RMS MATCH FILM ATTRACT VISUAL CONCERN FILM DENSITY SEE REMARKS ACCEPT REJECT	REMARKS Densitometer - 12/105 cal dia - 5/2/05 NCR-19291 at least 10 indications > .080" 720 indications > .080"

Robert Weaver 655514/H

Robert D. Flunk

2/18/06

Customer Representative Signature

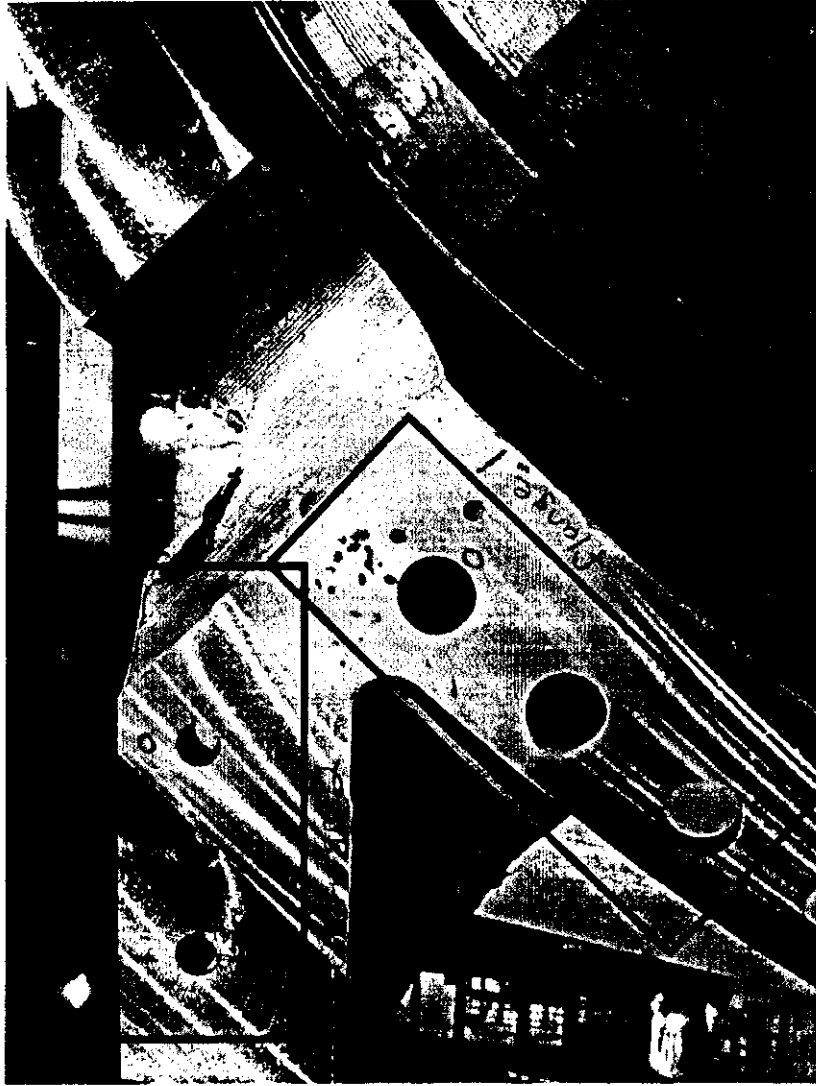
Cooperheat-MOS Signature

Date



XRay Map for Customer Disposition of NC18776.

Workorder: 65707/3  
Datum -D- Flange



65707/3.0/1/170/88  
SE141-116 rev.8  
2/18/04  
Page 2 of 2

Mike Griffith  
Rev. --

**Customer: ENERGY INDUSTRIES OF OHIO**

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

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

Part: /  
Drawing ID: SE141-116

Revision: 7

Customer P.O.: S005242-F/Ln:3  
Serial No./Qty:

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

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

Problem: Reference sheet 6, section P-P. There is a tooling gouge on the top of the T approximately 10" in length. The gouge tapers from in tolerance to a depth of approximately .400" over the 10" span. See attached pictures for location.

**Proposed Disposition:**

RECOMMEND TO WELD REPAIR DAMAGED AREA AND REMACHINE.

Number of additional pages: 3

Customer Disposition:     Use As Is     Rework     Repair     Scrap     Replace

This refers to C3. We agree with the recommended disposition to weld repair and re-machine the gouged area.

**Phil  
Heitzenroeder**

Tech. Rep. Approval:

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: 2005.12.19 15:53:01 -05'00'

**Brad  
Nelson**

RLM Approval:

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US,  
o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2005.12.19 16:06:47  
-05'00'

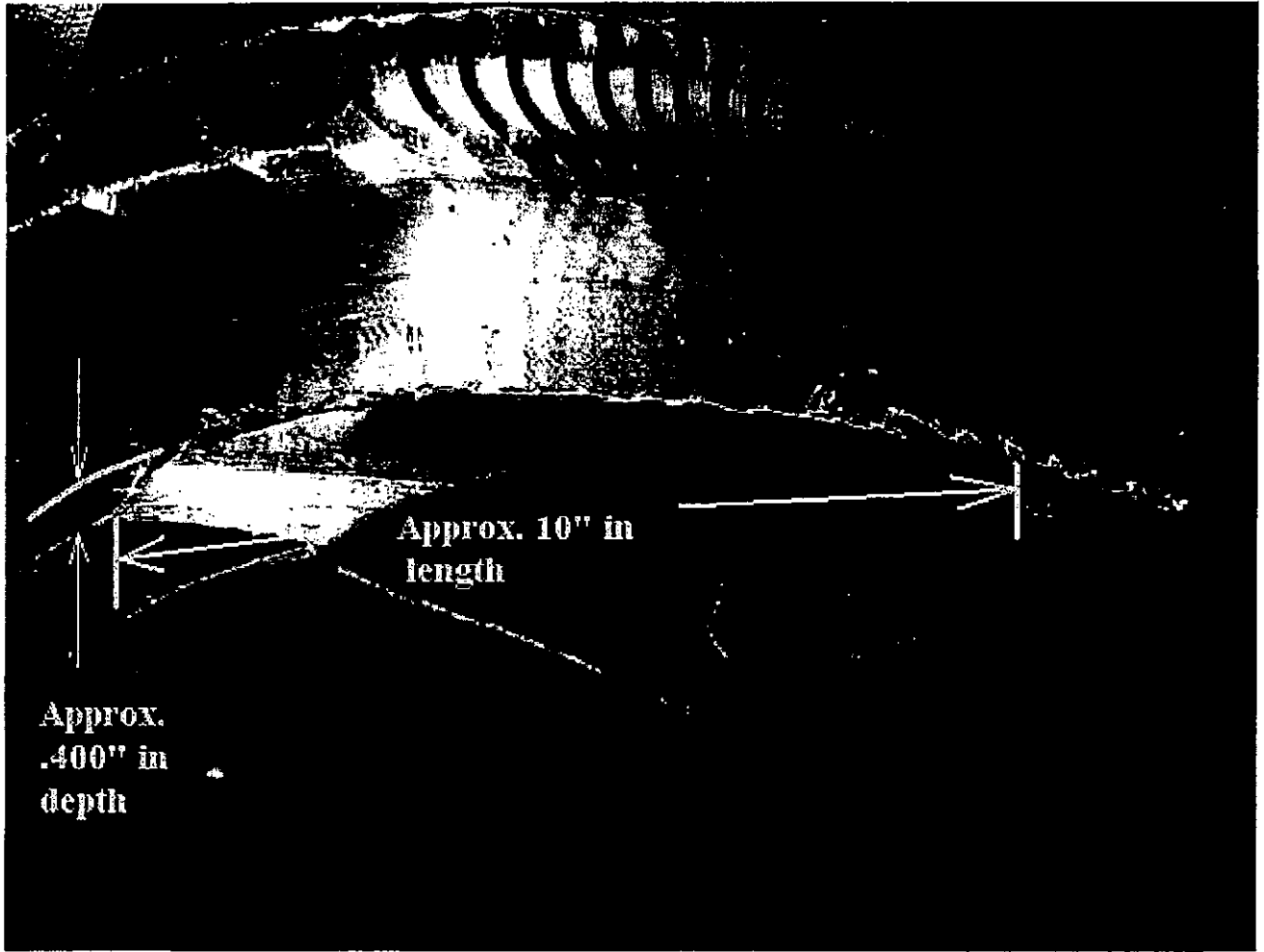
**Mike  
Griffith**

Digitally signed by Mike Griffith  
DN: CN = Mike Griffith, C = US, O =  
Major Tool and Machine, OU = CFT  
White Team  
Reason: I agree to the terms  
defined by the placement of my  
signature on this document  
Date: 2006.03.29 14:07:31 -05'00'

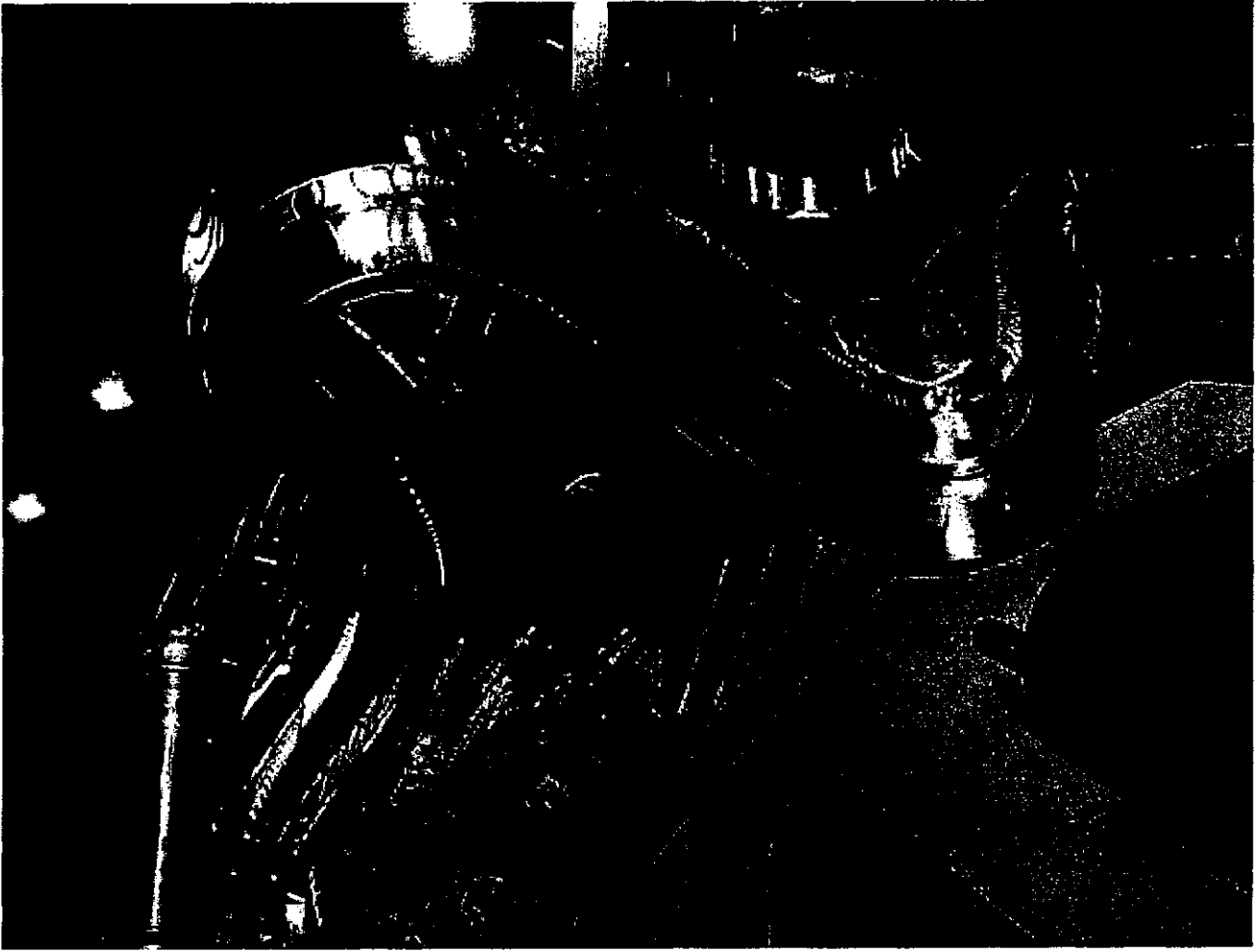
Major Tool Implemented By: \_\_\_\_\_

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

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









**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

<b>Date of Inspection:</b> 12/23/2005		<b>Type of Material:</b> CAST STAINLESS		<b>NDT#:</b> 15062
<b>Stage of Inspection:</b> <input type="checkbox"/> Incoming Inspection <input type="checkbox"/> In-Process Inspection <input checked="" type="checkbox"/> After Repair <input type="checkbox"/> Final Inspection	<b>Manufacturing Process:</b> <input checked="" type="checkbox"/> Weldment <input type="checkbox"/> Casting <input type="checkbox"/> Bar Stock <input type="checkbox"/> Plate <input type="checkbox"/> Forging <input type="checkbox"/> Other WELD REPAIR OF CASTING	<b>Surface Condition:</b> <input checked="" type="checkbox"/> Machined <input checked="" type="checkbox"/> Rough <input type="checkbox"/> Other HAND BLENDED FLUSH	<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	<b>Heat Treated:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Part Information:</b> MTM Job Number: 65707/3.0 -Sub:12 -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</b> Test Step: Revision: Material Test Number:		<b>Inspection Criteria:</b> Customer Specification: ASTM A903/A903M MTM Spec Number: PS582 (REF NDT-WI-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: 12 Min		

**Inspection Requirements:**

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

**Notes:**

- Perform localized PT inspection on casting repair areas prior to final machining (4 locations).
- Reference MTM NC 18889 for additional information.
- Acceptance Criteria: ASTM A903/A903M Level I for machined surfaces including the entire "T" section (high stress areas)
- Repair areas are free of rejectable indications at time of inspection.

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

**Inspector:** 581-D.EDWARDS

**Date:** 12/23/2005

*Douglas D. Edwards* Level II



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

MTM N/C: 19215

Page: 1  
Date: 02/09/06  
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: SE141-116 /WINDING FORM TYPE -C  
Drawing ID: SE141-116 Revision: 7  
Links: I-Type:W: 65707/3.0 Sub: 1 Op: 70

Customer P.O.: S005242-F/Ln:3  
Serial No./Qty: C3

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

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

Problem: SHEET 2. DETAIL C; 35 OF THE 98.625 X .188 C-BORES IN THE FACE OF THE T-SECTION MEASURE  
.317-.325 DEEP. (UP TO .127" OUT OF TOLERANCE).

**Proposed Disposition:**

RECOMMEND TO USE AS IS.

Number of additional pages: 0

Customer Disposition:  Use As Is  Rework  Repair  Scrap  Replace

Requested that Major Tool mark the non-conforming holes so PPPL can find them easier.

Technical Contact Approval:

Phil  
Heitzenroeder

Digitally signed by Phil Heitzenroeder  
DN: cn=Phil Heitzenroeder, c=US,  
o=PPPL, ou=Tech, Email=PHHeizen  
Reason: I agree to 'specified' portions  
of this document  
Date: 2006.02.10 17:39:45 -05'00'

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

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

RLM:

Brad  
Nelson

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US,  
o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.02.10 17:53:07  
-05'00'

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

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

Mike  
Griffith

Digitally signed by Mike Griffith  
DN: CN = Mike Griffith, C =  
US, O = Major Tool and  
Machine, OU = CFT White  
Team  
Reason: I agree to the terms  
defined by the placement of my  
signature on this document  
Date: 2006.03.29 14:10:43 -  
05'00'

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

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**Root Cause 1: 809-PROCESS INSTRUCTION**

Resource: CAD/CAM – MEDIUM MILLING Equipment:  
Description: THE COUNTERBORE TOOL IS PROGRAMMED FROM THE TIP OF THE PILOT DRILL. THE TOOL SHEET FOR THE COUNTERBORE TOOL DID NOT DEFINE A TOLERANCE FROM THE TIP OF THE PILOT TO THE COUNTERBORE CUTTING EDGE. WHEN THE TOOL WAS CHANGED OUT DURING THE MACHINING PROCESS IT WAS REPLACED BY A TOOL WITH A SHORTER PILOT. THIS RESULTED IN SEVERAL COUNTERBORES BEING MACHINED TOO DEEP.

**Corrective Action 1:**

Action: 02/09/06 By: 242-M.GRIFFITH

Description: THE TOOL SHEET WILL BE MODIFIED TO CLEARLY DEFINE A TOLERANCE FOR THE RELATIONSHIP BETWEEN THE TOOL TIP AND THE COUNTERBORE CUTTING EDGE. THE TOLERANCE WILL BE LESS THAN THE  $\pm .010$ " REQUIRED BY THE DRAWING.



**Disposition of NCR 19269 March 3, 2006**

All of the indications were reviewed during a conference call on February 27 with EIO, PPPL, and ORNL. This review accepted all "as is" with the exception of a few areas for which we requested radiographic examination (reference NCR 19290 and 19291). Following the radiography these also were accepted "as is". Consequently, this NCR can now be considered closed.

**Approved 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: 2006.03.03 17:19:35 -05'00'

**Technical representative**

**Brad  
Nelson**

Digitally signed by Brad  
Nelson  
DN: cn=Brad Nelson, c=US,  
o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.03.07 10:46:31  
-05'00'

**Responsible line manager**

---

**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:3  
Serial No./Qty: C3

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

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

Problem: 15 areas of cluster indications (shrink, cold shuts, non-metallic inclusions) on finished machined surfaces. linear indications range from .062" to 1.200" in length (actual discontinuity size), many rounded "indications" exceeding the spec. requirements for level 1 surfaces. In addition, approx. 60 random single indications on level I & II surfaces. See field notes and photos for more details.

---

**Proposed Disposition:**  
SUBMIT TO CUSTOMER CONTINUE PROCESSING.

---

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

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**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

**Technical Contact Approval:** \_\_\_\_\_ **Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Buyer Approval:** \_\_\_\_\_ **Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

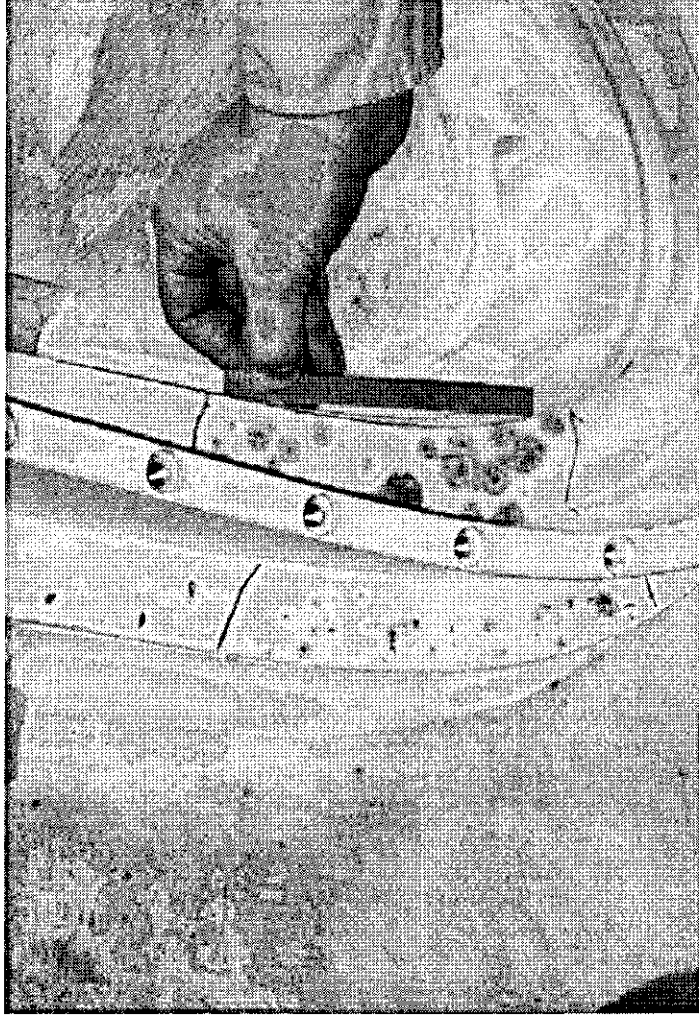
**Major Tool Implemented By:** \_\_\_\_\_ **Title:** \_\_\_\_\_ **Date:** \_\_\_\_\_

## C3 Liquid Penetrant Inspection Map of Indications

### Area #1

Linear indications (size of discontinuity not bleed-out)  
.080" to .500"

14 random rounded indications (size of bleed-out 30min dwell time)  
>.125" inspected with pin gage  
estimated 50% of rounds would not be rejected based on the size of the discontinuity

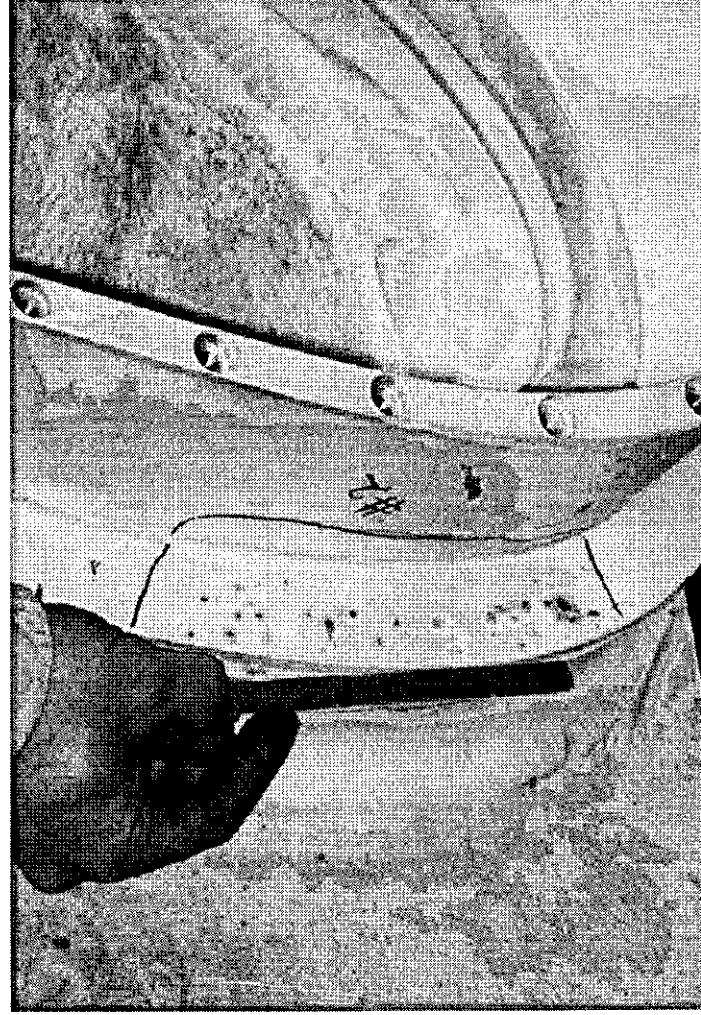


## C3 Liquid Penetrant Inspection Map of Indications

### Area #2

Linear indications (size of discontinuity not bleed-out)  
.085" to .200"

15 random rounded indications (size of bleed-out 30 min dwell time)  
>.125" inspected with pin gage  
estimated 50% of rounds would not be rejected based on the size of the discontinuity

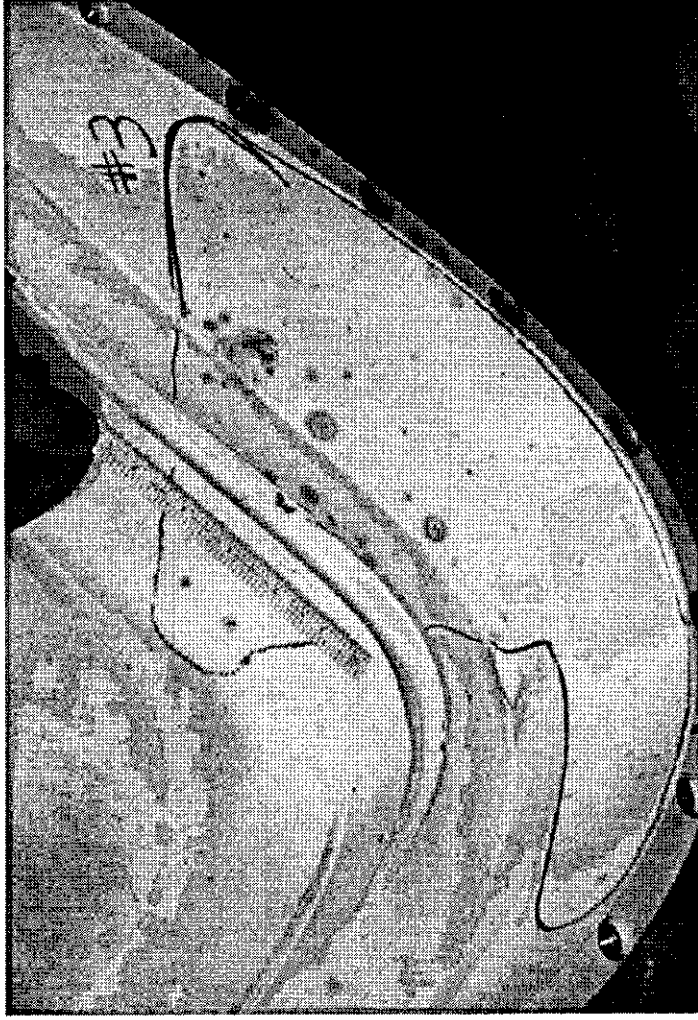


## C3 Liquid Penetrant Inspection Map of Indications

### Area #3

Linear indications (size of discontinuity not bleed-out)  
.200" to .600"

17 random rounded indications (size of bleed-out 30min dwell time)  
>.125" inspected with pin gage  
estimated 50% of rounds would not be rejected based on the size of the discontinuity



## C3 Liquid Penetrant Inspection Map of Indications

### Area #4

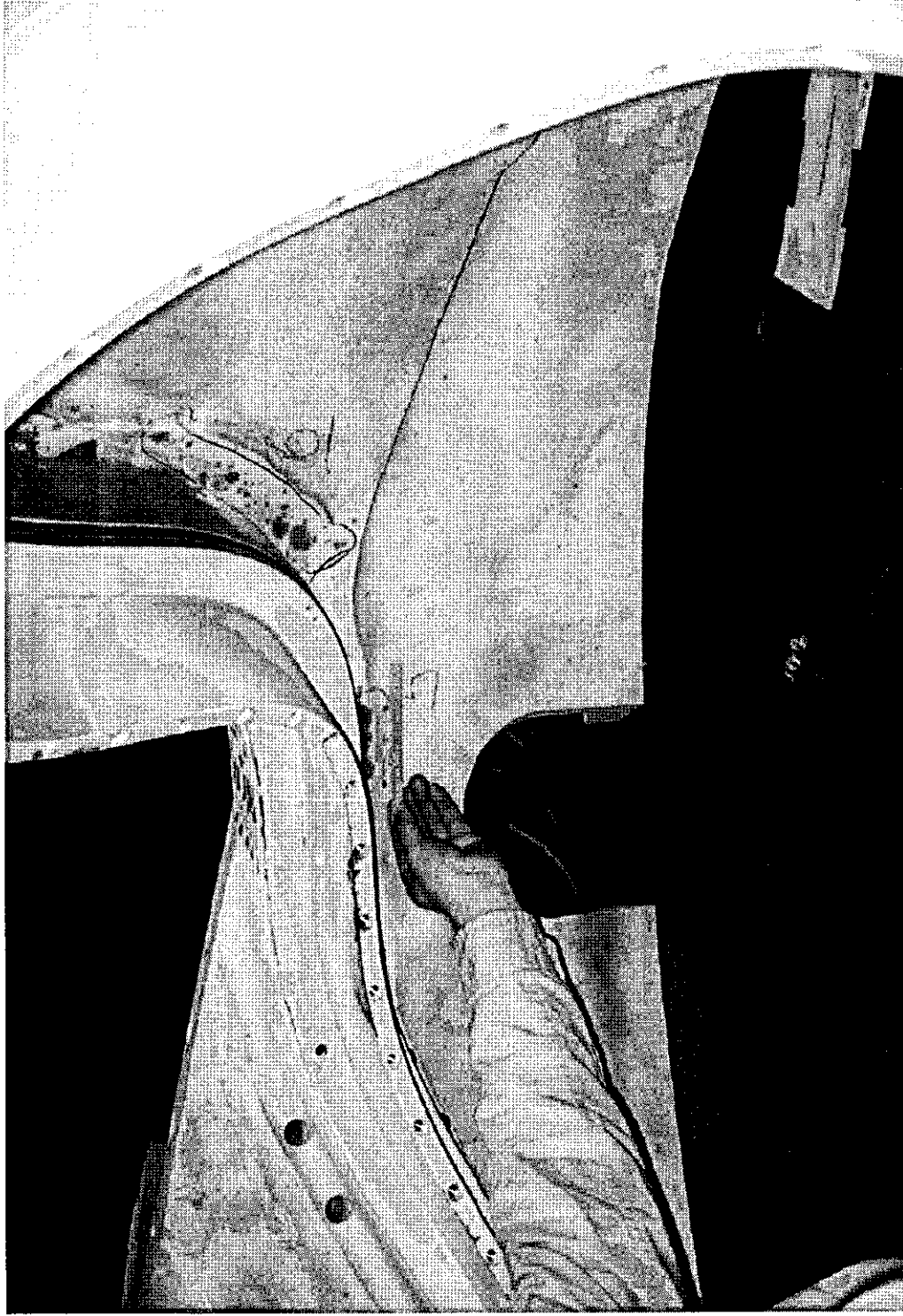
Linear indications (size of discontinuity not bleed-out)  
.100" to .400"

29 random rounded indications (size of bleed-out 30min dwell time)  
>.125" inspected with pin gage  
estimated 50% of rounds would not be rejected based on the size of the discontinuity



## C3 Liquid Penetrant Inspection Map of Indications

Area #5  
Linear indications (size of discontinuity not bleed-out)  
>3.00" non-metallic inclusion (size of bleed out 30min dwell time)

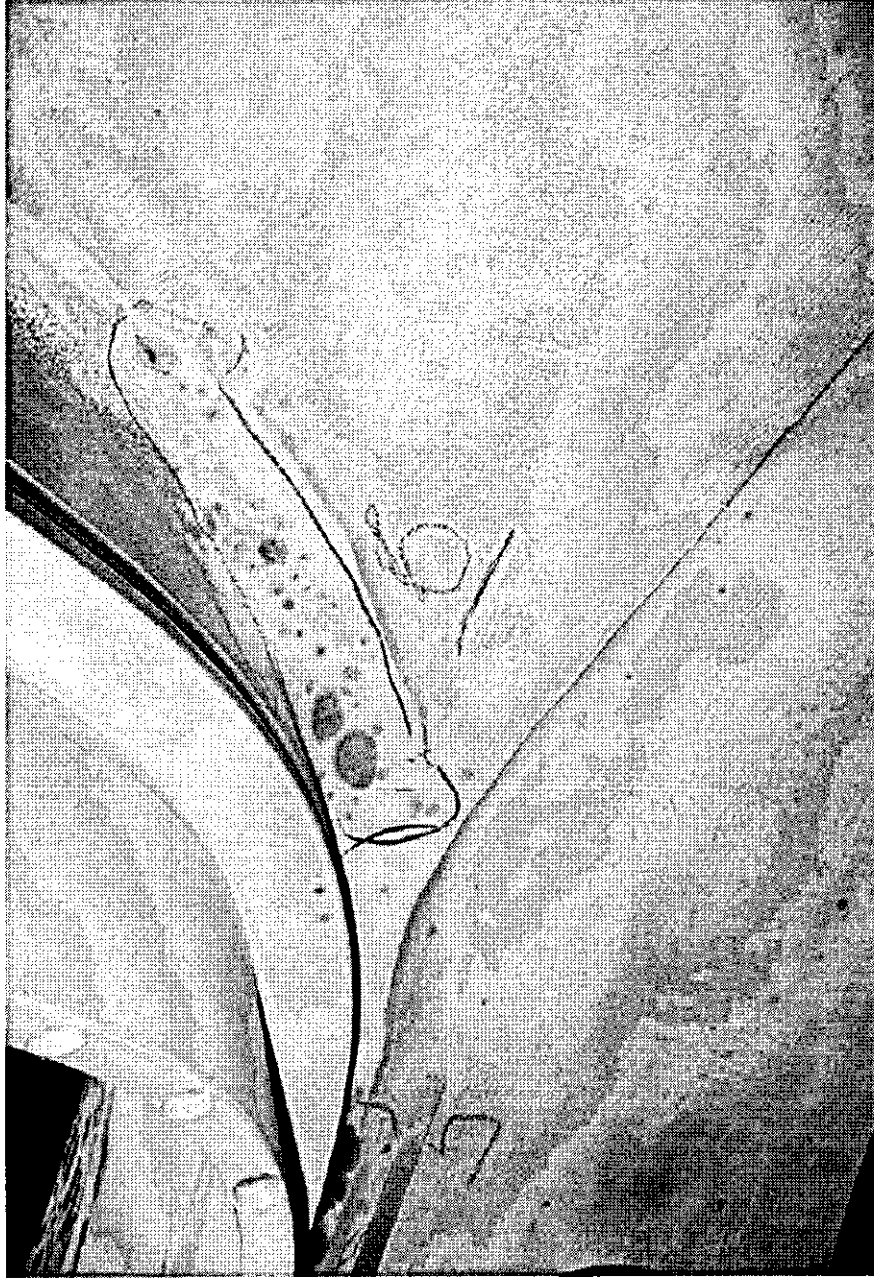


## C3 Liquid Penetrant Inspection Map of Indications

### Area #6

Linear indications (size of discontinuity not bleed-out)  
.075" to .700"

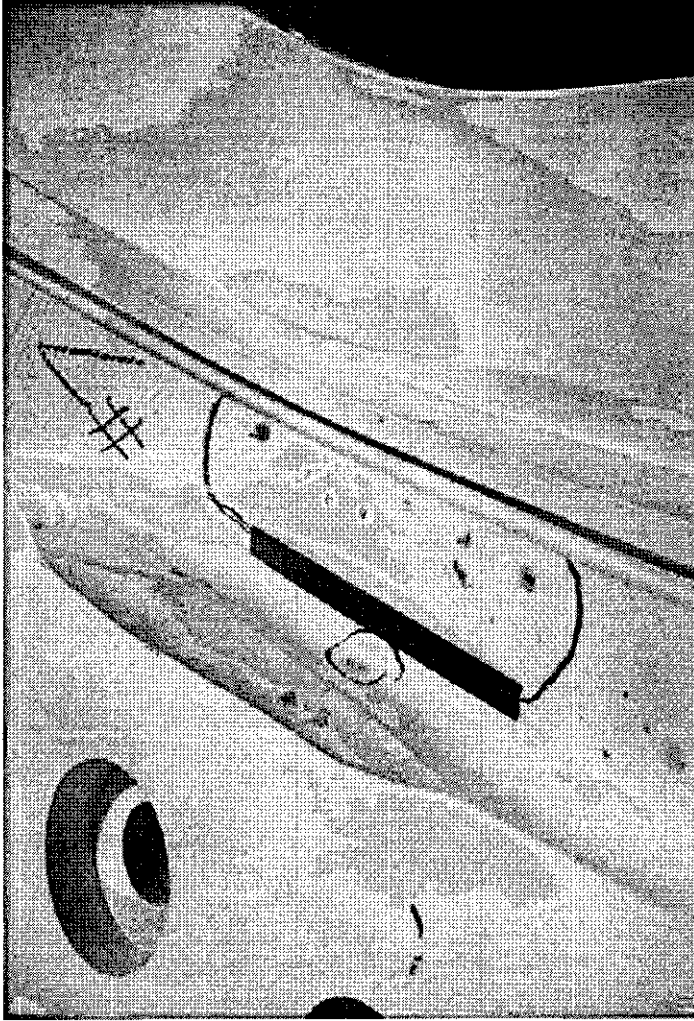
12 random rounded indications (size of bleed-out 30min dwell time)  
>.125" inspected with pin gage  
estimated 50% of rounds would not be rejected based on the size of the discontinuity





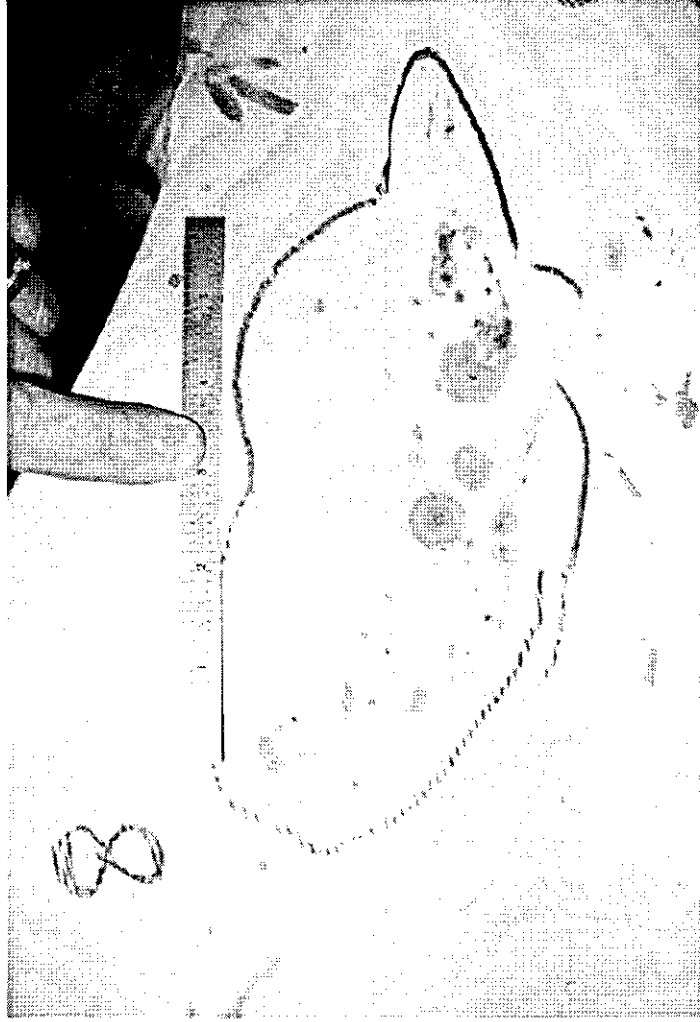
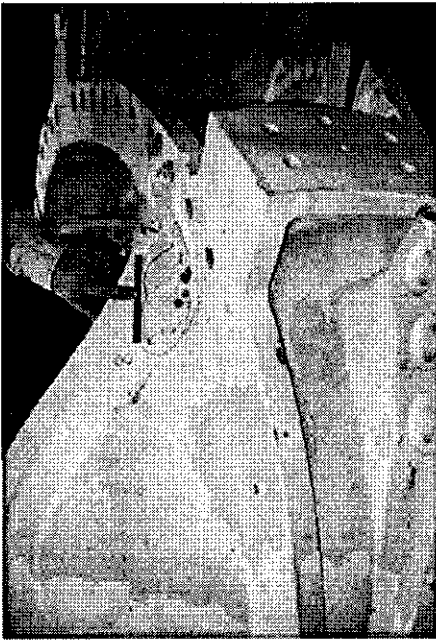
## C3 Liquid Penetrant Inspection Map of Indications

Area #7  
Linear indications (size of discontinuity not bleed-out)  
.200" to .500"



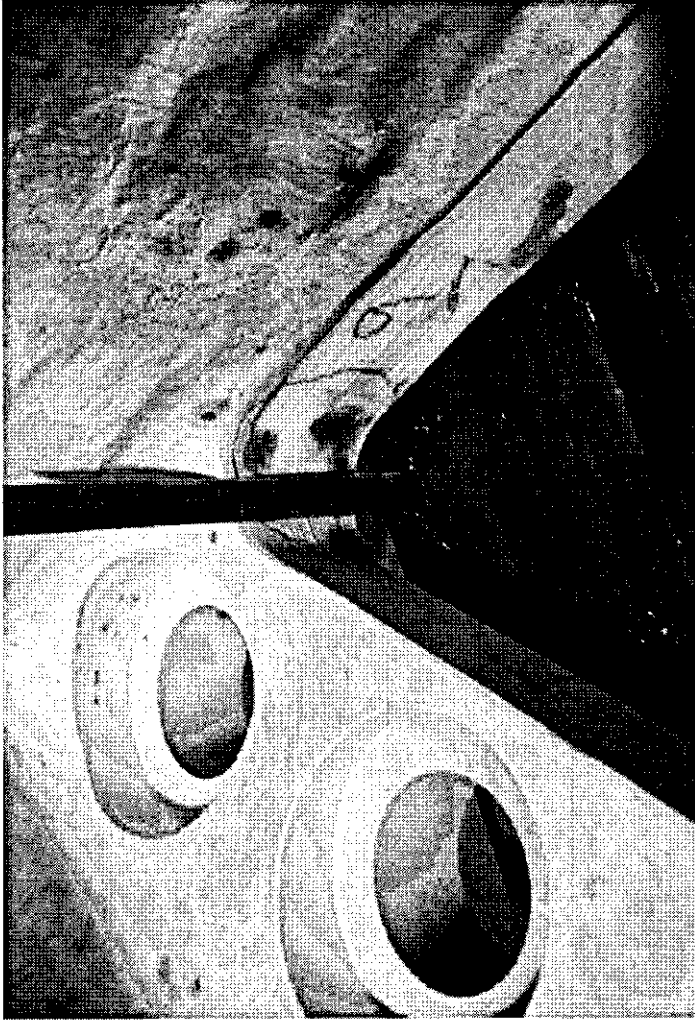
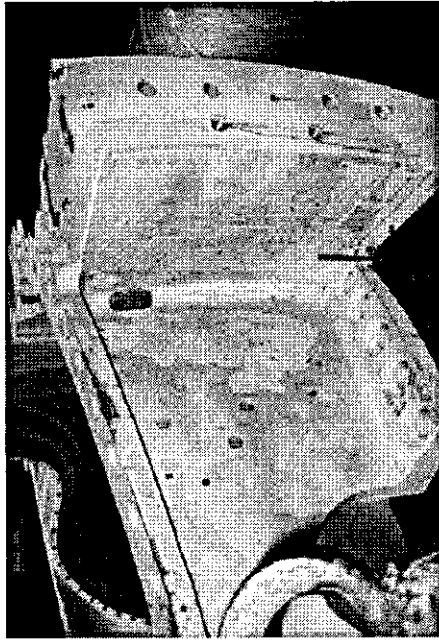
## C3 Liquid Penetrant Inspection Map of Indications

Area #8  
Shrink, inclusion pocket, unable to determine individual size  
bleed-out ranges from .200" to 1.25"



# C3 Liquid Penetrant Inspection Map of Indications

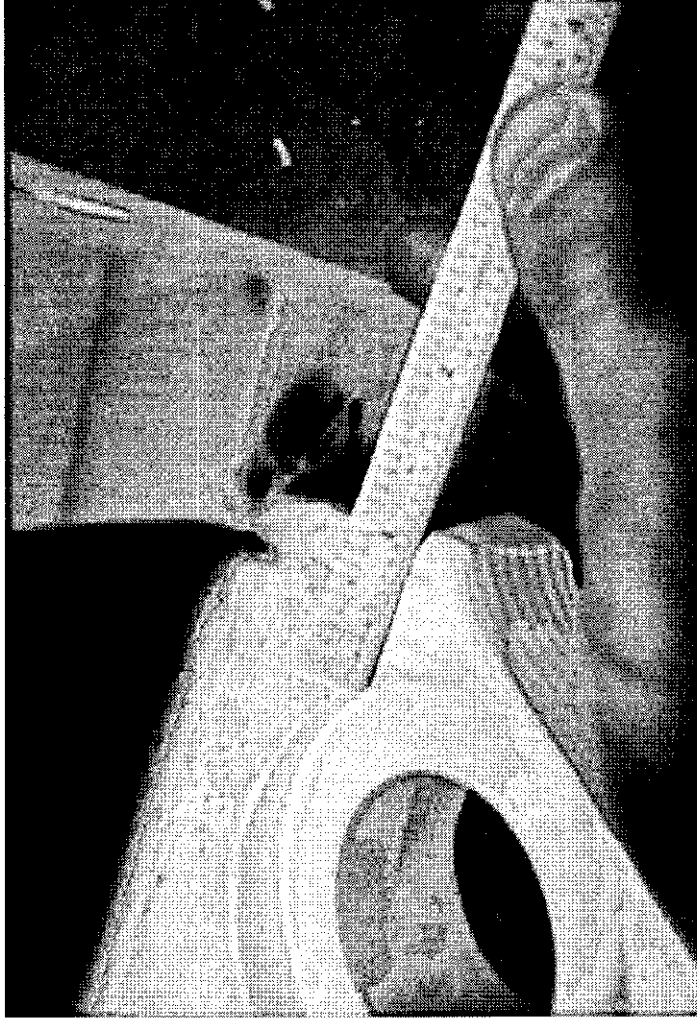
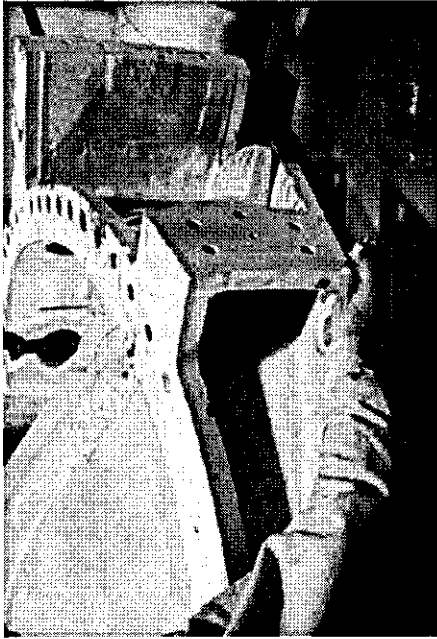
Area #9a  
Linear indications (size of discontinuity not bleed-out)  
.300" to .450"



# C3 Liquid Penetrant Inspection Map of Indications

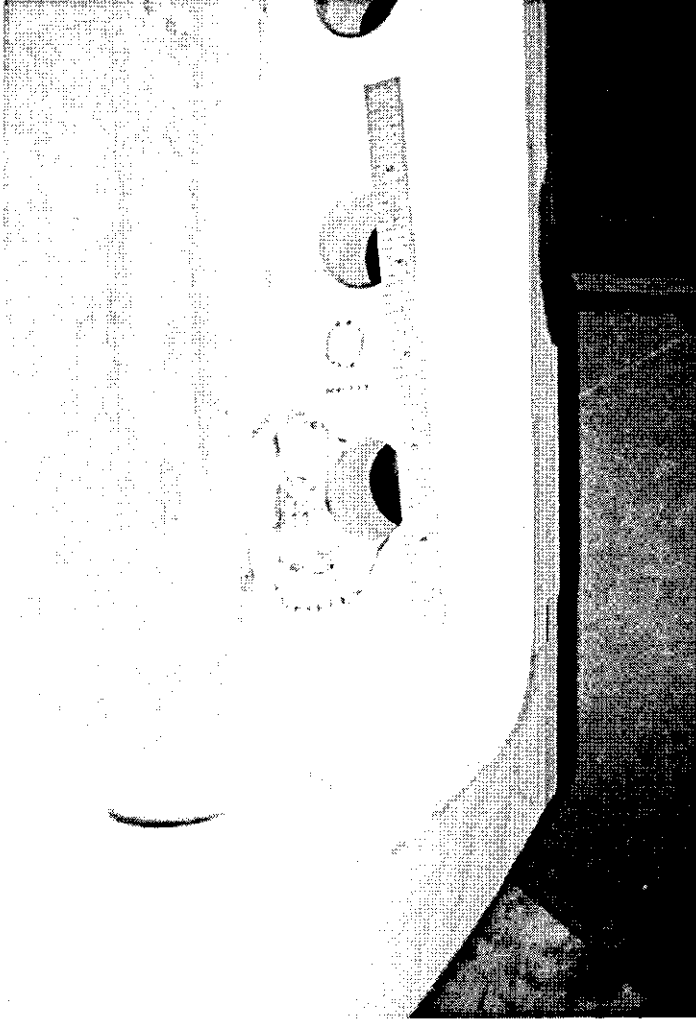
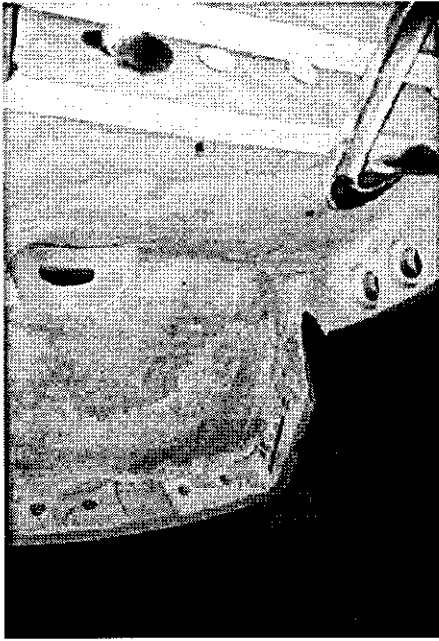
Area #9b

Large defect passes through from machined surface to non-machined surface



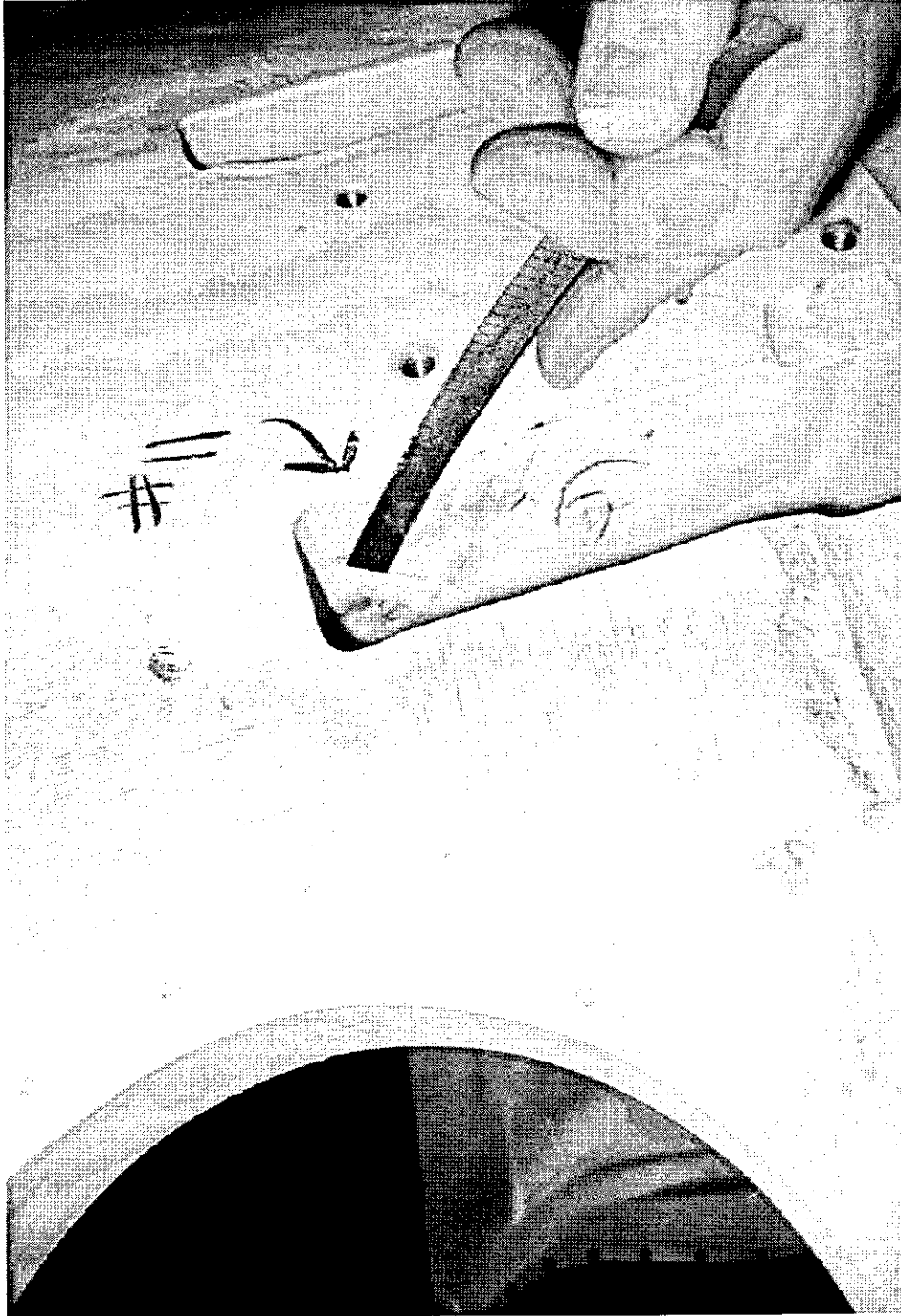
# C3 Liquid Penetrant Inspection Map of Indications

Area #10  
Shrink pocket .600" x .700"



# C3 Liquid Penetrant Inspection Map of Indications

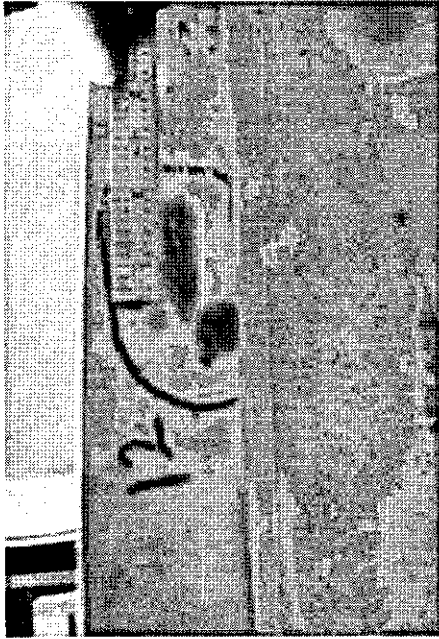
Area #11  
Linear indications (size of discontinuity not bleed-out)  
.400" to 1.200"



Kevin Bowling  
13-Feb-06

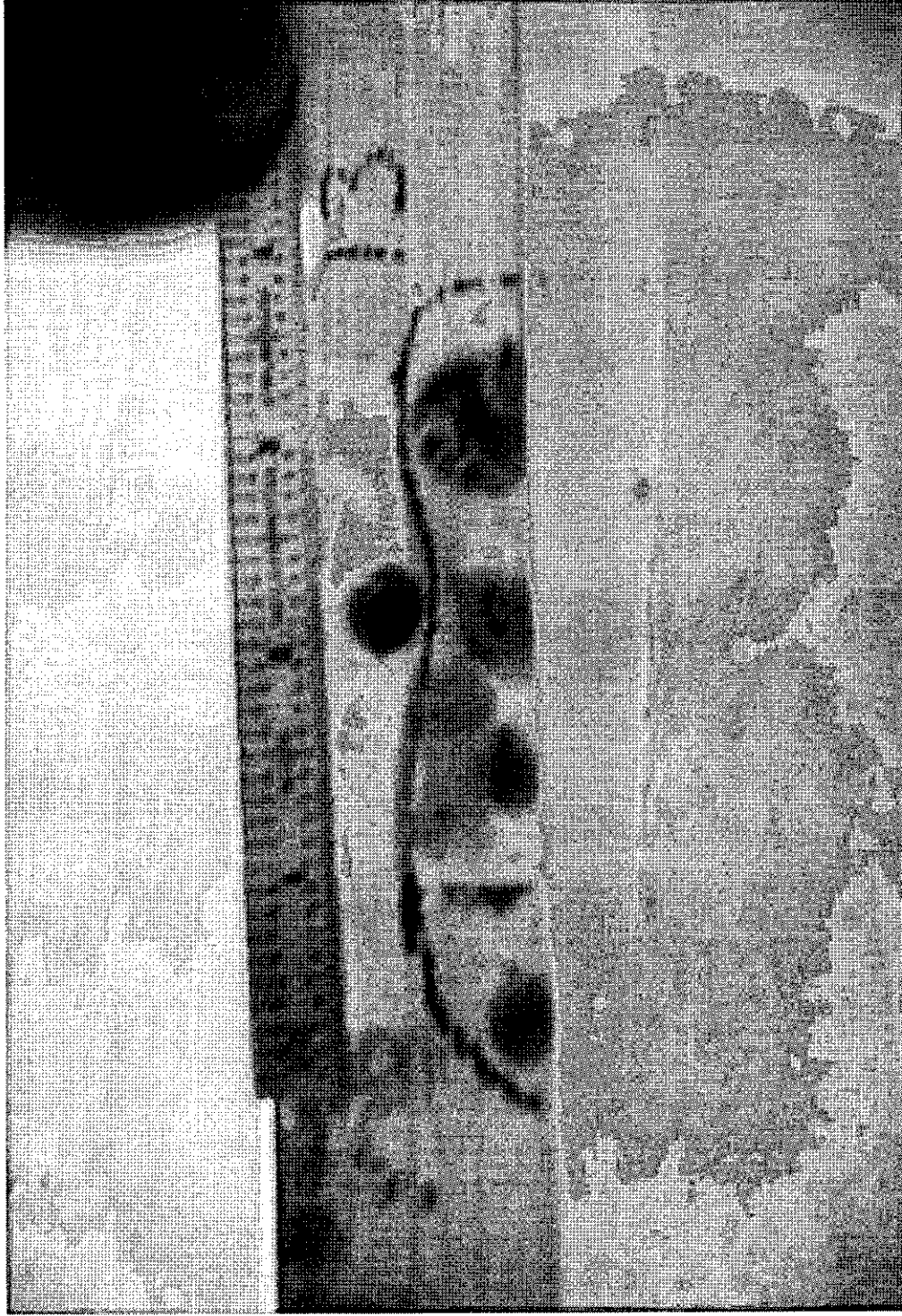
## C3 Liquid Penetrant Inspection Map of Indications

Area #12  
Linear indications (size of discontinuity not bleed-out)  
.100" to .800"



## C3 Liquid Penetrant Inspection Map of Indications

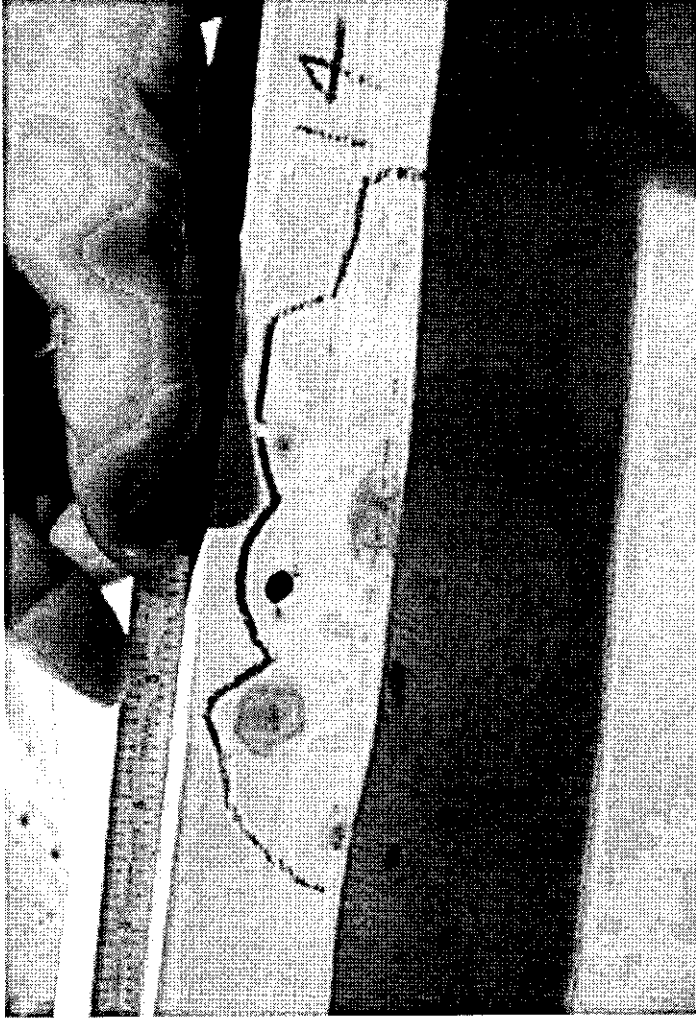
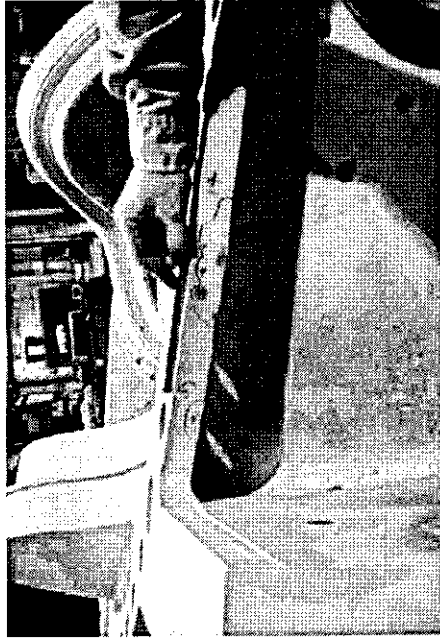
Area #13  
Linear indications (size of discontinuity not bleed-out)  
.200" to .350"





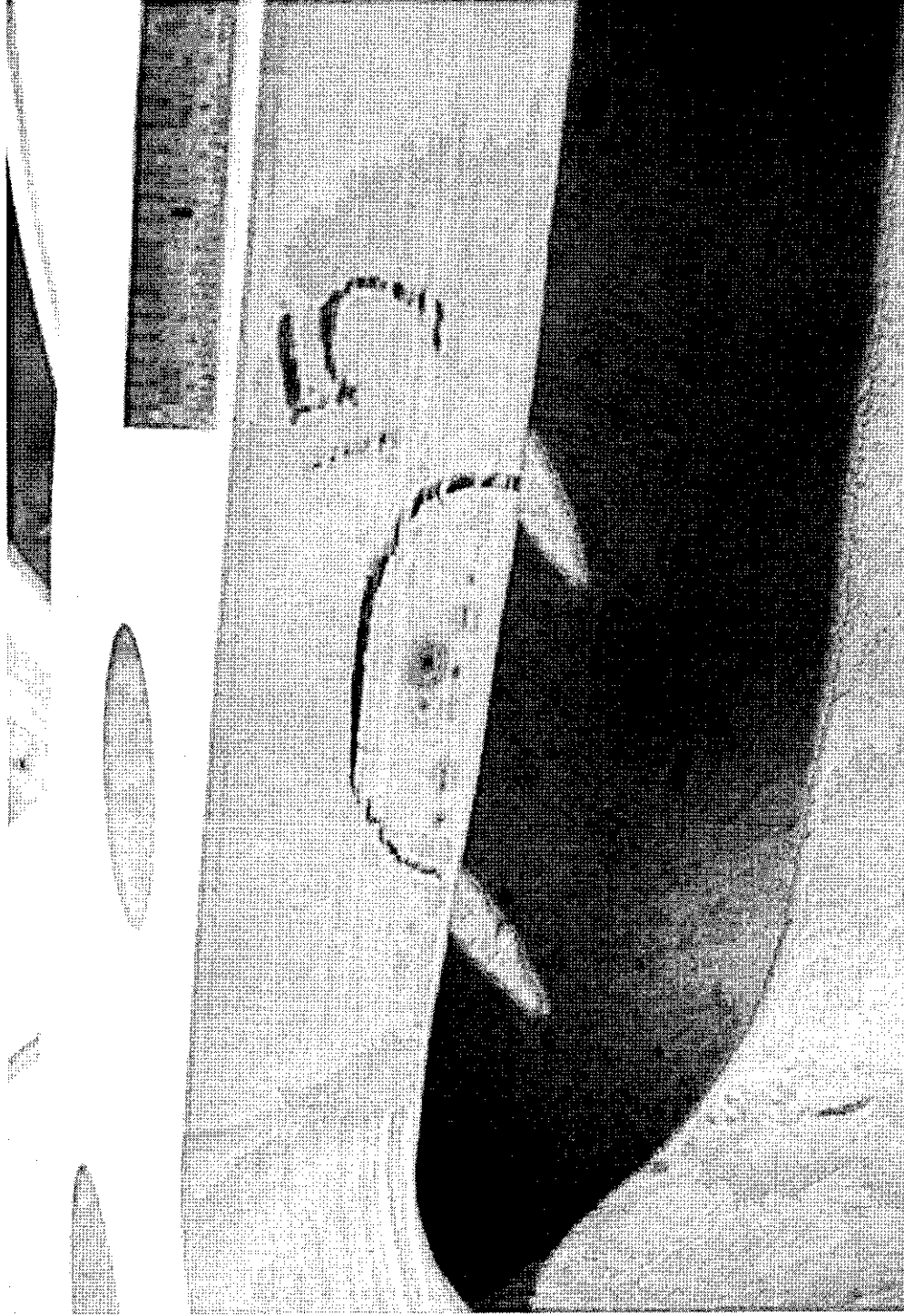
# C3 Liquid Penetrant Inspection Map of Indications

Area #14  
Linear indications (size of discontinuity not bleed-out)  
.100" to 1.250"



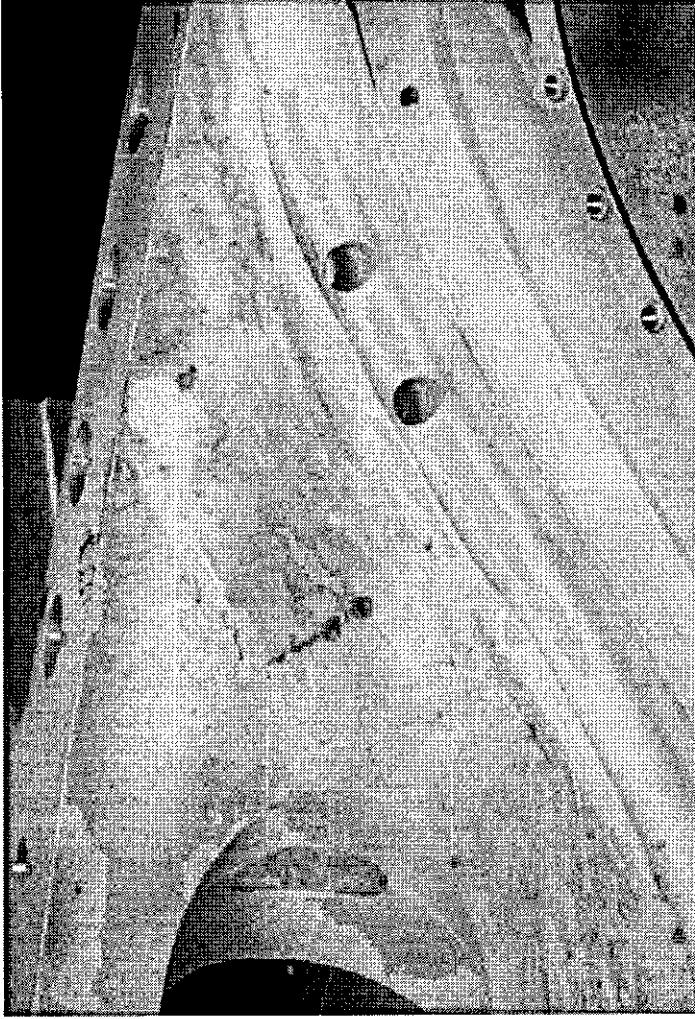
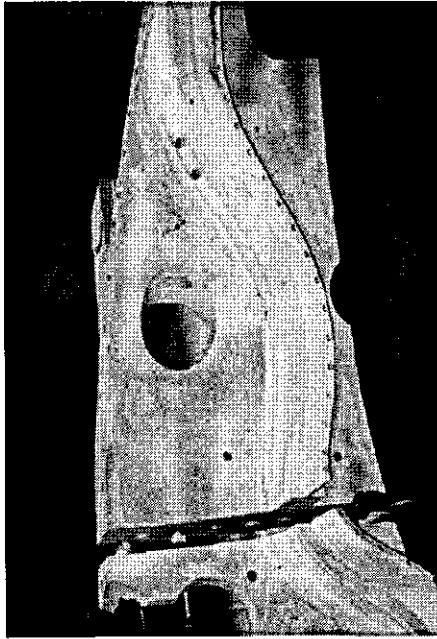
## C3 Liquid Penetrant Inspection Map of Indications

Area #15  
Linear indications (size of discontinuity not bleed-out)  
.100" to .300"



# C3 Liquid Penetrant Inspection Map of Indications

Area #16  
Linear indications (size of discontinuity not bleed-out)  
.100" to .250"



**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:3  
Serial No./Qty: C3

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

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

Problem: X-RAY FAILURE ON;  
LOCATION "T", VIEW 0-1, POROSITY, MORE THAN 50 INDICATIONS EXCEEDING .080". (section 4 on LPI indications map)  
LOCATION "T", VIEW 1-2, POROSITY, MORE THAN 5 INDICATIONS EXCEEDING .080".  
LOCATION "T", VIEW 2-3, POROSITY, MORE THAN 5 INDICATIONS EXCEEDING .080".  
LOCATION "T", VIEW 0-(-1), POROSITY, MORE THAN 20 INDICATIONS EXCEEDING .080". (section 3 on LPI indications map).

SOME OF THESE FAILURES WERE ALSO REPORTED AS PT FAILURES UNDER NC19269.

**Proposed Disposition:**  
RECOMMEND TO USE AS IS.

Number of additional pages: X-RAY MAP AND READER SHEET ATTACHED.

**Customer Disposition:**     Use As Is     Rework     Repair     Scrap     Replace

PPPL. Reviewed the radiographic films. The one of concern was location T. 0-1. At NCSX's request, the indications were ground to a depth of 0.040 inches. Although some of the indications were lessened, many remained. In parallel ORNL reviewed the stresses and the casting in this area. They found that the stresses were low-and a range of 40 to 70 MPA. Consequently with the stresses so low, we agree with the record recommended disposition to use as is.

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

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: 2006.02.23 17:42:11 -05'00'

Brad  
Nelson

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US,  
o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.02.24 16:16:47  
-05'00'

Tech rep

RLM

n:\mtmapps\Mtnonc14.qrp

**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: 65707-3 XRAY MAP Revision: --

Customer P.O.: S005242-F/Ln:3  
Serial No./Qty: C3

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

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

Problem: X-RAY FAILURE ON;  
FLANGE 1, VIEW 0-1, POROSITY, MORE THAN 10 INDICATIONS EXCEEDING .080".  
FLANGE 2, VIEW 0-1, POROSITY, MORE THAN 20 INDICATIONS EXCEEDING .080".

THIS REJECTION REPORT IS A SUMMARY OF DEFECTS THAT WERE DETECTED AS A RESULT OF THE X-RAY REQUIREMENT FROM THE DISPOSITION OF NC18776.

**Proposed Disposition:**

RECOMMEND TO USE AS IS.

Number of additional pages: X-RAY MAP AND READER SHEET ATTACHED.

Customer Disposition:  Use As Is  Rework  Repair  Scrap  Replace

A conference call was held between MTM, PPPL, and ORNL on February 21 to review these indications. Based on these discussions, we agree with the proposed disposition to use as is.

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

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

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

Phil  
Heitzenroeder

Digitally signed by Phil  
Heitzenroeder  
DN: CN = Phil Heitzenroeder, C =  
US, O = PPPL, OU = Mech. Eng.  
Division  
Reason: I am approving this  
document  
Date: 2006.02.23 17:55:42 -05'00'

Brad  
Nelson

Digitally signed by Brad  
Nelson  
DN: cn=Brad Nelson,  
c=US, o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.02.24 16:17:33  
-05'00'

Technical Contact Approval:

RLM Approval:

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

MTM N/C: 19298

Page: 1  
Date: 02/21/06  
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: SE141-116 / MODULAR COIL WINDING FORM TYPE  
Drawing ID: SE141-103                      Revision: 3

Customer P.O.: S005242-F/Ln:3  
Serial No./Qty: C3

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

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

**Problem: Tool Marks, Gouges and Blended Areas on T Section**

- #1 .700" L x .100" W x .004" D
- #2 .700" L x .400" W x .012" D
- #3 .300" L x .150" W x .014" D
- #4 1.5" L x .150" W x .080" D
- #5 1.0" L x .150" W x .060" D

#6 Step at outer surface Datum E flange adjacent to poloidal break  
1.950" L x 1.300" W x .225 D SEE ATTACHMENT

**Proposed Disposition:**

PROPOSE TO USE AS IS.

Number of additional pages: 9 pictures

Customer Disposition:     Use As Is     Rework     Repair     Scrap     Replace

MTM notes that corrective actions have been taken to avoid the large step mistakenly machined at location six shown in the attached photos.

Mike  
Griffith

Digitally signed by Mike Griffith  
DN: CN = Mike Griffith, C = US, O =  
Major Tool and Machine, OU =  
CFT White Team  
Reason: I agree to the terms  
defined by the placement of my  
signature on this document  
Date: 2006.03.29 14:13:44 -05'00'

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

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

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: 2006.02.21 15:21:22 -05'00'

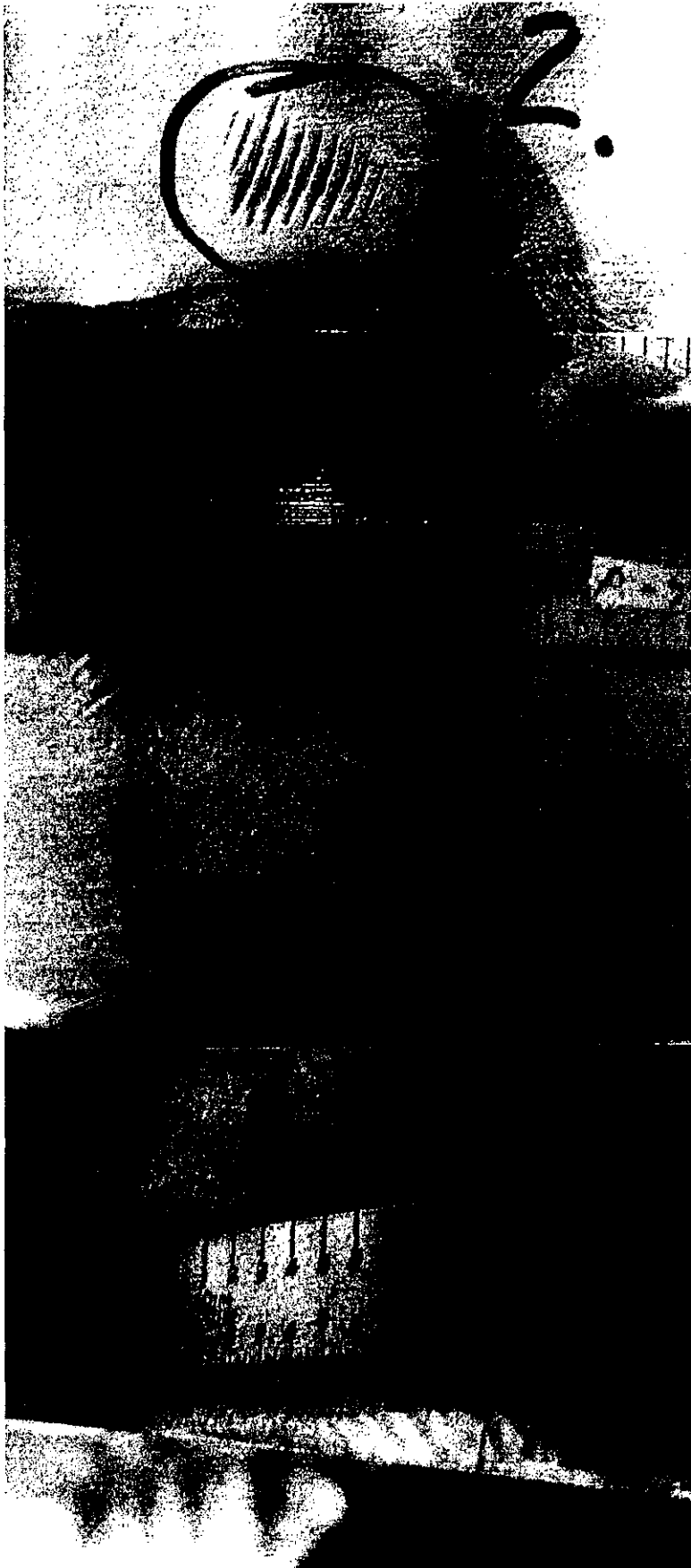
Brad  
Nelson

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US,  
o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.02.21 17:41:32  
-05'00'

Tech. Rep.

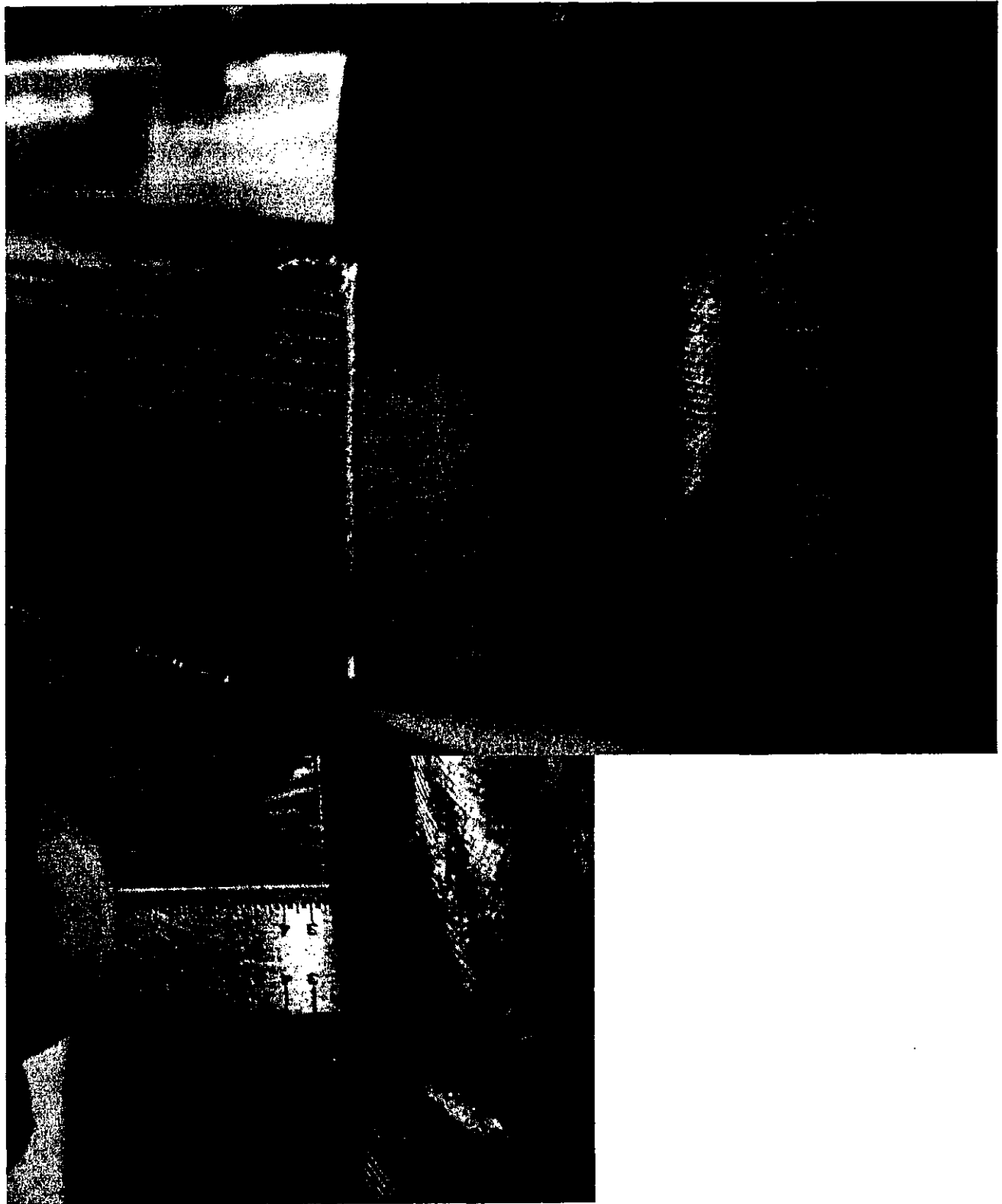
RLM

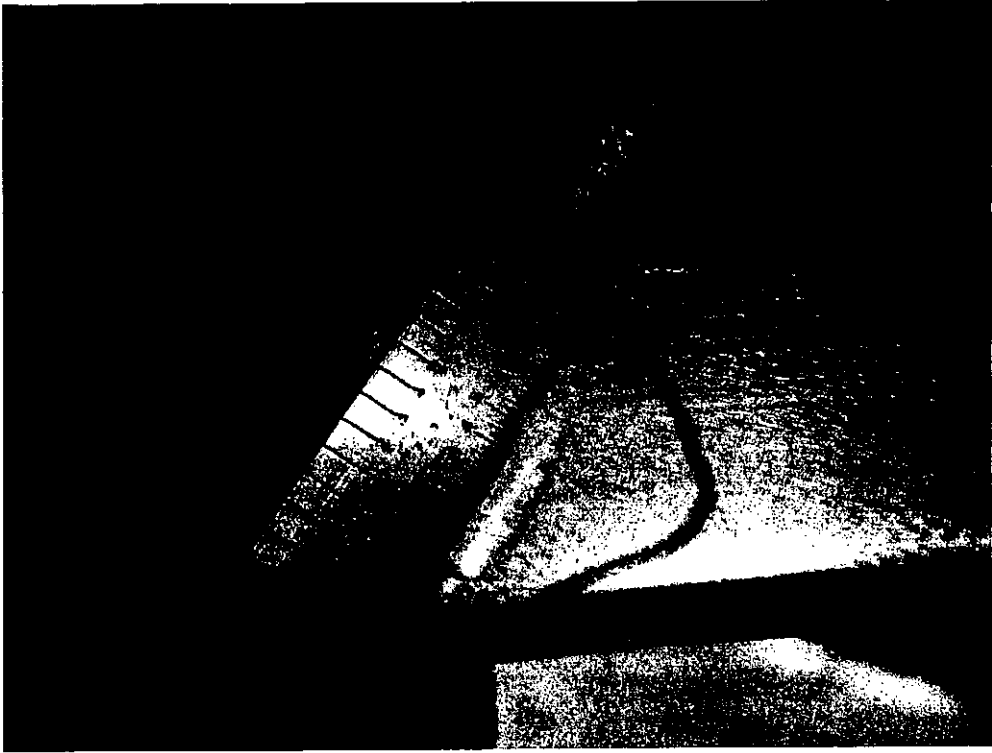
n:\mtm\mpe\Wmnc14.qrp











EASTWOOD MANUFACTURING  
CERTIFICATION OF COMPLIANCE

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

DATE: 5-16-05  
OUR NUMBER 32984

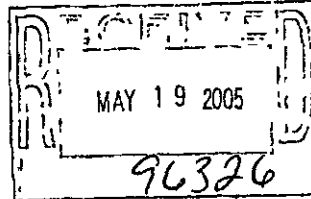
WE CERTIFY THAT THE MATERIALS SUPPLIED ON YOUR ORDER  
LISTED ABOVE COMPLIES WITH THE REQUIREMENTS OF YOUR ORDER  
AND OF THE SPECIFICATIONS LISTED BELOW

DESCRIPTION:

Lot No.	Part.	Heat No.	
32984-1	DS141-036	8969595	1 7/16 Round, machined to size
28 PIECES	ASTM A286		Heat Treat. 36891
	Silver plated		Silver plate. IMF 00132583
	Per AMS2410		Post plate bake. SEI 37905
			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



1-4  
B-1

studs

MTM 03 5/19/05



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  
PART NUMBER : SH 47670  
ORDER NUMBER: 12-52585-06 821  
HEAT : 8369595  
CHARGE ADDRESS

PURCHASE ORDER DATE: 05/24/04  
ACCOUNT NUMBER : 27759001  
SCHEDULE : 5882B-

*Systems*

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

FRY STEEL COMPANY  
BUNNIE ISAKA  
C/O CMI  
4201 N 35TH 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 BORING SPEC BMS 7-280 ASTM A 331-95 ASTM A  
108-03 LEVEL 1 MIL S 5000E COND E-4 EXC MARK AMS 6415R EXC BHN AMS 6409B AMS  
2310E AMS 2301J AMS 2304A AMS 6484B AMS -S- 5000 TSS 3/99 COND E-4 EXC MARK &  
PARA 4.3 EF-AISI-E-4340 AIRCRAFT Q DEL TRANSV MECH PROP COLD DRANN NOR  
M & SUBCRITICAL ANN BEFORE CD REST CREM

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

TENSILE	REDUCTION AREA
10102	185010.
10302	180280.
10303	185240.
10304	185240.
10305	185240.
10306	185240.
10307	185240.
10308	185240.
10309	185240.
10310	185240.

DEVELOPED TRANS	ASTM E8	ASTM A370	TEMPER 1
TENSILE	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
10102	262320.	47.0	10.4
10302	264250.	44.8	12.4
10303	262170.	44.6	14.3
10304	261840.	43.9	11.4
10305	261260.	43.3	12.9
10306	261050.	43.3	12.9

*32984*

*19/10/05*

ANAN BHATIA  
GEN MGR COLD FINISH OPERATIONS

*Anan Bhatia*

MTH 80  
*5/19/05*



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: 8# 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	TEMPER 1
NORMALIZE		AUSTENITIZE	QUENCHANT	DEG F
DEG F		DEG F	OIL	DEG F
1650.		1500.		475.
TEMPER 2/SR		TEMP 1 TIME	TEMP 2 TIME	
DEG F		HOURS	HOURS	
475.		2.0	12.0	
TENSILE		YIELD (.20)	REDUCTION AREA	ELONGATION
PSI		PSI	PERCENT	PERCENT
PCE H	10102	256220.	218900.	35.8
PCE H	10302	260560.	221410.	9.7
PCE H	10503	254270.	220610.	10.6
PCE H	30101	263550.	222210.	14.6
PCE H	30302	261190.	223640.	35.4
PCE T	30504	258710.	221100.	46.8
				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 25 28 30 32  
58 58 57 57 57 57 56 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 TOTAL DEPTH SAE J415 ASTM E1077  
INCHES  
PCE 01 .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.

AMAN BHATTIA  
GEN MGR COLD FINISH OPERATIONS  
*Aman Bhattia*

MTM  
05/19/05

*32024*



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: 12-52485-06 821  
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 STATUTE 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

PRY 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

AMAN BHATIA  
GEN MGR COLD FINISH OPERATIONS

*Aman Bhatia*

WITH GS 5/14/05

84/22/2005 12:14

7138958986

WH LABORATORIES

PAGE 82

**Tensile Test Report**

Company: Eastwood Mfg. Date: 4/22/2005  
 Lab Report #: 05-0420-01  
 Attention: Date Stark P.O. #: 32984  
 Identification: AISI 4340  
 Procedure: 1-3/8" O.D.  
 Process: \_\_\_\_\_  
 Filter: Heat#8969585  
 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	31,880	34,700	159,700	174,000

Elongation	Reduction of Area	Fracture	Comments
18.2%	52.3%	Ductile	

Tests performed in accordance with ASTM A370, E8, and WH Laboratories, LLC Quality Assurance Manual.  
 2% Offset Yield - Gauge Length 2.000" for 360° 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

MTM 05 5/19/05

MAY-13-2005 12:55 FROM:

TO: 2814470098

P:2/2

### SEI HEAT TREAT

PO BOX 14339 HOUSTON, TX 77212  
PHONE (713) 689-3892 FAX (713) 684-0891

<b>CUSTOMER:</b> EASTWOOD MANUFACTURING	<b>CERTIFICATION DATE:</b> MAY 11, 2005
<b>CERTIFICATION/SO NUMBER:</b> 37905	<b>CUSTOMER ORDER NUMBER:</b> 32984

<b>MATERIAL:</b> 4340	<b>NUMBER OF PIECES:</b> 28
<b>DESCRIPTION:</b> 1-3/8" X 8" STUDS 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
Bake	950°	AIR

<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>Louis</i>
---	---

32984

32984

MTM 09 5/19/05



Part Number (Detail / Sub-Asy / Asy) DS141-036	Rev. Part Name (Detail / Sub-Asy / Asy) 1	Page 1
Stud, 1.375-6 2A x .9 Lg		Quantity 126
MATERIAL: WORK ORDER # 32984		

**INSPECTION DATA CHECK LIST**  
FOR  
Major Tool & Machine Inc.

**Eastwood Manufacturing**  
8825 Breen Rd.  
Houston, Texas 77086  
(281) 447-0081 fax (281) 447-0098

P.O. P05-01160

SHT	ZONE	P.O. - DRAWING - SPECIFICATION DESCRIPTION	INSPECTION INSTRUCTIONS			INSPECTION RESULTS			
			GAGE/EQUIP.	BY	SAMPLE	DATA	CAR NO.	REMARKS	
		Length 9.00 +.25 -.00	Caliper #20	ns	25	9.025	- 9.017	NS	5-5-05
		4.50	Caliper #200	ns	28	4.50		NS	5-5-05
		Pitch							
		Dia. 1.2513 - 1.256	Mic. 1-2	ns	28	1.261	- 1.257	NS	5-5-05
		Body Dia. 1.375 +0000 -.0012	MIC #207 #2 MIC 1-2	ns	25	1.3748	- 1.3749	NS	5-5-05
		Thread	Cage #G017	ns	25		ok	NS	5-5-05
		MOCO	#G017N						

COMMENTS: RECORD ALL DIMENSIONS THAT CARRIES A TOLERANCE OF (+) .25mm OR LESS.

MTM  
09 5/19/05

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 22984 LISTED ON OUR INVOICE #00122581  
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: *Tair McElroy*

TITLE: *QC Manager* DATE: *5/10/05*

*22984*

 *5/19/05*

EASTWOOD MANUFACTURING  
CERTIFICATION OF COMPLIANCE

CUSTOMER: MAJOR TOOL AND MACHINE  
ORDER #: P05-0116#

DATE: 5-16-05  
OUR NUMBER 32982

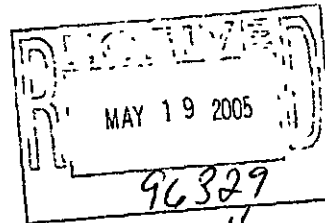
WE CERTIFY THAT THE MATERIALS SUPPLIED ON YOUR ORDER  
LISTED ABOVE COMPLIES WITH THE REQUIREMENTS OF YOUR ORDER  
AND OF THE SPECIFICATIONS LISTED BELOW

DESCRIPTION:

Lot No. 32982-1	56 PIECES	Part DS141-060 ASTM A286 Silver plated Per AMS2410	Heat No. 8977349	1 5/8 Round, forged and machined to size Heat Treat. 36891 Silver plate. IMF 00132583 Post plate bake. none Tensile test. WH 05-0426-20
--------------------	-----------	--	---------------------	---

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

DALE STARK  
EASTWOOD MANUFACTURING



1-4  
B-7



*Washers*      *NUTS*



GARY COLD FINISHED BAR PLANTS  
PHONE: 219-886-8129 FAX: 219-886-8123

CERTIFICATE OF TESTS REPUBLIC ENGINEERED PRODUCTS SEPTEMBER 27, 2004  
PAGE: 1 OF 2

PURCHASE ORDER: 4271425 PURCHASE ORDER DATE: 03/11/04  
PART NUMBER: S# 51250 ACCOUNT NUMBER: 27759001  
ORDER NUMBER: 12-51689-04 823 SCHEDULE: 54199-  
HEAT: 8977349  
CHARGE ADDRESS SHIP TO

6/11/05

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 ASTM A 331-95 ASTM A 108-03 LEVEL 2 MIL S 5626C  
& AMD 1 COND C-4 EXC MARK & PARA 4.3.1 & 4.12.1 WAIVED AMS 6382M AMS 2304A AMS  
6349C EXC THERMAL TREATMENT AMS 2301J AMS - S - 5626 ISS 12/98 EXC PARA 4.3.1 &  
4.12.1 EF-AISI-4140 AIRCRAFT Q TURNED & POLISHED ANN BEFORE TURN

SIZE: RDS 1.6250 X 11-1/13FT. LADLE CHEMISTRY  
C 0.42 MN 00.90 P .011 S .020 SI 0.24 CU 0.18 NI 00.16 CR 00.97 MO 0.21 AL 00.027  
V 0.004 N .0067 CB 0.002 SN 009

SEMI-FINISH RESULTS  
AUSTENITIC GRAIN SIZE: AUST GRAIN SZ 7  
JOMINY STD EAE 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 57 57 56 56 56 55 55 53 52 50 48 47 45 44 43 40 39 38 38 38 37 38 37

MACROETCH SRC ASTM E361 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: 54199  
BHN HT TRTD (LAB) ASTM E10 ASTM A370  
PCE 01 SURFACE 187  
PCE 02 SURFACE 187  
PCE 03 SURFACE 187  
PCE 04 SURFACE 187  
PCE 05 SURFACE 187

5/18/05

MATERIAL SOURCES  
RED. RATIO  
TO 1  
58.2

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 E 327 ASTM E 1086 ASTM E 415 ASTM E 1019 ASTM E 1085 ASTM E572.  
NO WELDING OR WELD REPAIR WAS PERFORMED ON THIS MATERIAL

AMAN BHATIA  
GEN MGR COLD FINISH OPERATIONS  
*Amn Bhatia*

5/15/05  
MTM 03



GARY COLD FINISHED BAR PLANTS  
PHONE: 219-886-8129 FAX: 219-886-8123

CERTIFICATE OF TESTS REPUBLIC ENGINEERED PRODUCTS

SEPTEMBER 27, 2004

PAGE: 2 OF 2

PURCHASE ORDER: 42714-5  
PART NUMBER: SW 51250  
ORDER NUMBER: 12-51689-04 823  
HEAT: 8977349

PURCHASE ORDER DATE: 03/11/04  
ACCOUNT NUMBER: 27759001  
SCHEDULE: 54199-

NOTES (CONTINUED)

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

CERTIFICATE OF TESTS SHALL NOT BE REPRODUCED EXCEPT IN FULL.

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

MFG IN THE U.S.A.

EVELYN GREENE  
NOTARY PUBLIC, STATE OF INDIANA  
MY COMMISSION EXPIRES OCTOBER 10, 2009

END OF DATA CC  
FAX BY FAX PC 1 COPY ATTENTION BUNNIE ISAKA 562-802-7481  
MAIL SOLD TO 1 COPY ATTENTION BUNNIE ISAKA  
FILE 1 COPY  
WITH SHIPMENT 1 COPY PRINTED AT SHIPPING AREA

REPUBLIC CO CERTIFIES THAT THIS IS  
A TRUE COPY OF THE ORIGINAL MILL TEST  
REPORT NON S.P.H.

OCT 05 2004

*Bunnie Isaka*  
BUNNIE ISAKA - QA ENGINEER

AMAN BHATIA  
GEN MGR COLD FINISH OPERATIONS

*Aman Bhatia*

5/15/05  
MTM  
05

04/27/2005 07:39 7136958985

WH LABORATORIES

PAGE 02

**Tensile Test Report**

Company: Eastwood Mfg. Date: 4/27/2005  
 Lab Report #: 05-0428-20  
 Attention: Dale Stark P.O. #: 32882  
 Identification: AISI 4140  
 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	.0489	7,140	8,000	143,100	180,400

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 - Gauge Length 2.000" for .800", 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

5/19/05  


Part Number (Detail / Sub-assy / Assy)	DS141-060	Rev.		Page of	1
Part Name (Detail / Sub-assy / Assy)	Nut, 12 pt 1.375-6 UNC-2B				
MATERIAL:		WORK ORDER #	32982	Quantity	252

INSPECTION DATA CHECKLIST FOR  
 Major Tool & Machine Inc.

Eastwood Manufacturing  
 9825 Green Rd.  
 Houston, Texas 77086  
 (281) 447-0088 fax (281) 447-0098

F P05-01161

P.O. #	DRAWING - SPECIFICATION DESCRIPTION	INSPECTION INSTRUCTIONS			INSPECTION RESULTS			INSPECTED BY		
		GAGE/EQUIP.	BY	SAMPLE	DATA, CAR NO., REMARKS	MFG	QA	DATE		
	1.375 Maximum	Caliper #200	ns	25	1.375 - 1.370		NS	5-5-05		
	2.216 Maximum	Caliper #200	ns	25	2.210 - 2.205		NS	5-5-05		
	1.00	Caliper #200	ns	25	1.010 - 1.000		NS	5-5-05		
	Minor Dia. 1.195	Caliper #200	ns	25	1.210 - 1.205		NS	5-5-05		
	Thread GO - NOGO	gage 243	ns	25	ok		NS	5-5-05		
	Across Flat 1.62	Caliper #200	ns	25	1.62		NS	5-5-05		

CONFIRM: RECORD ALL DIMENSIONS THAT CARRIES A TOLERANCE OF (+) .25mm OR LESS

5/19/05

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 12984 LISTED ON OUR INVOICE #00112581  
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

*Tair McPherson*  
NAME:

*QC Manager* *5/10/05*  
TITLE DATE

*12984*

*5/19/05*  




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

**YOUR PURCHASE  
ORDER NUMBER**  
P05-01260  
Today's Date:

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  
**MCM NUMBER**  
6148181-02

Warehouse Location	McMaster Carr Part Number	FR Quantity	Item Description	Your Line	Your Order	This Shipment
<b>P A C K I N G L I S T  E X T R A</b>	74765 AB6	1 EA	LOCTITE PRISM SUPER GLUE TOUGHENED, NUMBER 411, 1-POUND BOTTLE, CLEAR	3	1 EA	1
	74765 AB6	1 EA	LOCTITE PRISM SUPER GLUE TOUGHENED, NUMBER 411, 1-POUND BOTTLE, CLEAR	4	1 EA	1
	74765 AB6	1 EA	LOCTITE PRISM SUPER GLUE TOUGHENED, NUMBER 411, 1-POUND BOTTLE, CLEAR	5	1 EA	1
	74765 AB6	1 EA	LOCTITE PRISM SUPER GLUE TOUGHENED, NUMBER 411, 1-POUND BOTTLE, CLEAR	6	1 EA	1

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

MCM  
05  
3/9/05

REFER TO: 6148181-02  
MAJOR TOOL & MACHINE INC

**TAG  
CCP**

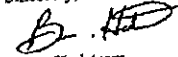
PACKS	NUMBER OF CARTONS	PILLER	LNS: 4
-------	----------------------	--------	-----------

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

MCM 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



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 City	
000001	39G1CNT73125NMWLF U/MSHT 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 lead 3.58076</i>					1.00000	

### 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 J. Cantillo Date: 05/17/2005

Customer Copy

Page # 1

Form: 3CSHIP Rev: 8/99

000/200

ATLAS FIBRE CO.

8847 674 1723

05/26/05 13:00



**Spaulding**  
COMPOSITES

56 Nadeau Drive  
Rochester, NH 03867  
Ph: (603) 332-5355 Fax: (603) 332-5357  
www.spauldingcom.com

Shipping List 072434

Customer No 101193  
Sales Order Shipper

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

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

Ship Date	Customer PO	Sales Order	# of Boxes	Weight	Ship VIA	Bill of Lading	FOB
05/17/2005	60624	063189-00	1	716	YELLOW	072434	DE
Item	Part / Description / Details				Order Quantity	Ship Qty	
000001	39G1CNT71850NMWLF U/M SHY 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  
MTM 09

**CERTIFICATE of CONFORMANCE**

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

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

Customer Copy

Page # 1

Form: SCSHIP Rev: 8/99

000/000

ATLAS FIBRE CO.

7847 674 1723

05/26/05 13:00

INSPECTION DATA CHECKLIST

Quality Assurance Documentation for Part ID: SE141-103 - Item: 16

Workorder: 65707/3-0 Sub:1 Op:140

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

Drawing ID: SE141-103 Rev: 3		INSPECTION INSTRUCTIONS		RESULTS		INSPECTED BY			
SHEET	ZONE	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
*		MULTIMETER	QA		J-1358	1.4 G-OHMS	503-B.H		
(10)									
*		MULTIMETER	QA		J-1358	2.2 G-OHMS	503-B.H		
(20)									

METRODE PRODUCTS LIMITED  
HANWORTH LANE, CHERTSEY

SURREY, UK, KT16 9LL

Tel: +44 (0) 1832 566721

Fax: +44 (0) 1832 565188

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

193695

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	W020132
SPECIFICATION	BS EN 12072:2000 W 20 18 3 Mn L

Chemical Analysis (Weight %)										Type: BS EN 10204: 3.1.B / ASME 8FA-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	Rp0.2 (MPa)	Rm (MPa)	A4 (%)	Z (%)	Temperature (°C)	Impact Energy (J)	Lateral Expansion (mm)					
AS-WELDED	ROOM	>400	>600	40	-	-196	70	-					

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

This document is produced electronically and is valid without signature.

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

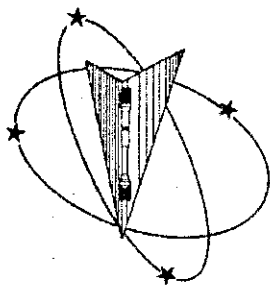
Berrie Kyles - Q.A. Manager

ASME SFA-5.01; Lot classification S4

3/3/05  
93911  
Linc B.1

Notes:  
% Mn (C) includes incidental Cu unless otherwise specified.  
% Mn (C) includes incidental Fe unless otherwise specified.  
Porosity is given as FH (Fillet number) and measured on air-weld gas using instrument calibrated against NBS-related secondary standards (see AWS A5.3-97) unless otherwise specified.

MTHA  
G9  
3/7/05



**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.*

April 22, 2005

Major Tool & Machine Inc.  
1458 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  
PQR No. 434  
Welder Jason Bever #465



621-01 & 621-02



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: Metalek CF8MNMN MOD**

**SAMPLE TYPE: Charpy V-Notch**

**DISPOSITION: Report**

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

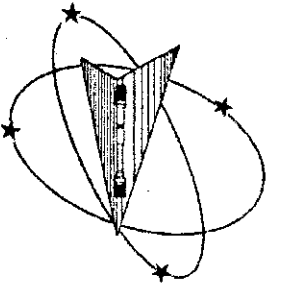
AIUR: A=ACCEPTABLE, U=UNACCEPTABLE, R=REPORT

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Testing Specialists for Aerospace, Automotive, and Material Testing Fields  
Locations in Youngstown, PA U.S.A. ~ Tel. (724) 537-3131 and  
Garbury U.K. ~ 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

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
T1	B65833	-320/-196	191.8/1320	148.7/1030	27	39	28.7/198	2630/11699	2039/9071

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

DISPOSITION: Report

Specimen ID	TestLog Number	Orig. Width (in./mm)	Final Width (in./mm)	Orig. Thick (in./mm)	Final Thick (in./mm)	Orig. Dia. (in./mm)	4D Orig. GL (in./mm)	4D Final GL (in./mm)	Orig. Area (Sq. In./Sq. mm)	Failure Location/Type	Machine Number	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

**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**



E21-01 & G21-02



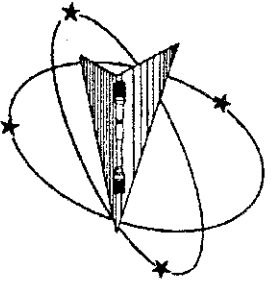
Section 1 of 2  
WMT&R Report No. 5-25008  
P.O. No. P05-01764  
PQR No. 434  
Welder Jason Bayer #465

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

April 20, 2005

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

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April 20, 2005

Major Tool & Machine Inc.

**CERTIFICATION**

*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.

**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 ER316MnHf**

**DISPOSITION: Report**

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

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

DISPOSITION: Report

Specimen ID	Testlog Number	Orig. Dia. (in./mm)	Final Dia. (in./mm)	4D Orig. GL (in./mm)	4D Final GL (in./mm)	Orig. Area (Sq. In./Sq. mm)	Failure Location/Type	Machine Number	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



621-01 & 621-02



Section 2 of 2  
 WMTR Report No. 5-25008  
 P.O. No. P05-01764

*Matthew Stoyan*  
 Roy E. Stammatt Wojcik  
 Technical Services Manager / Test Site Supervisor

April 20, 2005

*4-20-05*

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

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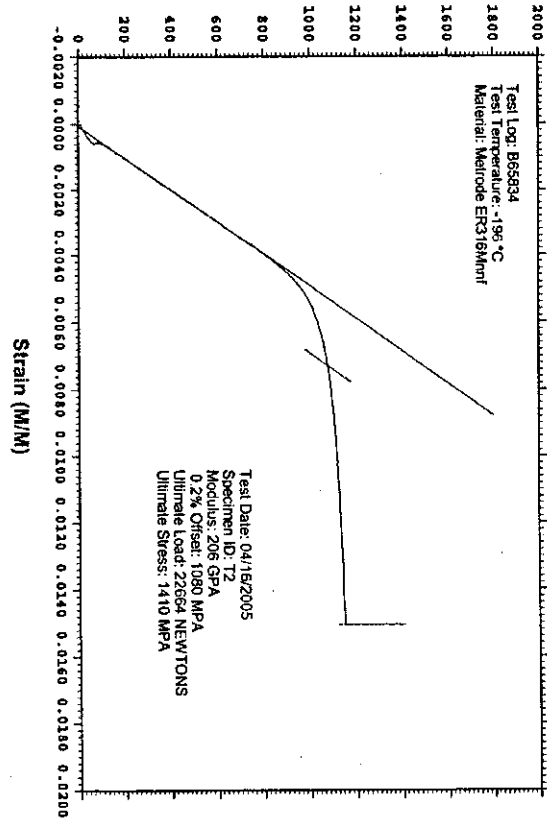
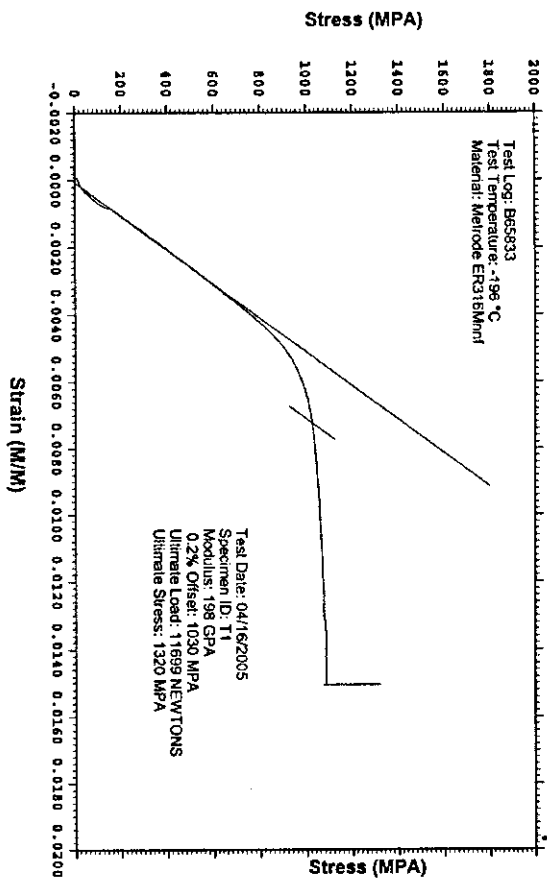
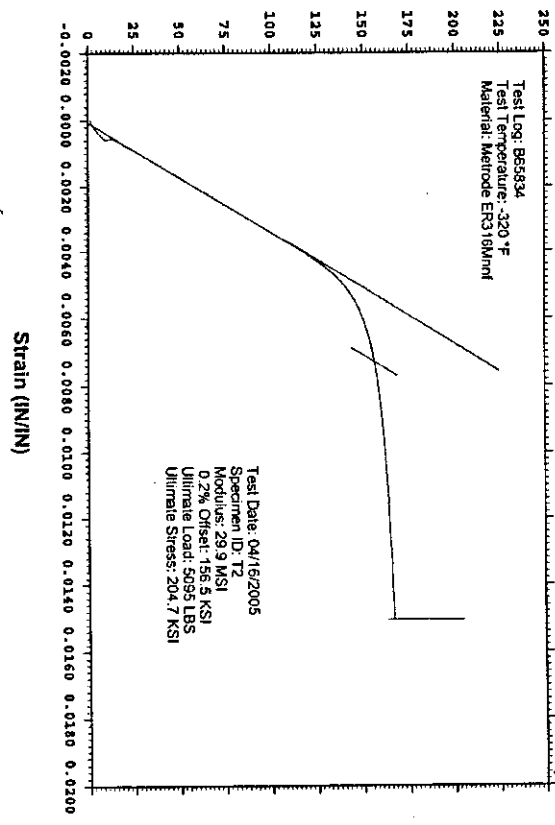
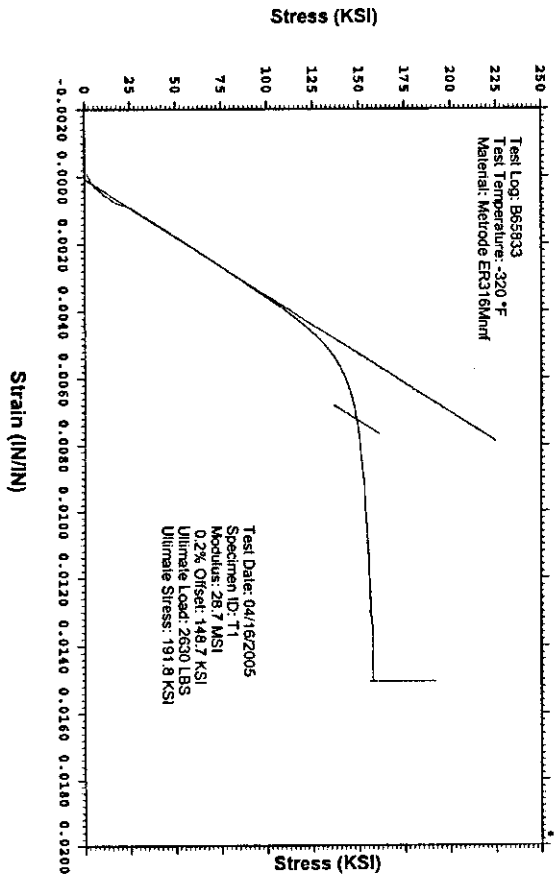
**WESTMORELAND MECHANICAL TESTING & RESEARCH, Inc**

Stress vs. Strain

Phone: (724)537-3131

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

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



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# GE Advanced Materials, Polymershapes

## Certificate of Conformance

Date:

Attn: Receiving Inspection  
 To: Major Tool + Machine  
 Address: 1438 E. 19th St.  
Indianapolis, IN 46218

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

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

Quantity	Description	Lot/Specification/Standard Number
36	Glick Plendic sheet .062" THK X 16" X 38"	NO SPEC / N38.009023

MTM 09  
 4/5/05

APR - 5 2005  
 94942  
 1-18

GE Advanced Materials, Polymershapes

By: Ernest Evans  
 Title: Warehouse Worker

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# Nondestructive Test

## Certification for Liquid Penetrant Examination

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

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

**Date of Inspection:** 02/16/2006      **Type of Material:** CAST STAINLESS      **NDT#:** 15679

<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 checked="" type="checkbox"/> Other FINAL MACHINED & AS CAS	<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: 65707/3.0 -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 #: 19269
--	---	--

<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> 520-H6	<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:**

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

ACCEPTANCE CRITERIA: ASTM A903/A903M LEVEL II FOR AS CAST SURFACES

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-19269 AND PHOTOS FOR MORE DETAILED INFO.

THIS PENETRANT INSPECTION ALSO INCLUDES THE REINSPECTION OF DISCONTINUITES THAT WERE WELD-REPAIRED THAT WERE DISCOVERED DURING MACHINING OPERATION, AS NOTED IN NC 18607.

THE THE LPI EXAMINATION OF THE WELD REPAIR AREA(S) WAS FOUND TO BE ACCEPTABLE.

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

**Inspector:** 581-D.EDWARDS

**Date:** 02/16/2006

*Douglas D. Edwards Level II*





Major  
Tool & Machine, Inc.

### INSPECTION DATA CHECKLIST

Page: 2  
Date: 03/29/06  
User ID: GRIFFIT#

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

Workorder: 65707/3-0 Sub:1 Op:130

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

Drawing ID: SE141-103 Rev: 3		INSPECTION INSTRUCTIONS		RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
2*	D3	Ø.001 - Ø.002 CHECK CLEARANCE OF ITEM 5 TO ITEM 6.	FEELER GAGES	MFG	J-1144	ACCEPT	242-M.G	339-E.R	A
(10)				QA			02-15-06	02-15-06	
2*	F2	ENSURE THAT POLOIDAL BREAK GAP DOES NOT EXCEED .002"	FEELER GAGES	MFG	J-1144	.013" SHIM WILL ST ART / GAP THROUGH I S <.002"	242-M.G	339-E.R	R
(20)				QA			02-24-06	02-15-06	



Major Tool & Machine, Inc.

INSPECTION DATA CHECKLIST

Quality Assurance Documentation for Part ID: SE141-116 - Item: 23

Workorder: 65707/3-0 Sub:1 Op:134

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

Table with columns: SHEET ZONE, CHARACTERISTIC, GAGE/EQUIP, BY SAMPLE, SER#, DATA/REMARKS, INSPECTED BY. Includes rows for various zones (E8, B8, D6, C6, E6, B6, H6, G8) and characteristics like 47.19 ± .03, 47.19 ± .03, 47.19 ± .03, 47.19 ± .03, // .02 A, // .02 A, 2X R.187 +.025 - .005, 2X .03 X 45°, .40 ± .010, 2X .030 X 45°, 2X .32, 2X R.11, P T O M, 4.790 OR SHELL INTERSECT. VERIFY USING TEMPLATE PER DRAWING NOTE 16 (MTMFx-3473).



INSPECTION DATA CHECKLIST

Table with columns for Drawing ID, Characteristic, Inspection Instructions, Gage/Equip, By Sample, Ser#, Results, Data/Remarks, Insp, Verfd, Audit, and Inspected By. Includes rows for various inspection points like G3, E6, F3, E5, B5, G7, H3, H4, F3, F3.



**Major**  
Tool & Machine, Inc.

**INSPECTION DATA CHECKLIST**

Page: 5  
Date: 03/29/06  
User ID: GRIFFIT#

SHEET	ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS		RESULTS	INSPECTED BY
			GAGE/EQUIP	BY SAMPLE		
(260)		DATUM -D- FLANGE				
3*	E4	Φ.01   A   B   C 8X Ø1.13 THRU BACK SPOT FACE Ø2.38 MIN DEPTH FOR CUP	CMM	QA	.046 TO .056 / ACCE PT SPOTFACE	02-21-06 339-E.R
(280)						
4*	H8	Φ.060   D   A   N 3X Ø1.885 THRU	CMM	QA	.0054 TO .016	02-24-06 339-E.R
(290)						
4*	H8	3X Ø1.885 +/- .003 Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	1.885 - 1.890 / ACC EPT SPOTFACE	02-21-06 339-E.R
(291)						
		Drawing ID: SE141-116 Rev: 7				
		CHARACTERISTIC				
4*	H7	Φ   Ø.01   D   A   N 3X SPH R.75 TO .75 DEEP	CMM	QA	.0084 - .0986	339-E.R 02-21-06
(300)						
		Drawing ID: SE141-116 Rev: 8				
		CHARACTERISTIC				
4*	H6	Φ   Ø.060   D   A   N 17X Ø1.885 THRU	CMM	QA	.004 TO .104	339-E.R 02-24-06
(310)						
4*	H6	3X Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	1.882 - 1.884 / ACC EPT	339-E.R
(311)						
4*	H5	Φ   Ø.060   D   A   N 3X Ø1.13	CMM	QA	.0462 TO .0564	339-E.R 02-21-06
(320)						
4*	H5	3X Ø1.13 +/- .010 Ø2.38 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA	1.125 - 1.126 / ACC EPT SPOTFACE	242-M.G
(321)						
4*	E6	Φ   Ø.060   D   A   N 3X Ø1.375-6 UNC THRU	CMM	QA	.0096 TO .0316	339-E.R 02-24-06
(340)						
4*	E6	Φ   Ø.060   D   A   N 5X Ø1.885 THRU	CMM	QA	.0352 TO .0550	339-E.R 02-24-06
(350)						
4*	E6	5X Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	SCALE	QA	ACCEPT	339-E.R 02-21-06
(351)						



**Major**  
Tool & Machine, Inc.

**INSPECTION DATA CHECKLIST**

SHEET ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
4* (360)	Φ   Ø .060   D   A   N Ø1.885 THRU	CMM	QA		00064	0.1088	339-E.R 02-21-06		R
4*	Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	SCALE	QA		J-922	ACCEPT	339-E.R		A
4* (370)	Φ   Ø .060   D   A   N 3X Ø1.13	CMM	QA		00064	.046 TO 0.1008	339-E.R 02-24-06		R
4*	3X Ø1.13 +/- .010 Ø2.38 BACK SPOTFACE VERIFY MIN CLEANUP	CMM	QA		00064	1.125 - 1.126 / ACC EPT SPOTFACE	339-E.R		A
4* (371)		SCALE			J-922		02-21-06		
4* (375)	12X .25-20 UNC -2B	THREAD PLUG GA	QA		A-67	ACCEPT	339-E.R 02-21-06		A
5* (380)	Φ   Ø .060   E   A   J Ø1.885 THRU	CMM	QA		00064	.034	339-E.R 02-24-06		A
5*	Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	SCALE	QA		J-922	ACCEPT	339-E.R		A
5* (400)	Φ   Ø .060   E   A   J 3X Ø1.375-6 UNC THRU	CMM	QA		00064	.033, .036, .037	339-E.R 02-24-06		A
Drawing ID: SE141-116 Rev: 7									
INSPECTION INSTRUCTIONS									
RESULTS									
SHEET ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
5* (410)	Φ   Ø .01   E   A   J 3X SPH R.75 TO .75 DEEP	CMM	QA		00064	.022, .023, .026	339-E.R 02-24-06		R
Drawing ID: SE141-116 Rev: 8									
INSPECTION INSTRUCTIONS									
RESULTS									
SHEET ZONE	CHARACTERISTIC	GAGE/EQUIP	BY	SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
5* (420)	7X .25-20 UNC -2B	THREAD PLUG GA	QA		A-67	ACCEPT	339-E.R 02-21-06		A
5* (430)	Φ   Ø .060   E   A   J 24X Ø1.885 THRU	CMM	QA		00064	.0072 TO .039	339-E.R 02-24-06		A
5* (431)	24X Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	SCALE	QA		J-922	ACCEPT	339-E.R		A
5* (431)		CMM	QA		00064	.015, .016, .017	339-E.R		A





**Major**  
Tool & Machine, Inc.

**INSPECTION DATA CHECKLIST**

SHEET	ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS		BY SAMPLE	SER#	RESULTS		INSPECTED BY	
			GAGE/EQUIP	INSTRUCIONS			DATA/REMARKS	INSP VERFD		AUDIT
(440)		3X Ø1.5 TO 2.00 DEEP Ø3.00 TO 1.00 DEEP							02-24-06	
5*	D7	3X Ø1.885 +/- .003 THRU Ø3.00 BACK SPOTFACE VERIFY MIN CLEANUP	CMM		QA	00064	ACCEPT		242-M.G	A
(450)		Drawing ID: SE141-116 Rev: 7							02-24-06	
5*	G2	SPH R.75 TO .75 DEEP	CMM		QA	00064	.745 - .750		339-E.R	A
(460)		Drawing ID: SE141-116 Rev: 8							02-21-06	
6*	E3	4X Ø1.00 THRU	CALIPER		QA	J-707	0.98 - 0.99		339-E.R	A
(470)									02-21-06	
8*	G7	4.00 ± .010	SCALE		QA	J-922	4.0		339-E.R	A
(650)									02-21-06	
8*	D7	6X Ø.375-16 UNC TO .75 DEEP .03 X 45° CHAMFER	THREAD PLUG GA		QA	A-443	ACCEPT		339-E.R	A
(750)									02-21-06	
8*	D7	13.6 °	CMM		QA	00064	12.93		339-E.R	R
(760)									02-21-06	
8*	D7	5.88 VERIFY THAT PAD MEETS THE MINIMUM OF 5.88	SCALE		QA	J-922	> 5.88		339-E.R	A
(770)									02-21-06	
8*	D7	2.19 ± .010	CALIPER		QA	J-707	2.19		339-E.R	A
(780)									02-21-06	
8*	D7	2.19 ± .010	CALIPER		QA	J-707	2.19		339-E.R	A
(790)									02-21-06	
8*	C8	2X 1.56 ± .010 THRU	CALIPER		QA	J-707	1.56 / 1.55		339-E.R	A
(830)									02-21-06	
8*	C8	2X 7.50 ± .010 THRU	CMM		QA	00064	7.50 / 7.499		339-E.R	A
(850)									02-21-06	
8*	C8	8X R.25	RADIUS GAGE		QA	R-25	8X 0.26		339-E.R	A
(860)									02-21-06	
8*	C8	2X 2.52 ± .010	CALIPER		QA	J-707	2.52		339-E.R	A



**Major**  
Tool & Machine, Inc.

**INSPECTION DATA CHECKLIST**

(870)							02-21-06	
9* (900)	E7	2.54 ± .010	CALIPER	QA	J-707	2.54	339-E.R	A
9* (910)	E7	5.08 ± .010	CALIPER	QA	J-707	5.08	339-E.R	A
9* (920)	F3	4X Ø1.0 THRU VERIFY THAT HOLES BREAK COMPLETELY THROUGH INSIDE OF CASTING	CALIPER	QA	J-707	.99 - .100	339-E.R	A
9* (930)	F3	2X Ø .50 ± .010 THRU	CALIPER	QA	J-707	.49 - .50	339-E.R	A
9* (940)	E3	2.44 ± .010	CALIPER	QA	J-707	2.44	339-E.R	A
9* (950)	E3	1.22 ± .010	CALIPER	QA	J-707	1.22	339-E.R	A
9* (960)	C7	4X Ø1.0 THRU VERIFY THAT HOLES BREAK COMPLETELY THROUGH INSIDE OF CASTING	CALIPER	QA	J-707	.99 - .100	339-E.R	A
9* (970)	C6	2X Ø.25 T.C. HOLE TO 2.5 DEEP	CALIPER	QA	J-707	.250 / 2.5	339-E.R	A
Drawing ID: SE141-116 Rev: 7								
SHEET ZONE		CHARACTERISTIC	INSPECTION INSTRUCTIONS	BY SAMPLE	SER#	RESULTS	INSPECTED BY	
10* (980)	C8	☐ .125   A   B   C	GAGE/EQUIP CMM	QA	00064	-278 / .492 75 PTS / 5 OOT	INSP VERFD 242-M.G 02-27-06	R
Drawing ID: SE141-116 Rev: 8								
SHEET ZONE		CHARACTERISTIC	INSPECTION INSTRUCTIONS	BY SAMPLE	SER#	RESULTS	INSPECTED BY	
10* (990)	D5	☐ .5   A   B   C DATUM -D- SIDE INNER CAST	GAGE/EQUIP CMM	QA	00064	-.989 TO .733 90 PTS / 17 OOT	INSP VERFD 242-M.G 02-27-06	R
Drawing ID: SE141-116 Rev: 7								
SHEET ZONE		CHARACTERISTIC	INSPECTION INSTRUCTIONS	BY SAMPLE	SER#	RESULTS	INSPECTED BY	
10* (1010)	C4	☐ .125   A   B   C DATUM -E- SIDE LARGE WING	GAGE/EQUIP	QA		.048 TO .1062 35 PTS / 9 OOT	INSP VERFD 242-M.G 02-27-06	R
Drawing ID: SE141-116 Rev: 8								
SHEET ZONE		CHARACTERISTIC	INSPECTION INSTRUCTIONS	BY SAMPLE	SER#	RESULTS	INSPECTED BY	
			GAGE/EQUIP				INSP VERFD	



**Major**  
Tool & Machine, Inc.

**INSPECTION DATA CHECKLIST**

10* (1030)	D1	5A	B	C	CMM	QA	00064	-0.339 / .656 69 PTS / 18 OOT	242-M.G 02-27-06	R		
Drawing ID: SE141-116 Rev: 7												
SHEET ZONE	CHARACTERISTIC				INSPECTION INSTRUCTIONS	BY SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
10*	E1	MACHINE / GRIND THIS AREA TO PROFILE OF +.05/-.10				CMM	QA	00064	-0.114 TO -.160 ACTUAL DEVIATION FROM NOMINAL	242-M.G		R
Drawing ID: NCSX-CSPEC-141-03 Rev: 10												
SHEET ZONE	CHARACTERISTIC				INSPECTION INSTRUCTIONS	BY SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
4*	3.1.1.	UOS ALL MACHINED SURFACES TO BE 250 RMS SURFACE FINISH RECORD RANGE				PROFILOMETER	QA	J-1152	31 - 125	339-E.R		A
Drawing ID: SE141-116 Rev: 8												
SHEET ZONE	CHARACTERISTIC				INSPECTION INSTRUCTIONS	BY SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT	
1*		NOTE 9 RECORD THE WEIGHT OF THE PART 6000LBS MAX					QA	VISUAL	5640	339-E.R		A
(1050)										02-24-06		
4*	H7	22.13 ± .010				CMM	QA	00064	22.12	339-E.R		A
(1060)										02-21-06		
4*	H7	47.79 ± .010				CMM	QA	00064	47.91	339-E.R		A
(1070)										02-21-06		
4*	H6	59.18 ± .010				CMM	QA	00064	59.17	339-E.R		A
(1080)										02-21-06		
4*	H6	73.27 ± .010				CMM	QA	00064	73.27	339-E.R		A
(1090)										02-21-06		
4*	H5	80.49				CMM	QA	00064	80.50	339-E.R		A
(1100)										02-21-06		
4*	H5	87.87 ± .010				CMM	QA	00064	87.89	339-E.R		R
(1110)										02-21-06		
4*	H5	89.64 ± .010				CMM	QA	00064	89.64	339-E.R		A
(1120)										02-21-06		
4*	G4	31.83 ± .010				CMM	QA	00064	31.85	339-E.R		R
(1130)										02-21-06		



**INSPECTION DATA CHECKLIST**

4* (1140)	F4	24.10 ± .010				CMM	QA	00064	24.10	339-E.R 02-21-06	A
4* (1150)	F4	11.48 ± .010				CMM	QA	00064	11.52	339-E.R 02-21-06	R
4* (1160)	E4	5.20 ± .010				CMM	QA	00064	5.24	339-E.R 02-21-06	R
4* (1170)	D4	18.31 ± .010				CMM	QA	00064	18.26	339-E.R 02-21-06	R
4* (1180)	D4	32.50 ± .010				CMM	QA	00064	32.45	339-E.R 02-21-06	R
4* (1190)	C5	77.13 ± .010				CMM	QA	00064	77.12	339-E.R 02-21-06	A
4* (1200)	C6	55.56 ± .010				CMM	QA	00064	55.55	339-E.R 02-21-06	A
4* (1210)	B7	23.74 ± .010				CMM	QA	00064	23.72	339-E.R 02-21-06	R
4* (1220)	C7	37.09 ± .010				CMM	QA	00064	37.06	339-E.R 02-21-06	R
4* (1230)	D8	17.22 ± .010				CMM	QA	00064	17.21	339-E.R 02-21-06	A
4* (1240)	F8	28.17 ± .010				CMM	QA	00064	28.18	339-E.R 02-21-06	A
4* (1260)	G8	40.75 ± .010				CMM	QA	00064	40.76	339-E.R 02-21-06	A
4* (1270)	G8	43.42 ± .010				CMM	QA	00064	43.42	339-E.R 02-21-06	A
5* (1290)	H8	88.39 ± .010				CMM	QA	00064	88.41	339-E.R 02-21-06	R
5* (1300)	H7	86.42 ± .010				CMM	QA	00064	86.42	339-E.R 02-21-06	A
5* (1310)	H6	59.08 ± .010				CMM	QA	00064	59.08	339-E.R 02-21-06	A
5* (1320)	H5	28.71 ± .010				CMM	QA	00064	28.70	339-E.R 02-21-06	A
5* (1330)	G5	32.42 ± .010				CMM	QA	00064	32.44	339-E.R 02-21-06	R
5* (1330)	D4	22.117 ± .005				CMM	QA	00064	22.100	339-E.R	R



Major  
Tool & Machine, Inc.

INSPECTION DATA CHECKLIST

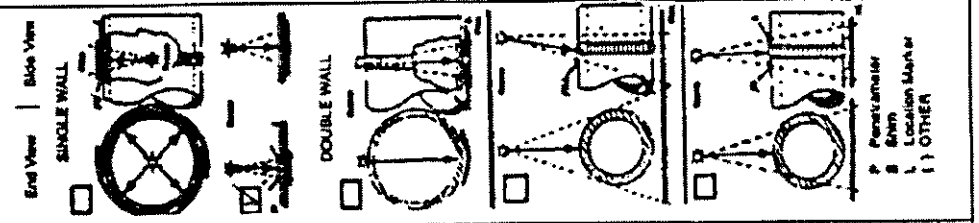
Page: 11  
Date: 03/29/06  
User ID: GRIFFIT#

(1340)										02-21-06		
5*	D4	38.14 ± .010			CMM		QA		00064	38.12	339-E.R	R
(1350)										02-21-06		
5*	D5	21.33 ± .010			CMM		QA		00064	21.32	339-E.R	A
(1360)										02-21-06		
5*	D7	87.62 ± .010			CMM		QA		00064	87.58	339-E.R	R
(1370)										02-21-06		
5*	E8	7.53 ± .010			CMM		QA		00064	7.50	339-E.R	R
(1380)										02-21-06		
5*	E8	4.91 ± .010			CMM		QA		00064	4.89	339-E.R	R
(1390)										02-21-06		
5*	G8	36.13 ± .010			CMM		QA		00064	36.13	339-E.R	A
(1400)										02-21-06		
8*	D8	2.63 ± .010			CMM		QA		00064	2.62	339-E.R	A
(1420)										02-21-06		

A959  
10920 Chester Road  
Woodlawn, Ohio 45215

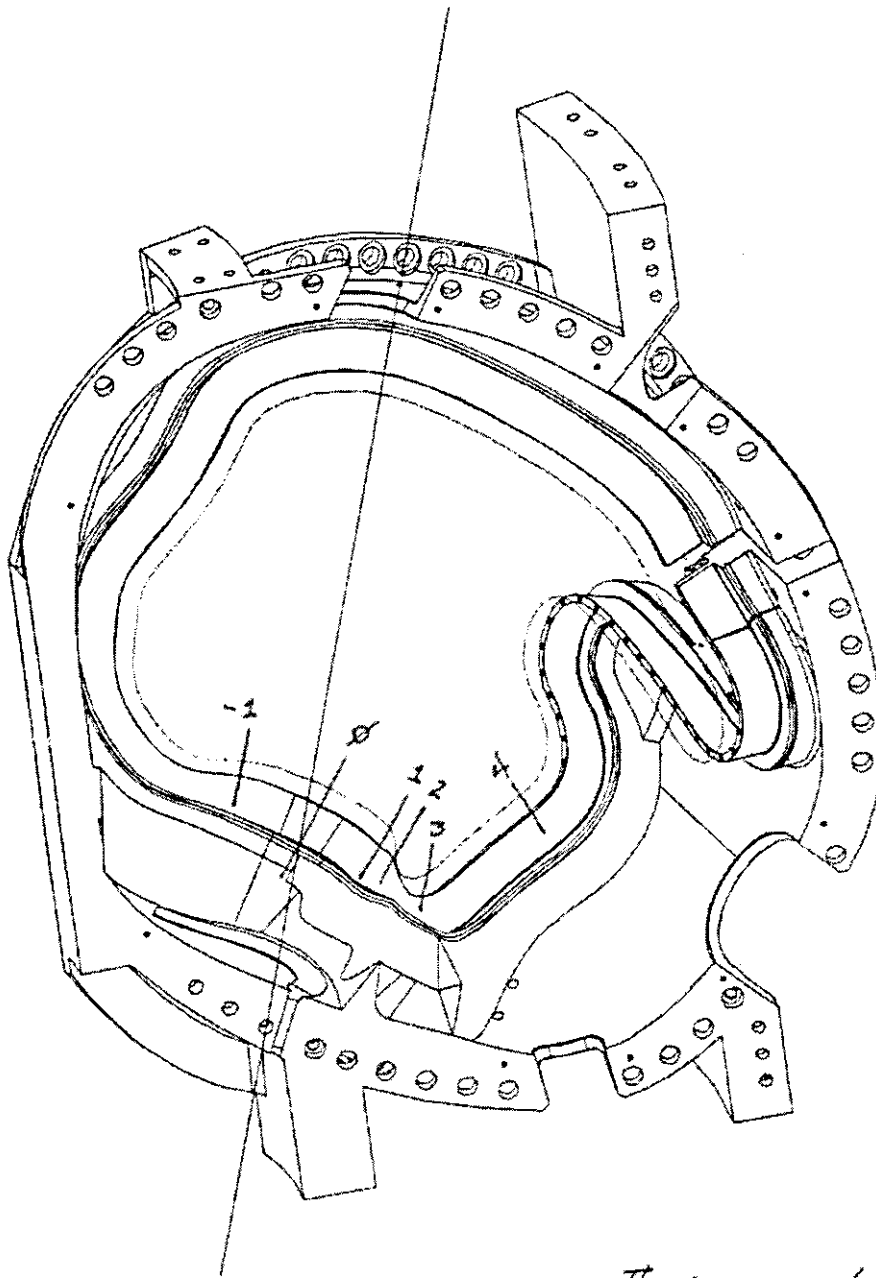


CLIENT	Molar Tool & Machine		DATE	2/18/06																											
TOPOGRAPHY	QUANTITY	FOCAL SPOT SIZE	JOB NO.	13860001																											
IR 192	118 x .001"	.137"	MANUFACTURER	Robert Weaver/II																											
WELD PROCESS	CURIES/VA		FILM PROCESSING	AUTO																											
N/A	51		FILM TYPE	Kodak AA Double																											
	MATERIAL SPEC.		TIME	2.09																											
	516 SST		PENETRANT	ASTM 1B																											
			ACCEPTANCE STANDARD	No defect > .060"																											
DESCRIPTION	65707/30/1160/818 SE141-116 rev. 8 Page 1 of 2 NCR-19290 Density under - 12/05 cut date - 5/2/06																														
SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	SIZE	QUALITY LEVEL	SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONCAVITY	TUNGSTEN	MELT-THROUGH	BURN-THROUGH	CRATER PIT	OXIDATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	MISSED INDICATIONS	WELD CONTOUR	INSULATION	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SEE REMARKS	ACCEPT	REJECT			
✓	0-1	N/A	1B			✓																									
	1-2					✓																									
	2-3					✓																									
	3-4					✓																									
	4-5					✓																									
	0-1					✓																									



Customer Representative Signature: Robert Weaver Date: 2/18/06

Customer Representative Signature: Angela D. Tilkens Date: 2/18/06



FILM SIZE:  
4 1/2" X 17"

MTM # 65707/LOT 3.0  
SUB 1, OP. 160  
RES. 818 RADIOGRAPHY  
Pg 2 of 2 2/18/06  
REF MQS READER SHEET

**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:3  
Serial No./Qty: C3

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

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

Problem: X-RAY FAILURE ON;  
LOCATION "T", VIEW 0-1, POROSITY, MORE THAN 50 INDICATIONS EXCEEDING .080". (section 4 on LPI indications map)  
LOCATION "T", VIEW 1-2, POROSITY, MORE THAN 5 INDICATIONS EXCEEDING .080".  
LOCATION "T", VIEW 2-3, POROSITY, MORE THAN 5 INDICATIONS EXCEEDING .080".  
LOCATION "T", VIEW 0-(-1), POROSITY, MORE THAN 20 INDICATIONS EXCEEDING .080". (section 3 on LPI indications map).

SOME OF THESE FAILURES WERE ALSO REPORTED AS PT FAILURES UNDER NC19269.

**Proposed Disposition:**

RECOMMEND TO USE AS IS.

Number of additional pages: X-RAY MAP AND READER SHEET ATTACHED.

Customer Disposition:  Use As Is  Rework  Repair  Scrap  Replace

PPPL. Reviewed the radiographic films. The one of concern was location T. 0-1. At NCSX's request, the indications were ground to a depth of 0.040 inches. Although some of the indications were lessened, many remained. In parallel ORNL reviewed the stresses and the casting in this area. They found that the stresses were low-and a range of 40 to 70 MPA. Consequently with the stresses so low, we agree with the record recommended disposition to use as is.

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

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

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

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: 2006.02.23 17:42:11 -05'00'

Brad  
Nelson

Digitally signed by Brad Nelson  
DN: cn=Brad Nelson, c=US,  
o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.02.24 16:16:47  
-05'00'

Tech rep

RLM

n:\mtmapps\Mtmonc14.qpp

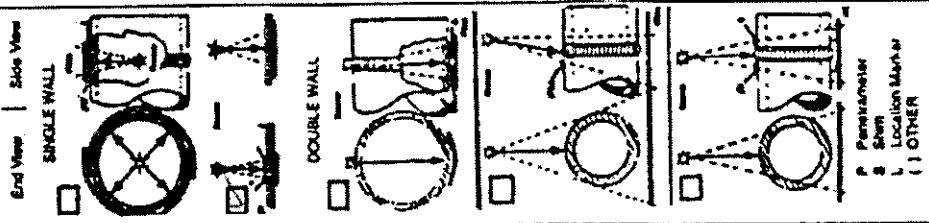


6089  
10520 Chester Road  
Woodlawn, Ohio 45215

Ps 1 of 2



CLIENT	Major Tool & Machine	PHOTOGRAPHER	Robert Weaver	JOB NO.	13860001	P.O. NO.	N/A	DATE	2/18/06																			
SOTOPREVIEW	DALE LENNY	FOCAL LENGTH	118" X 069"	FILM PROCESSING	ALTO	FILM TYPE	Kodak AA Double	FILM TECHNIQUE	FB SCREENS																			
TR 192	MATERIAL SPEC.	ISO	20.25"	TIME	18.875"	PERMEABILITY	ASTM B	ACCEPTANCE STANDARD	No Defects > 0.050"																			
FIELD PROCESS	N/A	MATERIAL QUANTITY	N/A	PERMEABILITY	1.375"	PERMEABILITY	ASTM B																					
DESCRIPTION	25707/30/1/170/818 SE 141-116 rev. 8 page 1 of 2 Densitometer - 19105 cal due - 5/3/05 NCR-19291																											
SEAM OR FITTING	FILM INTERVAL NUMBER	WELDER IDENTIFICATION	PERMEABILITY	SLAG	POROSITY	POROSITY WITH TAIL	CRACK	LACK OF PEN	LACK FUSION	INTERNAL CONVEXITY	INTERNAL CONVEXITY	TUNGSTEN	MELT-THROUGH	BURST-THROUGH	CRATER-PT	ORATION	INTERNAL UNDERCUT	EXTERNAL UNDERCUT	ALIGNED INDICATIONS	WELD CONTOUR	MATCH	FILM ARTIFACT	VISUAL CONCERNS	FILM DENSITY	SCE REMARKS	ACCEPT	REJECT	
	Flange 10-1	N/A	IB	0.032"	✓	✓		0.015"	0.032"	10 indications > 0.050"	10 indications > 0.050"																X	X
	Flange 20-1				✓	✓		0.015"	0.032"	20 indications > 0.050"	20 indications > 0.050"																	



Robert Weaver 655514/II

Robert Weaver

Robert Weaver 655514/II

Customer Representative Signature

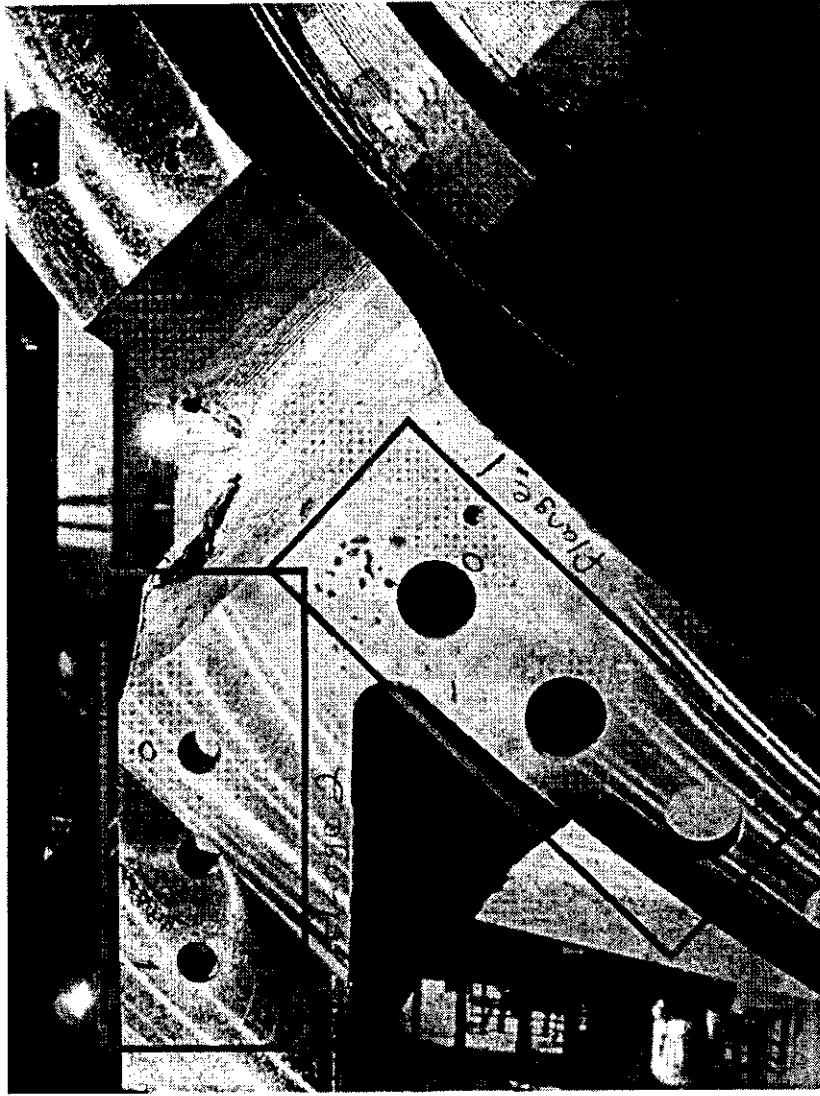
Customer Representative Signature

Date

2/18/06

XRay Map for Customer Disposition of NC18776.

Workorder: 65707/3  
Datum -D- Flange



65707/3.0/1/170/88  
SE141-116 rev.8  
2/18/04  
Page 2 of 2

Mike Griffith  
Rev. --

**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: 65707-3 XRAY MAP Revision: --

Customer P.O.: S005242-F/Ln:3  
Serial No./Qty: C3

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

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

Problem: X-RAY FAILURE ON;  
FLANGE 1, VIEW 0-1, POROSITY, MORE THAN 10 INDICATIONS EXCEEDING .080".  
FLANGE 2, VIEW 0-1, POROSITY, MORE THAN 20 INDICATIONS EXCEEDING .080".

THIS REJECTION REPORT IS A SUMMARY OF DEFECTS THAT WERE DETECTED AS A RESULT OF THE X-RAY REQUIREMENT FROM THE DISPOSITION OF NC18776.

**Proposed Disposition:**  
RECOMMEND TO USE AS IS.

Number of additional pages: X-RAY MAP AND READER SHEET ATTACHED.

**Customer Disposition:**  Use As Is  Rework  Repair  Scrap  Replace

A conference call was held between MTM, PPPL, and ORNL on February 21 to review these indications. Based on these discussions, we agree with the proposed disposition to use as is.

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

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

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

Phil  
Heitzenroeder

Digitally signed by Phil  
Heitzenroeder  
DN: CN = Phil Heitzenroeder, C =  
US, O = PPPL, OU = Mech. Eng.  
Division  
Reason: I am approving this  
document  
Date: 2006.02.23 17:55:42 -05'00'

Brad  
Nelson

Digitally signed by Brad  
Nelson  
DN: cn=Brad Nelson,  
c=US, o=ORNL, ou=FED,  
email=nelsonbe@ornl.gov  
Date: 2006.02.24 16:17:33  
-05'00'

Technical Contact Approval:

RLM Approval:



**Major**  
Tool & Machine, Inc.

**INSPECTION DATA CHECKLIST**

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

Workorder: 65707/3-0 Sub:1 Op:190

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
*		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-1165	LESS THAN 1.02	503-B.H		A
(10)							02-20-06		
*		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-1165	LESS THAN 1.02	503-B.H		A
(20)							02-20-06		
*		INSPECT PERMEABILITY OF WELD REPAIR PER NC18607. MAG PERMEABILITY TO BE NO GREATER THAN 1.02µ.	MASTER GAGE	QA	J-1165	LESS THAN 1.02	503-B.H		A
(30)							02-20-06		



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: 29

**Date of Inspection:** 12/23/2005      **Type of Material:** CAST STAINLESS      **NDT#:** 15062

<b>Stage of Inspection:</b> <input type="checkbox"/> Incoming Inspection <input type="checkbox"/> In-Process Inspection <input checked="" type="checkbox"/> After Repair <input type="checkbox"/> Final Inspection	<b>Manufacturing Process:</b> <input checked="" type="checkbox"/> Weldment <input type="checkbox"/> Casting <input type="checkbox"/> Bar Stock <input type="checkbox"/> Plate <input type="checkbox"/> Forging <input type="checkbox"/> Other <b>WELD REPAIR OF CASTING</b>	<b>Surface Condition:</b> <input checked="" type="checkbox"/> Machined <input checked="" type="checkbox"/> Rough <input type="checkbox"/> Other <b>HAND BLENDED FLUSH</b>	<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	<b>Heat Treated:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	---	---	--	--

<b>Part Information:</b> MTM Job Number: 65707/3.0 -Sub:12 -Op:20 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: 1 Quantity Rejected: 0  Run Hours: 0.0	
--	---	--

<b>Customer Inspection Plan:</b> Test Step: Revision: Material Test Number:	<b>Inspection Criteria:</b> Customer Specification: ASTM A903/A903M MTM Spec Number: PS582 (REF NDT-WI-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: 12 Min
--	---

**Inspection Requirements:**

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

**Notes:**  
 Perform localized PT inspection on casting repair areas prior to final machining (4 locations).  
 Reference MTM NC 18889 for additional information.  
 Acceptance Criteria: ASTM A903/A903M Level I for machined surfaces including the entire "T" section (high stress areas)  
 Repair areas are free of rejectable indications at time of inspection.

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

**Inspector:** 581-D.EDWARDS

**Date:** 12/23/2005

*Douglas D. Edwards Level II*





**CERTIFICATE OF TEST**

Page 01 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: 522335  
ASTM A479  
Line Total: 259 LB

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

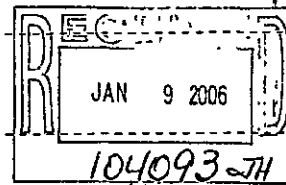
MECHANICAL PROPERTIES

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

GRAIN SIZE :10 -



JAN 09 2006



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.

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

DAMIAN GURRI

MANAGER, QUALITY ASSURANCE



# 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: 522335

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

ISO 9001  
BSI Registration  
No. FM00777

**BÖHLER**  
EDELSTAHL

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

Bestell-/Purchase/Comment  
AMB SPECIALITY STEEL, INC.

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

RS34135  
S22335

Unsere Auftrags-Nr./Works Order No/No. de commande /Usine 354.175/USA vom 05.02.23/01/  
Anforderungen/Requirements/Cuigenes +: Lieferschein/Dispatch note/Avis d'expédition  
20/511.846/K vom 05.06.20

Prüfgegenstand/Objekt of test/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/Lista descriptiva		Gewicht kg Weight Lbs Poids kg	Schmelze Heat No No. de coulée Apr. provena	Prüf-Nr Test No Apr. provena
03 FL 76,200MM X 25,400MM 1" X 3"	11,33 - 12,97 FT	2415,00 5324,1	M11443 LBS	I067

"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 de génération EAF

Kennzeichnung/Marking/Marquage  
Markenbezeichnung/Grade of Material/nuance du materiel:  
Werkstoff Nr./Material No./Matériau No. X  
Schmelzefeuert No./No. de coulée X

Besichtigung und Nachmessung: Kein Anstand  
Inspection and Checking of Dimension: 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 matériel a été trouvé conforme aux exigences.

Zeichen des Lieferwerkes  
Brand of Manufacturer  
Marque de l'usine



Zeichen des Prüfers  
Symbol of Inspector  
Symbole de l'inspecteur



**BÖHLER**  
Edelstahl-LB+H

ISO 9001 REGISTERED  
CERTIFICATE OF REGISTRATION

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 Epreuve	TEMP	YIELD ST.	TENS. ST	ELONG.	R/A
	° C	KSI	KSI	A4 %	%
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

Anlegen:  
Enclosure:  
Anlage:

BOEHLER  
Edelstahl GmbH

DER ANNAHMEPRUEFER/INSPECTOR REPRESENTATIVE



JAN 09 2006



Major  
Tool & Machine, Inc.

INSPECTION DATA CHECKLIST

Quality Assurance Documentation for Part ID: SE141-137 - Item: 31

Workorder: 65707/3-0 Sub:13 Op:40

Part: SE141-137 - -

Drawing ID: SE141-137 Rev: 0		INSPECTION INSTRUCTIONS		RESULTS		INSPECTED BY			
SHEET	ZONE	CHARACTERISTIC	GAGE/EQUIP	BY SAMPLE	SER#	DATA/REMARKS	INSP	VERFD	AUDIT
1*	G2	RECORD MAGNETIC PERMEABILITY. RESULTS TO BE NO GREATER THAN 1.02µ PER DRAWING NOTE 5.	MASTER GAGE	QA	J-1270	BETWEEN 1.02 AND 1. 03 PER RFD 14-01 1	503-B.H		
(10)							01-23-06		A



Major  
Tool & Machine, Inc.

### INSPECTION DATA CHECKLIST

Quality Assurance Documentation for Part ID: SE141-138 - Item: 33

Workorder: 65707/3-0 Sub:14 Op:40

Part: SE141-138 - -

SHEET	ZONE	CHARACTERISTIC	INSPECTION INSTRUCTIONS		RESULTS	INSPECTED BY		
			GAGE/EQUIP	BY SAMPLE		INSP	VERFD	AUDIT
1*	G2	RECORD MAGNETIC PERMEABILITY. RESULTS TO BE NO GREATER THAN 1.02µ PER DRAWING NOTE 5.	MASTER GAGE	QA	BETWEEN 1.02 AND 1. 03 REF RFD 14 -011	503-B.H		
(10)						01-23-06		A

Employees: 242-M.Griffith / 339-E.Root / 503-B.Houk