LCLS Linac Coherent Light Source — Stanford Synchrotron Radiation Laboratory, Stanford Linear Accelerator Center

Quality Assurance Checklist

THIS FORM CAN BE USED AS A CHECKLIST TO CONTROL THE SEQUENCE OF QUALITY ASSURANCE ACTIVITIES TO BE PEFORMED ON LCLS HARDWARE, SYSTEMS OR PROCESSES, OR ATTACHED TO LCLS HARDWARE AS A QUALITY ASSURANCE TRAVELER.

System or Component Name: *LCLS Undulator Main Assembly*		
Part/Drawing Number: *L143-112000*	Revision: 05	Serial Number: 27
Manufacturer: Hi-Tech		Purchase Order Number:

Special Instructions:

This form is to be completed prior to the acceptance of LCLS Undulator Main Assemblies

wedged spacers No. 2

Quality Assurance Tasks (attach continuation sheets if additional steps are required)

Seq No.	Task Description *Inform the LCLS Technical Lead if a task cannot be competed or a requirement met	Completed by/Date*	Requirement Met	Requirement Not Met*
1	*Confirm that the drawing revisions on the attached Bill of Materials is correct.*	GL	☐	☐
2	*Confirm that the supplier is working to the same drawing revisions as on the attached Bill of Materials.* ~~Confirmed~~ EMAIL to SMCN		☐	☐
3	*Perform visual inspection of the completed assembly for workmanship and correctness.*	GL 12/8/06	☑	☐
4	*Perform visual inspection of the completed assembly for correct the following markings on the Strongback:* L143-11200-05 04 SA-381-001-35 Assy Rev No (Not: the serial numbers of the assembly and Strongback should be identical)	Glen to check 05	☐	☑
5	*Perform visual inspection of the completed assembly for correct the following markings on the Magnet Structure Assemblies:* • *Upper Left Magnet Structure Assemblies: L-143-110800-assembly no.* 27 • *Upper Right Magnet Structure Assemblies: L143-111200-assembly no.* • *Upper Middle Magnet Structure Assemblies: L143-111000-1,2,3-assembly no.* • *Lower Left Magnet Structure Assemblies: 143-110900-assembly serial no.* • *Lower Right Magnet Structure Assemblies: L143-111300-assembly serial no.* 27 • *Lower Middle Magnet Structure Assemblies: L143-111100-1,2-3-assembly no.*	T Berg 12/8/04	☑	☐
6	*Verify correct gap size along the entire undulator length using contactor's go/no-go gages.*	ET 12/08/06	☑	☐
7	*Verify correct gap size along the entire undulator length using calibrated gage blocks.*	ET 12/08/06	☑	☐
8	*Check the peak field at each magnet location using a portable Hall probe.*	SS or M 12/8/06	☑	☐
9	*Perform or witness the inspection of the 60.00 mm width of the mounting pads.* Inaccessible; measurement technique reviewed	T Berg 12/8/04	☐	☑
10	*Verify that the following quality assurance documentation has been completed by the contractor:* DIAL SDR#2 not readable • *ANL Acceptance Criteria Listings E5-026046, E5-020020, E5-069069* • *LCLS Inspection/Acceptance Report for LCLS Magnets* • *LCLS Inspection/Acceptance Report for Supplier Inspection form for LCLS Magnet Assemblies* • *Magnet Sort List* • *Photographs showing correct magnet serial numbers and orientation* • *ANL Supplier Disposition Reports documenting any noncomformance to specifications drawings or other contract requirements*	T Berg 12/8/04 SDR#	☐	☑

11	*Verify that the magnet photographs of the magnet sub assemblies are in agreement with the magnet sort list.*	TPM 12/8/06	☑	☐
12	*Review the shipping container for changes since the last undulator shipment and that that mounting feet will be used to prevent rotation of the assembly while in transit.* container not ready. Feet reviewed	TPM	☑	☐
13	*Confirm that contractor has shock and temperature monitoring devices available for shipment of the undulator assembly. Check that the shock and temperature monitoring devices were calibrated within 1 year of initial receipt and then once every 12 months thereafter.* ANL has	TPM	☐	☑
14	*Obtain a copy of the supplier quality assurance records*	TPM 12/8/06	☑	☐
15	*Obtain the required ANL signatures on Acceptance Criteria Listings E5-164018, E5-026046, E5-069069.*	TPM 12/8/06	☑	☐
16	*Forward supplier quality assurance records and the completed traveler form to LCLS QA Coordinator Tom Barsz. B401, C4219*	JLW 2/12/07	☑	☐

LCLS Task Leader Pre-Approval: _____ **Date:** _____

LCLS QA Coordinator Pre-Approval: _____ **Date:** _____

Optional Approver Comments:

Distribute completed traveler to: **Responsible Engineer, Task Leader, LCLS Quality Assurance Coordinator, Chief Engineer**

Other: _____

Enter notes, quality improvement, or lessons-learned issues resulting from this activity below.

Magnet Lot 21
Revise Bom for dwgs
Dim SB Lot; not responsible; Glen to call
SIMON Give Metalot part number for feet

BOM Report for l143-112000.asm/main/05/2

Commonspace Bill Of Materials Report.

Title5	Title4	Name	Keyword	Revision	Version	Release Level	Created On	Resp_Eng	Matl_Des	Quantity
SHCS M4 X 0.7 X 25 mm LG	630-433-0300	91292a122.prt		00	4	RELEASED	6/29/2006 1:21 PM		18-8 SST	2
SHCS M6 X 1 X 16mm LG.	630-433-0300	91292a135.prt		00	4	RELEASED	6/29/2006 1:21 PM		18-8 SST	2
SHCS M6 X 1.0 X 18mm LG	630-833-0300	91292a136.prt		00	4	RELEASED	6/29/2006 1:21 PM		18-8 SST	32
SHCS M6 X 1.0 X 30mm LG	630-833-0300	91292a139.prt		00	2	RELEASED	6/29/2006 1:21 PM		18-8 SST	14
SHCS M8 X 1.25 X 20mm LG	630-433-0300	91292a147.prt		00	2	RELEASED	6/29/2006 1:21 PM		18-8 SST	16
SHCS M8 X 1.25 X 55mm LG.	630-433-0300	91292a156.prt		00	4	RELEASED	6/29/2006 1:21 PM		18-8 SST	132
WASHER LOCK .293 OD X .174 ID X .040 THK	630-833-0300	92146a545.prt		00	6	RELEASED	6/29/2006 1:21 PM		18-8 SST	182
SHCS NO. 6(.138)-32 UNC-3A X.75 LG	630-833-0300	92185a151.prt		00	5	RELEASED	6/29/2006 1:21 PM		316 SST	904

SHCS NO. 6(.138)-32 UNC-2A X .38 LG	630-833-0300	92196a146.prt		00	20	RELEASED	6/29/2006 1:29 PM		18-8 SST	11
SHCS NO. 8(.164)-32 UNC-2A X .75 LG	630-833-0300	92196a197.prt		00	13	RELEASED	6/29/2006 1:29 PM	RESPONSIBLE ENGINEERS NAME	STN. STL.	454
WASH FLT 5/16 NOM X .56 OD X .05 THK	630-833-0300	98017a690.prt		00	7	RELEASED	6/29/2006 1:22 PM		18-8 SST	132
WASH LOCK NO. 6(.138) NOM X .216 OD X .03 THK	630-833-0300	98437a104.prt		00	5	RELEASED	6/29/2006 1:22 PM		18-8 SST	916
INSERT M8 X 1.25 X M12 X 1.25	800-253-0421	kli-66353.prt		00	4	RELEASED	6/29/2006 1:38 PM		303 SST	132
MAGNET CLAMP	UPPER LEFT MAGNET STRUCTURE	l143-110104.prt	PF-381-000-31	00	14	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	5/16" AMPCO 8 ALUMINUM BRONZE PLATE	482
POLE		l143-110105.prt	PF-381-000-32	03	2	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	VACOFLUX 50	448
MAGNET		l143-110106.prt	PF-381-000-33	04	1	PENDING	6/29/2006 1:38 PM	E. TRAKHTENBERG	NdFeB TYPE MATERIAL (SEE NOTE 7)	450
LAST POLE		l143-110107.prt	PF-381-000-94	02	2	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	VACOFLUX 50	4

DIVING BOARD	UPPER LEFT MAGNET STRUCTURE	l143-110108.prt	PF-381-000-95	00	4	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	1018 STEEL	6
BRACKET 1		l143-110109.prt	PF-381-001-27	02	3	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	AL CAST TOOL & JIG PLATE-1.25" PLATE	2
BRACKET 2		l143-110110.prt	PF-381-001-28	02	2	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	AL CAST TOOL & JIG PLATE-1.25" PLATE	2
SCREW		l143-110111.prt	PF-381-001-32	00	3	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	STEEL 1018	4
HORIZONTAL FIELD SHIM		l143-110112.prt	PF-381-001-33	00	2	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	STEEL 1018	1
HORIZONTAL FIELD SHIM HANDLE		l143-110113.prt	PF-381-001-34	00	2	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	BRASS (ANY)	1
SCREEN		l143-110114.prt	PF-381-001-29	01	1	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	STEEL 1018	2
STOPPER		l143-110115.prt	PF-381-001-30	01	1	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	AL CAST TOOL & JIG PLATE-1/2" PLATE	16
SPACER		l143-110119.prt	PF-381-000-99	00	3	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	STEEL 1018	14
STRONGBACK MACHINING	UNDULATOR MAGNET ASSEMBLY	l143-110700.asm	PF-381-000-86	08	1	RELEASED	6/29/2006 1:48 PM	E. TRAKHTENBERG	ASTM B381 F2 TITANIUM GRADE 2	1

STRONGBACK FORGING	UNDULATOR MAGNET ASSEMBLY	l143-110701.prt	PF-381-000-87	00	6	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	ASTM B381 F2 TITANIUM GRADE 2	1
SHIM	.	l143-110702.prt	PF-381-001-31	02	0	RELEASED	9/5/2006 1:10 PM	E. TRAKHTENBERG	STEEL 1018	124
UPPER LEFT MAG. STRUCTURE ASSEMBLY	UPPER LEFT MAGNET STRUCTURE	l143-110800.asm	SA-381-000-54	03	1	RELEASED	6/29/2006 1:48 PM	E. TRAKHTENBERG	SEE PARTS LIST	1
BASE	UPPER LEFT MAGNET STRUCTURE	l143-110801.prt	PF-381-000-55	00	16	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	AL CAST TOOL & JIG PLATE-2.5"PLATE	1
LOWER LEFT MAG. STRUCTURE ASSEMBLY	LOWER LEFT MAGNET STRUCTURE	l143-110900.asm	SA-381-000-56	02	1	RELEASED	6/29/2006 1:48 PM	E. TRAKHTENBERG	SEE PARTS LIST	1
BASE	LOWER LEFT MAGNET STRUCTURE	l143-110901.prt	PF-381-000-57	00	12	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	AL CAST TOOL & JIG PLATE-2.5"PLATE	1
UPPER MIDDLE MAG. STRUCTURE ASSEMBLY	UPPER MIDDLE MAGNET STRUCTURE	l143-111000-2.asm	SA-381-000-58	01	1	RELEASED	6/29/2006 1:48 PM	E. TRAKHTENBERG	SEE PARTS LIST	1
UPPER MIDDLE MAG. STRUCTURE ASSEMBLY	UPPER MIDDLE MAGNET STRUCTURE	l143-111000-3.asm	SA-381-000-58	01	1	RELEASED	6/29/2006 1:48 PM	E. TRAKHTENBERG	SEE PARTS LIST	1
UPPER MIDDLE MAG. STRUCTURE ASSEMBLY	UPPER MIDDLE MAGNET STRUCTURE	l143-111000.asm	SA-381-000-58	03	1	RELEASED	6/29/2006 1:48 PM	E. TRAKHTENBERG	SEE PARTS LIST	1

BASE	UPPER MIDDLE MAGNET STRUCTURE	l143-111001-2.prt	PF-381-000-59	02	1	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	AL CAST TOOL & JIG PLATE-2.5"PLATE	1
BASE	UPPER MIDDLE MAGNET STRUCTURE	l143-111001-3.prt	PF-381-000-59	02	1	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	AL CAST TOOL & JIG PLATE-2.5"PLATE	1
BASE	UPPER MIDDLE MAGNET STRUCTURE	l143-111001.prt	PF-381-000-59	02	1	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	AL CAST TOOL & JIG PLATE-2.5"PLATE	1
LOWER MIDDLE MAG. STRUCTURE ASSEMBLY	LOWER MIDDLE MAGNET STRUCTURE	l143-111100-2.asm	SA-381-000-88	01	1	RELEASED	6/29/2006 1:48 PM	E. TRAKHTENBERG	SEE PARTS LIST	1
LOWER MIDDLE MAG. STRUCTURE ASSEMBLY	LOWER MIDDLE MAGNET STRUCTURE	l143-111100-3.asm	SA-381-000-88	01	1	RELEASED	6/29/2006 1:48 PM	E. TRAKHTENBERG	SEE PARTS LIST	1
LOWER MIDDLE MAG. STRUCTURE ASSEMBLY	LOWER MIDDLE MAGNET STRUCTURE	l143-111100.asm	SA-381-000-88	02	1	RELEASED	6/29/2006 1:48 PM	E. TRAKHTENBERG	SEE PARTS LIST	1
BASE	LOWER MIDDLE MAGNET STRUCTURE	l143-111101-2.prt	PF-381-000-89	02	1	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	AL CAST TOOL & JIG PLATE-2.5"PLATE	1
BASE	LOWER MIDDLE MAGNET STRUCTURE	l143-111101-3.prt	PF-381-000-89	02	1	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	AL CAST TOOL & JIG PLATE-2.5"PLATE	1
BASE	LOWER MIDDLE MAGNET	l143-111101.prt	PF-381-000-89	02	1	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	AL CAST TOOL & JIG PLATE-	1

	STRUCTURE								2.5"PLATE	
UPPER RIGHT MAG. STRUCTURE ASSEMBLY	UPPER RIGHT MAGNET STRUCTURE	l143-111200.asm	SA-381-000-90	03	1	RELEASED	6/29/2006 1:48 PM	E. TRAKHTENBERG	SEE PARTS LIST	1
BASE	UPPER RIGHT MAGNET STRUCTURE	l143-111201.prt	PF-381-000-91	00	9	RELEASED	6/29/2006 1:40 PM	E. TRAKHTENBERG	AL CAST TOOL & JIG PLATE-2.5"PLATE	1
LOWER RIGHT MAG. STRUCTURE ASSEMBLY	LOWER RIGHT MAGNET STRUCTURE	l143-111300.asm	SA-381-000-92	02	1	RELEASED	6/29/2006 1:48 PM	E. TRAKHTENBERG	SEE PARTS LIST	1
BASE	LOWER RIGHT MAGNET STRUCTURE	l143-111301.prt	PF-381-000-93	00	11	RELEASED	6/29/2006 1:38 PM	E. TRAKHTENBERG	AL CAST TOOL & JIG PLATE-2.5"PLATE	1
MAIN ASSEMBLY		l143-112000.asm	SA-381-001-35	05	2	RELEASED	6/29/2006 1:48 PM	E. TRAKHTENBERG	SEE PARTS LIST	1

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ACCEPTANCE CRITERIA LISTING

1. DISTRIBUTION:

INSPECTION REQUIRED: ☑

4. ORIGINATOR'S NAME & DIVISION: Glen Lawrence/XFD 5. PHONE: 2-9298 6. DATE: 06/13/2005

9. FOR INSPECTION, DELIVER TO BLDG. NO.: DIVISION: XFD ATTN.: G. Lawrence

10. AFTER INSPECTION, DELIVER TO BLDG. NO.: SLAC DIVISION: LCLS ATTN.:

11. REFERENCES AND/OR REMARKS:

Item may be inspected by LCLS QA at Contractor site prior to shipment with follow-up inspection at receiving site. First Articles from each of the two contractors are to be shipped to ANL/APS to be magnetically shimmed and characterized in the APS Magnet Measurement room. The 38 remaining units shall be shipped directly to SLAC to be magnetically shimmed and characterized in the LCLS Magnet Measurement room.

15. ORIGINATOR OF PLAN: Glen Lawrence DATE: 06/13/2005

16. PLAN REVIEWED/APPROVED BY: DATE: 00/00/0000

17. QAR CONCURRENCE WITH PLAN: DATE: 00/00/0000

3. ACL NO.: E5-164018 LINE NBR: 1

7. PART NO. & NAME: L143-112000 LCLS Undulator Main Assy. 8. QUANTITY: 2

12. STEP NO.	13. INSPECTION/TEST REQUIREMENT	14. INSPECTION TEST LOCATION	18. ACCEPTED BY OR NONCONFORMANCE REPORT NO.	19. DATE
1	Inspect shipping container for evidence of damage or rough handling	eceiving / Inspectic SLAC		
2	Inspect shipping sensors for record of temperature variations and shock/g loads in x,y and z during shipping	eceiving / Inspectic SLAC		
3	Review all required certifications for compliance and completeness	actor Fac. or Rec. ANL	SDR # DIAL VSR2 not read ate	12/8/06
4	Visual inspection of Undulator Assy for shipping damage	eceiving / Inspectic SLAC		
5	Visual inspection of Undulator Assy for completeness to print, including all loose parts	actor Fac. or Rec. ANL	TMJ	12/8/06

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12. STEP NO.	13. INSPECTION/TEST REQUIREMENT	14. INSPECTION TEST LOCATION	18. ACCEPTED BY OR NONCONFORMANCE REPORT NO.	19. DATE
6	Verify Undulator gap using Go-NoGo gauge	Contractor Facility ANL	[illegible]	12/08/06 E.T.

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1. DISTRIBUTION:

INSPECTION REQUIRED: ☑

4. ORIGINATOR'S NAME & DIVISION: Glen Lawrence/XFD. 5. PHONE: 2-9298 6. DATE: 01/25/2005

9. FOR INSPECTION, DELIVER TO BLDG. NO.: N/A DIVISION: ATTN.:

10. AFTER INSPECTION, DELIVER TO BLDG. NO.: NA DIVISION: ATTN.:

11. REFERENCES AND/OR REMARKS:

The Magnet Poles are to be delivered to the Undulator Assembly Contractors by the Machining Contractor. Undulator Assembly Contractor shall inspect the Magnet Poles prior to acceptance. ANL shall review all Certifications and Machining Contractor's reported measurements & optionally perform on-site inspections.

15. ORIGINATOR OF PLAN: Glen Lawrence DATE: 01/27/2005

16. PLAN REVIEWED/APPROVED BY: DATE: 00/00/0000

17. QAR CONCURRENCE WITH PLAN: DATE: 00/00/0000

3. ACL NO.: E5-026046 LINE NBR: 1

7. PART NO. & NAME: L143-110105 Upper Magnet Structure Pole 8. QUANTITY: 192

12. STEP NO.	13. INSPECTION/TEST REQUIREMENT	14. INSPECTION TEST LOCATION	18. ACCEPTED BY OR NONCONFORMANCE REPORT NO.	19. DATE
1	Visual inspection of parts for shipping damage	ulator Assy Contra	NA since Hitech is using it's own poles T Pung 12/8/04	
2	Check that parts were "bagged and tagged" with serial no.'s and part no.'s (ANL & SLAC) per SOW L143-00031, Section 4.1.3	ulator Assy Contra		
3	Check that parts were marked with serial numbers per SOW section 4.1.3.	ulator Assy Contra		
4	Check that accompanying certifications have correct part serial numbers	ulator Assy Contra		
5	Check the material certification for compliance with ASTM A801, Type 1	tor Assy Contracto		

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12. STEP NO.	13. INSPECTION/TEST REQUIREMENT	14. INSPECTION TEST LOCATION	18. ACCEPTED BY OR NONCONFORMANCE REPORT NO.	19. DATE
6	Check the anneal certification for compliance with AMS-A801, or a specified material supplier's annealing schedule.	tor Assy Contracto	NA	
7	Check that the machining Contractor's certified dimensional measurements are in compliance with the drawing	ANL	2/12/07 JPB TB	
8	Verify the critical dimensions as listed in the SOW, Section 4.5.2 are in compliance with the drawing	ulator Assy Contra	NA	

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1. DISTRIBUTION:

INSPECTION REQUIRED: ☑

4. ORIGINATOR'S NAME & DIVISION: Glen Lawrence/XFD 5. PHONE: 2-9298 6. DATE: 03/10/2005

9. FOR INSPECTION, DELIVER TO BLDG. NO.: 401 DIVISION: XFD ATTN.: Glen Lawrence

10. AFTER INSPECTION, DELIVER TO BLDG. NO.: 401 DIVISION: XFD ATTN.: Glen Lawrence

11. REFERENCES AND/OR REMARKS:

Most of the magnets will be drop shipped directly to the Undulator Assembly Contractor, who will only perform limited physical inspection of the parts as they are highly magnetized. A sampling from each lot will be sent to ANL for verification of the magnetic field properties.

15. ORIGINATOR OF PLAN: Glen Lawrence DATE: 02/07/2005

16. PLAN REVIEWED/APPROVED BY: DATE: 00/00/0000

17. QAR CONCURRENCE WITH PLAN: DATE: 00/00/0000

3. ACL NO.: E5-069069 LINE NBR: 1

7. PART NO. & NAME: L143-110106 Upper Left Magnet Structure 8. QUANTITY: 192

12. STEP NO.	13. INSPECTION/TEST REQUIREMENT	14. INSPECTION TEST. LOCATION	18. ACCEPTED BY OR NONCONFORMANCE REPORT NO.	19. DATE
1	Visual inspection of parts for shipping damage	ulator Ass'y Contra	Hi tech QA records	10/17/05
2	Visual inspection of parts for surface chips and pits	ulator Ass'y Contra	↓	↓
3	Dimensional check of part for conformance to the drawing	ulator Ass'y Contra		
4	Review vendor certified test data agrees with SOW requirements Lot 21	APS Bldg 401	JFS	2/12/07 TD
5	Review Vendor sort list for agreement with sort procedure.	APS Bldg 401	[illegible]	12/8/06 SJ

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12. STEP NO.	13. INSPECTION/TEST REQUIREMENT	14. INSPECTION TEST LOCATION	18. ACCEPTED BY OR NONCONFORMANCE REPORT NO.	19. DATE
6	On random sampling, inspect magnetic field with magnetic visualization film for magnetic defects.	APS Magnet Group	Shyji Sasaki	12/8/06
7	On random sampling, confirm Magnetic Moment magnitude and vector components agree with vendor reports	APS Magnet Group		
8	On radom sampling, verify the magnet s demagnetization and thermal stability.	APS Magnet Group		

Not Required Fields

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1. DISTRIBUTION:

INSPECTION REQUIRED: ☑

4. ORIGINATOR'S NAME & DIVISION: Glen Lawrence/XFD 5. PHONE: 2-9298 6. DATE: 01/20/2005

9. FOR INSPECTION, DELIVER TO BLDG. NO.: N/A DIVISION: ATTN.:

10. AFTER INSPECTION, DELIVER TO BLDG. NO.: NA DIVISION: ATTN.:

11. REFERENCES AND/OR REMARKS:

Strongbacks are to be delivered to undulator assembly contractor by machining contractor. Undulator assembly contractor shall inspect strongback prior to acceptance. Argonne National Laboratory shall review all certification and machining vendor's reported measurements and optionally on-site inspections

15. ORIGINATOR OF PLAN: Glen Lawrence DATE: 01/20/2005

16. PLAN REVIEWED/APPROVED BY: DATE: 00/00/0000

17. QAR CONCURRENCE WITH PLAN: DATE: 00/00/0000

3. ACL NO.: E5-020020 LINE NBR: 1

7. PART NO. & NAME: L143-110700 LCLS Undulator Strongback 8. QUANTITY: 40

12. STEP NO.	13. INSPECTION/TEST REQUIREMENT	14. INSPECTION TEST LOCATION	18. ACCEPTED BY OR NONCONFORMANCE REPORT NO.	19. DATE
1	Visual inspection of part for shipping damage. A) Were critical surfaces protected per SOW L143-00030 Section 4.1.4? B) Is there any visible damage?	lulator Ass'y Contra		
2	Check Strongback is marked with serial number & part no.'s (ANL and SLAC) per SOW Section 4.1.3	lulator Ass'y Contra		
3	Check all accompanying Certifications have correct part serial number.	lulator Ass'y Contra		
4	Check Material Certiication for compliance with ASTM B381-03, Grade F	ıtor Ass'y Contractc		
5	Check Forging Annealing Certification for annealing conformance to AMS-H-81200A, Table V, commercial Pure, Bars & Forgings, including Note 8	ıtor Ass'y Contractc		

Not Required Fields

ARGONNE NATIONAL LABORATORY

ACCEPTANCE CRITERIA LISTING

12. STEP NO.	13. INSPECTION/TEST REQUIREMENT	14. INSPECTION TEST LOCATION	18. ACCEPTED BY OR NONCONFORMANCE REPORT NO.	19. DATE
6	Check Rough Machining Anneal Certification for annealing conformance to AMS 2801B section 3.2.9	ıtor Ass'y Contract(		
7	Check the strongback contractor's reported dimensional measurements against the part drawing.	ırgonne National La	TOurry	2/16/07 TB
8	Verify the strongback critical dimensions as listed in the SOW section 4.5.2 are in compliance with the print.	lulator Ass'y Contra		

Device # 27, Magnet Lot # 21

Date 12/8/06 Device# _____ Start Time 11:08 Start Temperature 21.4 °C

Slot	Value	Slot	Value	Slot	Value	Slot	Value	Slot	Value
1		51	-1.27	101	-1.27	151	-1.27	201	-1.27
2	.74	52	1.27	102	1.27	152	1.27	202	1.27
3	-1.20	53	-1.26	103	-1.27	153	-1.27	203	-1.26
4	1.28	54	1.26	104	1.27	154	1.27	204	1.26
5	-1.26	55	-1.26	105	-1.26	155	-1.27	205	-1.26
6	1.26	56	1.26	106	1.26	156	1.26	206	1.26
7	-1.26	57	-1.27	107	-1.27	157	-1.27	207	-1.26
8	1.26	58	1.27	108	1.27	158	1.26	208	1.27
9	-1.26	59	-1.27	109	-1.27	159	-1.27	209	-1.27
10	1.26	60	1.27	110	1.27	160	1.27	210	1.27
11	-1.27	61	-1.26	111	-1.27	161	-1.27	211	-1.27
12	1.26	62	1.27	112	1.27	162	1.26	212	1.26
13	-1.26	63	-1.26	113	-1.26	163	-1.27	213	-1.26
14	1.25	64	1.26	114	1.26	164	1.26	214	1.25
15	-1.26	65	-1.27	115	-1.27	165	-1.26	215	-1.26
16	1.26	66	1.27	116	1.26	166	1.27	216	1.25
17	-1.26	67	-1.27	117	-1.27	167	-1.26	217	-1.26
18	1.27	68	1.27	118	1.27	168	1.27	218	1.26
19	-1.27	69	-1.26	119	-1.27	169	-1.27	219	-1.26
20	1.26	70	1.26	120	1.26	170	1.27	220	1.26
21	-1.27	71	-1.26	121	-1.26	171	-1.27	221	-1.26
22	1.26	72	1.27	122	1.26	172	1.26	222	1.25
23	-1.26	73	-1.26	123	-1.27	173	-1.28	223	-1.28
24	1.26	74	1.26	124	1.26	174	1.27	224	1.20
25	-1.26	75	-1.27	125	-1.27	175	-1.27	225	-0.73
26	1.26	76	1.26	126	1.27	176	1.27		
27	-1.26	77	-1.26	127	-1.27	177	-1.27		
28	1.27	78	1.27	128	1.26	178	1.27		
29	-1.27	79	-1.26	129	-1.26	179	-1.27		
30	1.26	80	1.26	130	1.27	180	1.27		
31	-1.27	81	-1.26	131	-1.27	181	-1.27		
32	1.26	82	1.27	132	1.27	182	1.27		
33	-1.26	83	-1.26	133	-1.27	183	-1.27		
34	1.27	84	1.26	134	1.27	184	1.27		
35	-1.26	85	-1.27	135	-1.27	185	-1.27		
36	1.26	86	1.27	136	1.27	186	1.27		
37	-1.27	87	-1.27	137	-1.26	187	-1.26		
38	1.25	88	1.27	138	1.25	188	1.26		
39	-1.26	89	-1.26	139	-1.27	189	-1.26		
40	1.27	90	1.26	140	1.27	190	1.26		
41	-1.26	91	-1.27	141	-1.26	191	-1.27		
42	1.27	92	1.26	142	1.27	192	1.27		
43	-1.27	93	-1.27	143	-1.27	193	-1.27		
44	1.26	94	1.27	144	1.26	194	1.27		
45	-1.27	95	-1.27	145	-1.27	195	-1.26		
46	1.26	96	1.26	146	1.26	196	1.27		
47	-1.26	97	-1.26	147	-1.26	197	-1.26		
48	1.27	98	1.26	148	1.27	198	1.26		
49	-1.26	99	-1.26	149	-1.27	199	-1.27		
50	1.27	100	1.27	150	1.26	200	1.27		

End Temperature 21.8°

End Time 11:26

Hall Probe S/N 01231053

Signatures:

Device # 27, Magnet Lot # 21

Date 12/8/06 Device# _____ Start Time 11:08 Start Temperature 21.4 °C

Slot	Value	Slot	Value	Slot	Value	Slot	Value	Slot	Value
1		51	-1.27	101	-1.27	151	-1.27	201	-1.27
2	.74	52	1.27	102	1.27	152	1.27	202	1.27
3	-1.20	53	-1.26	103	-1.27	153	-1.27	203	-1.26
4	1.28	54	1.26	104	1.27	154	1.27	204	1.26
5	-1.26	55	-1.26	105	-1.26	155	-1.27	205	-1.26
6	1.26	56	1.26	106	1.26	156	1.26	206	1.26
7	-1.26	57	-1.27	107	-1.27	157	-1.27	207	-1.26
8	1.26	58	1.27	108	1.27	158	1.26	208	1.27
9	-1.26	59	-1.27	109	-1.27	159	-1.27	209	-1.27
10	1.26	60	1.27	110	1.27	160	1.27	210	1.27
11	-1.27	61	-1.26	111	-1.27	161	-1.27	211	-1.27
12	1.26	62	1.27	112	1.27	162	1.26	212	1.26
13	-1.26	63	-1.26	113	-1.26	163	-1.27	213	-1.26
14	1.25	64	1.26	114	1.26	164	1.26	214	1.25
15	-1.26	65	-1.27	115	-1.27	165	-1.26	215	-1.26
16	1.26	66	1.27	116	1.26	166	1.27	216	1.25
17	-1.26	67	-1.27	117	-1.27	167	-1.26	217	-1.26
18	1.27	68	1.27	118	1.27	168	1.27	218	1.26
19	-1.27	69	-1.26	119	-1.27	169	-1.27	219	-1.26
20	1.26	70	1.26	120	1.26	170	1.27	220	1.26
21	-1.27	71	-1.26	121	-1.26	171	-1.27	221	-1.26
22	1.26	72	1.27	122	1.26	172	1.26	222	1.25
23	-1.26	73	-1.26	123	-1.27	173	-1.28	223	-1.28
24	1.26	74	1.26	124	1.26	174	1.27	224	1.20
25	-1.26	75	-1.27	125	-1.27	175	-1.27	225	-0.73
26	1.26	76	1.26	126	1.27	176	1.27		
27	-1.26	77	-1.26	127	-1.27	177	-1.27		
28	1.27	78	1.27	128	1.26	178	1.27		
29	-1.27	79	-1.26	129	-1.26	179	-1.27		
30	1.26	80	1.26	130	1.27	180	1.27		
31	-1.27	81	-1.26	131	-1.27	181	-1.27		
32	1.26	82	1.27	132	1.27	182	1.27		
33	-1.26	83	-1.26	133	-1.27	183	-1.27		
34	1.27	84	1.26	134	1.27	184	1.27		
35	-1.26	85	-1.27	135	-1.27	185	-1.27		
36	1.26	86	1.27	136	1.27	186	1.27		
37	-1.27	87	-1.27	137	-1.26	187	-1.26		
38	1.25	88	1.27	138	1.25	188	1.26		
39	-1.26	89	-1.26	139	-1.27	189	-1.26		
40	1.27	90	1.26	140	1.27	190	1.26		
41	-1.26	91	-1.27	141	-1.26	191	-1.27		
42	1.27	92	1.26	142	1.27	192	1.27		
43	-1.27	93	-1.27	143	-1.27	193	-1.27		
44	1.26	94	1.27	144	1.26	194	1.27		
45	-1.27	95	-1.27	145	-1.27	195	-1.26		
46	1.26	96	1.26	146	1.26	196	1.27		
47	-1.26	97	-1.26	147	-1.26	197	-1.26		
48	1.27	98	1.26	148	1.27	198	1.26		
49	-1.26	99	-1.26	149	-1.27	199	-1.27		
50	1.27	100	1.27	150	1.26	200	1.27		

End Temperature 21.8°

End Time 11:26

Hall Probe S/N 0123/053

Signatures:

LCLS
Linac Coherent Light Source Stanford Synchrotron Radiation Laboratory Stanford Linear Accelerator Center

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: Hi-Tech Manufacturing, Inc.

PART NAME: Upper Right Magnet Structure Base

DRAWING #: L143-111201

SERIAL #: Ll43-111200-27

P.O. #: 5A13624

DATE: 10-15-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE(S)	
Bottom surface to pole base surface (all surfaces)	30	+0 / -.03	Max / Min 29.997/29.980	Accept/Reject
Bottom surface flatness	</= .04	N/A	0.02	Accept/Reject
Overall length	189	+0 / -.1	188.97	Accept/Reject
Overall width	128	+0 / -.1	127.98	Accept/Reject

INSPECTOR: Nuelaza

QA Supervisor: Nuelaza

TEST EQUIPMENT USED: CMM & Micrometer.

COMMENTS:

LCLS
Linac Coherent Light Source Stanford Synchrotron Radiation Laboratory
Stanford Linear Accelerator Center

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: Hi-Tech Manufacturing, Inc.

PART NAME: Lower Right Magnet Structure Base

DRAWING #: L143-111301

SERIAL #: L143-111300-27

P.O. #: 5A13624

DATE: 10-15-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE(S)	
Bottom surface to pole base surface (all surfaces)	30	+0 / -.03	Max / Min 30.00/29.975	Accept/Reject
Bottom surface flatness	</= .04	N/A	0.015	Accept/Reject
Overall length	189	+0 / -.1	188.975	Accept/Reject
Overall width	128	+0 / -.1	127.971	Accept/Reject

INSPECTOR: Muelaza

QA Supervisor: Muelaza

TEST EQUIPMENT USED: CMM & Micrometer.

COMMENTS:

LCLS Linac Coherent Light Source Stanford Synchrotron Radiation Laboratory Stanford Linear Accelerator Center

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: Hi-Tech Manufacturing, Inc.

PART NAME: Upper Left Magnet Structure Base

DRAWING #: L143-110801

SERIAL #: L143-110800-27

P.O. #: 5A13624

DATE: 10-15-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE(S)	
Bottom surface to pole base surface (all surfaces)	30	+0 / -.03	Max / Min 29.995/29.987	Accept/Reject
Bottom surface flatness	<= .04	N/A	0.012	Accept/Reject
Overall length	195	+0 / -.1	194.979	Accept/Reject
Overall width	128	+0 / -.1	127.967	Accept/Reject

INSPECTOR: Mustaza

QA Supervisor: Mustaza

TEST EQUIPMENT USED: CMM & Micrometer.

COMMENTS:

LCLS Linac Coherent Light Source Stanford Synchrotron Radiation Laboratory Stanford Linear Accelerator Center

Procedure Number: L143-00076
Revision: 0
Issue Date: April 14, 2005

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: Hi-Tech Manufacturing, Inc.

PART NAME: Lower Left Magnet Structure Base

DRAWING #: L143-110901

SERIAL #: L143-110900-27

P.O. #: 5A13624

DATE: 10-15-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE(S)	
Bottom surface to pole base surface (all surfaces)	30	+0 / -.03	Max / Min 30.00/29.997	Accept/Reject
Bottom surface flatness	<= .04	N/A	.015	Accept/Reject
Overall length	195	+0 / -.1	194.985	Accept/Reject
Overall width	128	+0 / -.1	127.973	Accept/Reject

INSPECTOR: Muelaz

QA Supervisor: Muelaz

TEST EQUIPMENT USED: CMM & Micrometer .

COMMENTS: .

LCLS Linac Coherent Light Source Stanford Synchrotron Radiation Laboratory Stanford Linear Accelerator Center

Procedure Number: L143-00076
Revision: 0
Issue Date: April 14, 2005

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: Hi-Tech Manufacturing, Inc.

PART NAME: Upper Middle Magnet Structure Base

DRAWING #: L143-111001-01

SERIAL #: L143-111000-1-27

P.O. #: 5A13624

DATE: 10-15-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE(S)	
Bottom surface to pole base surface (all surfaces)	30	+0 / -.03	Max / Min 29.995/29.980	Accept/Reject
Bottom surface flatness	<= .04	N/A	.04	Accept/Reject
Overall length	1005.0	+0 / -.1	1004.92	Accept/Reject
Overall width	128	+0 / -.1	127.95	Accept/Reject

INSPECTOR: Muelaza

QA Supervisor: Muelaza

TEST EQUIPMENT USED: CMM & Micrometer.

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: Hi-Tech Manufacturing, Inc.

PART NAME: Upper Middle Magnet Structure Base

DRAWING #: L143-111001-01

SERIAL #: L143-111000-2-27

P.O. #: 5A13624

DATE: 10-15-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE(S)	
Bottom surface to pole base surface (all surfaces)	30	+0 / -.03	Max / Min 29.985/29.970	Accept/Reject
Bottom surface flatness	<= .04	N/A	.04	Accept/Reject
Overall length	1005.0	+0 / -.1	1004.92	Accept/Reject
Overall width	128	+0 / -.1	127.94	Accept/Reject

INSPECTOR: Mulaza

QA Supervisor: Mulaza

TEST EQUIPMENT USED: CMM & Micrometer.

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: Hi-Tech Manufacturing, Inc.

PART NAME: Upper Middle Magnet Structure Base

DRAWING #: L143-111001-01

SERIAL #: L143-111000-3-27

P.O. #: 5A13624

DATE: 10-15-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE(S)	
Bottom surface to pole base surface (all surfaces)	30	+0 / -.03	Max / Min 29.990/29.970	Accept/Reject
Bottom surface flatness	<= .04	N/A	.035	Accept/Reject
Overall length	1005.0	+0 / -.1	1004.94	Accept/Reject
Overall width	128	+0 / -.1	127.94	Accept/Reject

INSPECTOR: Muelaza

QA Supervisor: Muelaza

TEST EQUIPMENT USED: CMM & Micrometer.

COMMENTS:

LCLS Linac Coherent Light Source Stanford Synchrotron Radiation Laboratory Stanford Linear Accelerator Center

Procedure Number: L143-00076
Revision: 0
Issue Date: April 14, 2005

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: Hi-Tech Manufacturing, Inc.

PART NAME: Lower Middle Magnet Structure Base

DRAWING #: L143-111101-01

SERIAL #: L143-111100-1-27

P.O. #:5A13624

DATE: 10-15-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE(S)	
Bottom surface to pole base surface (all surfaces)	30	+0 / -.03	Max / Min 29.984/29.975	Accept/Reject
Bottom surface flatness	<= .04	N/A	.04	Accept/Reject
Overall length	1005	+0 / -.1	1004.92	Accept/Reject
Overall width	128	+0 / -.1	127.927	Accept/Reject

INSPECTOR: Muelaze

QA Supervisor: Muelaze

TEST EQUIPMENT USED: CMM & Micrometer.

COMMENTS:

LCLS Linac Coherent Light Source Stanford Synchrotron Radiation Laboratory Stanford Linear Accelerator Center

Procedure Number: L143-00076
Revision: 0
Issue Date: April 14, 2005

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: Hi-Tech Manufacturing, Inc. PART NAME: Lower Middle Magnet Structure Base

DRAWING #: L143-111101-01 SERIAL #: L143-111100-2-27

P.O. #:5A13624 DATE: 10-15-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE(S)	
Bottom surface to pole base surface (all surfaces)	30	+0 / -.03	Max / Min 29.990/29.985	Accept/Reject
Bottom surface flatness	<= .04	N/A	.04	Accept/Reject
Overall length	1005	+0 / -.1	1004.93	Accept/Reject
Overall width	128	+0 / -.1	127.927	Accept/Reject

INSPECTOR: Muldaza QA Supervisor: Muldaza

TEST EQUIPMENT USED: CMM & Micrometer.

COMMENTS:

LCLS Linac Coherent Light Source — Stanford Synchrotron Radiation Laboratory, Stanford Linear Accelerator Center

Procedure Number: L143-00076
Revision: 0
Issue Date: April 14, 2005

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: Hi-Tech Manufacturing, Inc.

PART NAME: Lower Middle Magnet Structure Base

DRAWING #: L143-111101-01

SERIAL #: L143-111100-3-27

P.O. #:5A13624

DATE: 10-15-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE(S)	
Bottom surface to pole base surface (all surfaces)	30	+0 / -.03	Max / Min 29.980/29.972	Accept/Reject
Bottom surface flatness	<= .04	N/A	.04	Accept/Reject
Overall length	1005	+0 / -.1	1004.90	Accept/Reject
Overall width	128	+0 / -.1	127.925	Accept/Reject

INSPECTOR: Murlaza

QA Supervisor: Murlaza

TEST EQUIPMENT USED: CMM & Micrometer.

COMMENTS:

Argonne National Lab
Strongback -L143-110700
Inspection and Test Results

Serial Number	#	27	Inspector	Floyd
Date		10/12/06		

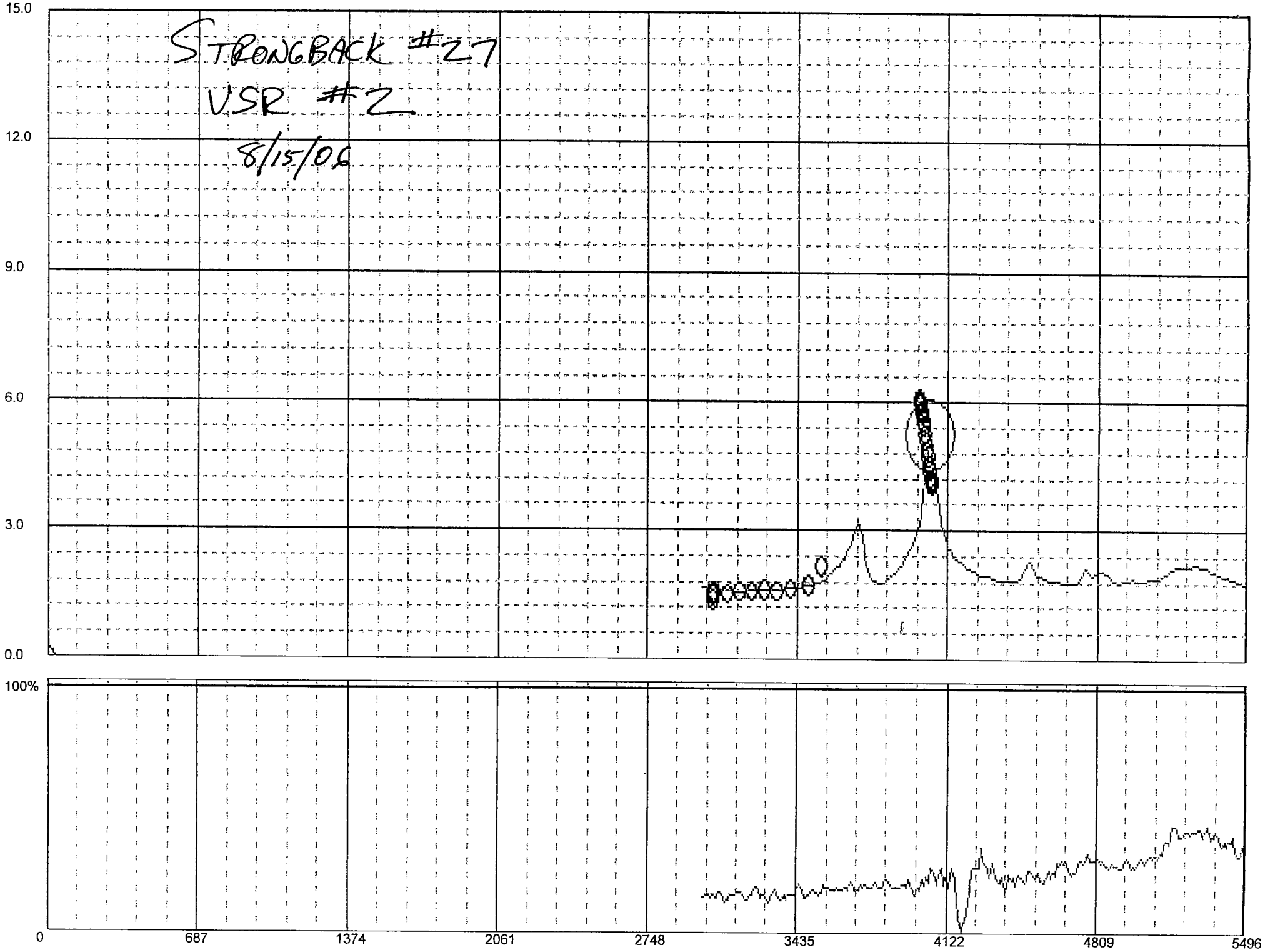
CMM Critical Feature Results	*Req*	*Tolr*	*Actual*	
flatness - plane -A-		.050	.031	
side opposite -A- flatness		.050	.038	
surface finish -A-	1.6		0.8	
surface finish side opposite -A-	1.6		0.9	
-B- surface flatness		.050	.030	
-B- surface perp to -A-		.100	.020	
Pads				
RH Mounting Pad parallel to -A-		.050	.009	
LH Mounting Pad parallel to -A-		.050	.008	
Overall Length	3400.00	+.000/-.200	-.169	
LH end to 1700mm holes right	1700.00	+.000/-.100	-.083	
LH end to 1700mm holes left	1700.00	+.000/-.100	-.083	
side opposite -A- 167.00 dim	167.00	+.050/-.000	+.026	plane to plane
Individual Gaps	167.00		+.012 / +.043	direct gaps
side -A- to Centerline 83.5	83.50	+/- .080	+.013	
Other Dimensions		*Date*	*Reviewer*	
		10/12	skl	see notes

Material and Certifications		*Date*	*Reviewer*	
Material Certs		10/12	skl	
Heat Treat Certs		10/12	skl	
Visual inspection of Material		10/12	skl	

Approvals	
.	
.	

Temps	
20.8	Start
21.3	Finish

	Strongback #27 Non-critical Features		
A	Tap holes in end opposite datum -C-	3 of 10	worst hole .028mm out of position tolerance
B	5/16 -x18 Tap holes in small pads	8 pads	all holes shifted .120mm horizontally. Tolerance is +/-.080mm. Relationship to each other is within tolerance
C	M12 Lift holes in top of part	2 of 2	holes shifted .117/.118mm horizontally. Tolerance is .100mm
D	M12 Mounting Pad holes in bottom of part	1 of 6	All mounting pad holes shifted horizontally. Worst hole is .116mm out of tolerance
E	10mm holes and 15mm C'bores	3 of 132 holes 2 C'bores	Out of tolerance for True Position. Worst is .103 out of tolerance. Bolt clearance is +/- 1.0mm


STRONGBACK #27
VSR #2
8/15/06
15.0
12.0
9.0
6.0
3.0
0.0
100%
0
687
1374
2061
2748
3435
4122
4809
5496

21,23,25,27,29,31

CORROSION MATERIALS TEST REPORT

2262 Groom Rd.
Baker, LA 70714
(225) 775 - 3675 (Main Office)
(225) 778 - 6436 (Quality Control)
(225) 778 - 6489 (Fax)

Date: 3/9/2006

Customer: Dial Machine

PO No: 102437 & 102669

CMI No: C89385 C83758

Alloy: TI GR2 Heat No: 089-1 Quantity: 6 PCS

Item Description: 12" DIA RND BAR X 137"

Specifications DIN 50049 3.1B ASTM B348, ASME SB348
EN 10204 3.1B

Chemical Components

C	CO	CR	CU	FE	MN	MO	NI	P	S
0.02	—	—	—	0.05	—	—	—	—	—
SI	TI	V	W	CB+TA	SN	AL	ZN	PB	N
—	—	—	—	—	—	—	—	—	0.010

Mechanical Properties

Tensile Strength: Elongation in 2":

Yield Strength: Reduction in Area:

Hardness:

Remarks: O=0.10, H=0.002, TI=BAL
CHEMISTRY ONLY
MATERIAL HAS BEEN ANNEALED PER AMS-H-81200 AND WAS ANNEALLED AT 1200 DEG FOR 4 HOURS.

The information stated in this document is true and accurate based upon information acquired by and maintained on file at Corrosion Materials.

Certified by: Tom Holstein

Title: Quality Control Coordinator

According to records provided by mill sources, all material has been manufactured free from mercury.
Corrosion Materials is an ISO 9001-2000 certified company, registered with RWTUV USA.

International Company «ANTARES»

CERTIFICATE OF QUALITY № 285

Kind of product				titanium cast cylindrical billet								Tu U 27.4-20056770-001-2003			
Customer	"Rovena" / "M-Solutions LLC"										CONTRACT № 26/05-05			dated 26.05.2005	
Material	Grade 2										ASTM B 348-00			Date of issue: 14.07.2005	
Size, mm Diam x length	Weight kg	№ of melting	Place of test	Chemical specification, %										Ultrasonic test	Condition of surface
				Ti	Fe	O	N	H	C	Residuals (each) max	Residuals (total) max				
807 X 3437	7906	089-1	Top	Base	0.06	0.07	0.010	0.002	0.03	≤ 0,1	≤ 0,4			acceptable	machined
			Bottom		0.05	0.10	0.010	0.002	0.03	≤ 0,1	≤ 0,4				

Chief of technological department — Darecha A.Y.

Chief of quality control department — Krivoshlykov U.M.

1/25,25,27,29,31

SUPPLIER DISPOSITION REQUEST (SDR)

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

Page ___ of ___

(CHECK ONE)

☑ 1A. **Deviation Request**

☐ 1B. **Nonconformance Action Request**

2. SDR No. 27- 0-2

3. SDR Date 10/02/2006

4. Supplier Name, Address, Telephone, Fax

Dial Machine, Inc
2902 Eastrock Dr.
Rockford, IL 61125

5. Purchase Order No. 51-0488

6. Related Documents

6.1 _____ Date _____

7. Qty.	8. Describe Nonconforming Condition	9. Identify Requirement	10. Cause & Corrective Action
1	Strongback: #27 15mm C'bores in along top of part are bored 1.5mm deeper than print dimension.		Cause - Raw material is not straight. There is no specific print tolerance. The C'bores, when put in at correct depth, left a less 100% seat for the bolt heads. The C'bores were made deeper, by enough to ensure a proper seating for bolt heads. Corrective action - No action may be necessary if designed bolt length has more than 1.5mm clearance. If not shorter bolts can be used.

SUPPLIER'S COMMENTS
(IF YES, EXPLAIN):

11. Affects Form, Fit or Function

☐ Yes ☐ No

12. Affects Price

☐ Yes ☑ No

13. Affects Delivery

☐ Yes ☑ No

14. Recommended Disposition and Comments:

Approve corrective action

10/3/06

15. SUPPLIER REPRESENTATIVE – TITLE – DATE

16. ANL REPRESENTATIVE – DATE

17. ANL Disposition and Remarks: The Contractor's Corrective action is acceptable. If bolt length becomes an issue, a washer will correct it.

18. Approved

10/04/06 — TECHNICAL REPRESENTATIVE – DATE

11/4/06 — QUALITY ASSURANCE REPRESENTATIVE – DATE

10/6/06 — PROCUREMENT REPRESENTATIVE – DATE

ANL-311 (4-94)

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR AS-BUILT DRAWINGS

VENDOR: **Dial Machine, Inc.**

PART NAME: **LCLS Strongback**

DRAWING #: **L143-110700**

SERIAL #: 27

P.O.#: **5A-13624**

DATE: 12-06-06

#	Inspection/Test Requirement	Inspection Test Location	Accepted by or Nonconformance Report No.	Date
1	Visual inspection of part for shipping damage. A) Were critical surfaces protected per SOW L143-00030 Section 4.1.4? B) Is there any visible damage?	H.T.	SIMON	12/06/06
2	Check Strongback is marked with serial number & part no.'s (ANL & SLAC) per SOW Section 4.1.3?	H.T.	SIMON	12/06/06
3	Check all accompanying Certifications have correct part serial number	H.T.	SIMON	12/06/06
4	Check Material Certification for compliance with ASTM B381-03 or ASTM B348, Grade F2	H.T.	SIMON	12/06/06
5	Check Forging Annealing Certification for annealing conformance to AMS-H-81200A, Table V, commercial Pure, Bars & Forgings, including Note 8	H.T.	SIMON	12/06/06
6	Check Rough Machining Anneal Certification for annealing conformance to AMS-2801B section 3.2.9	H.T.	SIMON	12/06/06
7	Check the Strongback contractor's reported dimensional measurements against the part drawing	H.T.	SIMON	12/06/06
8	Verify the Strongback critical dimensions as listed in the SOW section 4.5.2 are in compliance with the print	H.T.	SIMON.	12/06/06

INSPECTOR: Simon.

QA Supervisor: [illegible]

TEST EQUIPMENT USED: VISUAL

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR AS-BUILT DRAWINGS

VENDOR:

PART NAME: LCLS Strongback

DRAWING #: L143-110700

SERIAL #: 27

P.O. #: 5A-13624

DATE: 12-06-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Overall length	3400.00	+0 / -.2	3399.82	Accept/Reject
Gap height	167.00	+0.05 / -.0	167.04	Accept/Reject
Gap flatness (top and bottom)	</= .05	N/A	<= .04	Accept/Reject
Gap depth	130.00	+/- .08	130.03	Accept/Reject
Flatness of front face	</= .05	N/A	<= .03	Accept/Reject
Perpendicularity of front face to A	</= .1	N/A	<= .03	Accept/Reject
End face perpendicularity to A and B	</= .05	N/A	<= .03	Accept/Reject
Mounting Pads Area	60.00	+0.1/-.0	59.7/59.75	Accept/Reject
Holes Location	2 x 30.00	+0.1/-0.1	29.85/29.87	Accept/Reject

INSPECTOR: SIMON

QA Supervisor: Mulaze

TEST EQUIPMENT USED: DROP INDICATOR
DIAL CALIPER
SQUAR PRECISION

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR AS-BUILT DRAWINGS

VENDOR: Dial Machine, Inc.

PART NAME: LCLS Strongback

DRAWING #: L143-110700

SERIAL #: 27

P.O.#: 5A-13624

DATE: 12-06-06

FEATURE: Gap Flatness

#	Distance (mm)	Measured A	Measured B	Comments
1	50	-.0002	.0000	OK
2	350	.0000	.0001	OK
3	650	.0002	.0006	OK
4	950	.0004	.0005	OK
5	1250	.0008	.0009	OK
6	1550	.0007	.0007	OK
7	1850	.0007	.0007	OK
8	2150	+.0003	-.0004	OK
9	2450	-.0003	.0009	OK
10	2750	-.00010	.0012	OK
11	3050	-.0009	.0011	OK
12	3350	-.0010	.0012	OK

INSPECTOR: Simon

QA Supervisor: [illegible]

TEST EQUIPMENT USED: Sig TRANSIT MODEL: 711010

SERIAL # 231067

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09777

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.07	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Muelze

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09816

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	Accept/Reject
Magnet Width	66.00	+/- .25	66.02	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Murlatz

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 10043

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.03	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Mullage

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09972

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.06	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.97	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Murlaze

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09945

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	Accept/Reject
Magnet Width	66.00	+/- .25	66.04	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.97	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Murtaza

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09760

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.03	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.98	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Muelaz

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 10003

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	Accept/Reject
Magnet Width	66.00	+/- .25	66.06	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Mulaze

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09737

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.00	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Murtaza

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09788

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	56.99	Accept/Reject
Magnet Width	66.00	+/- .25	66.01	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Murlaza

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09922

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.02	Accept/Reject
Magnet Width	66.00	+/- .25	66.02	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Smow

QA Supervisor: Mulaze

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09987

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.01	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.95	Accept/Reject

INSPECTOR: Simow

QA Supervisor: Muelaz

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 10009

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	Accept/Reject
Magnet Width	66.00	+/- .25	66.04	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Muñoz

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09979

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.05	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.97	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Muñoz

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09785

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	Accept/Reject
Magnet Width	66.00	+/- .25	66.01	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Murtaza

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09903

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	Accept/Reject
Magnet Width	66.00	+/- .25	66.01	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Mwelate

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 10052

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	(Accept)/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	(Accept)/Reject
Magnet Width	66.00	+/- .25	66.02	(Accept)/Reject
Magnet thickness	9.00	+0 / -.10	8.97	(Accept)/Reject

INSPECTOR: Simon

QA Supervisor: Mustafa

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09660

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.01	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.97	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Mulaza

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09893

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.03	Accept/Reject
Magnet Width	66.00	+/- .25	66.02	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Murlaze

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 10017

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	Accept/Reject
Magnet Width	66.00	+/- .25	66.01	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Murtaza

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09714

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.01	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Murlaza

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 10072

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.04	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.97	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Murtagh

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09921

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.02	Accept/Reject
Magnet Width	66.00	+/- .25	66.08	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.97	Accept/Reject

INSPECTOR: Smod

QA Supervisor: Murlage

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09628

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	(Accept)/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.02	(Accept)/Reject
Magnet Width	66.00	+/- .25	66.02	(Accept)/Reject
Magnet thickness	9.00	+0 / -.10	8.95	(Accept)/Reject

INSPECTOR: Simad

QA Supervisor: Muelter

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09868

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	Accept/Reject
Magnet Width	66.00	+/- .25	66.00	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.95	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Mullage

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09839

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	(Accept) Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	56.99	(Accept) Reject
Magnet Width	66.00	+/- .25	66.01	(Accept) Reject
Magnet thickness	9.00	+0 / -.10	8.95	(Accept) Reject

INSPECTOR: Simon

QA Supervisor: Mulaze

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09857

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	56.99	Accept/Reject
Magnet Width	66.00	+/- .25	66.01	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.95	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Murtaza

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09876

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	(Accept)/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.02	(Accept)/Reject
Magnet Width	66.00	+/- .25	66.02	(Accept)/Reject
Magnet thickness	9.00	+0 / -.10	8.97	(Accept)/Reject

INSPECTOR: Simon

QA Supervisor: Murlage

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09682

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.04	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.98	Accept/Reject

INSPECTOR: Simon

QA Supervisor: [illegible]

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09608

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	Accept/Reject
Magnet Width	66.00	+/- .25	66.02	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Mulaze

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 10025

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	(Accept)/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	(Accept)/Reject
Magnet Width	66.00	+/- .25	66.01	(Accept)/Reject
Magnet thickness	9.00	+0 / -.10	8.95	(Accept)/Reject

INSPECTOR: Sinna

QA Supervisor: Mulaza

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 10054

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	Accept/Reject
Magnet Width	66.00	+/- .25	66.04	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.97	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Mulaze

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09865

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	(Accept) Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	(Accept) Reject
Magnet Width	66.00	+/- .25	66.02	(Accept) Reject
Magnet thickness	9.00	+0 / -.10	8.96	(Accept) Reject

INSPECTOR: Simon

QA Supervisor: Mulaze

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09634

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.02	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Murlaza

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09867

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.02	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.97	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Mwlaze

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09606

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.00	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Mulaza

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09641

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.04	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.97	Accept/Reject

INSPECTOR: Smmon

QA Supervisor: Mulcze

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09757

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.04	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.97	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Muelage

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09976

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	Accept/Reject
Magnet Width	66.00	+/- .25	66.04	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.97	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Mullozz

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09874

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	(Accept)/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	(Accept)/Reject
Magnet Width	66.00	+/- .25	66.02	(Accept)/Reject
Magnet thickness	9.00	+0 / -.10	8.96	(Accept)/Reject

INSPECTOR: Simod

QA Supervisor: Mulcage

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09724

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	(Accept) Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	(Accept) Reject
Magnet Width	66.00	+/- .25	66.02	(Accept) Reject
Magnet thickness	9.00	+0 / -.10	8.96	(Accept) Reject

INSPECTOR: Simon

QA Supervisor: Muelaz

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09649

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.02	Accept/Reject
Magnet Width	66.00	+/- .25	66.01	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simod

QA Supervisor: Mulaza

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 10074

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	65.99	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.95	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Nuñez

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09814

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.03	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simod

QA Supervisor: Muela

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 098.30

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.01	Accept/Reject
Magnet Width	66.00	+/- .25	66.00	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.95	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Mulaze

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09880

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.00	Accept/Reject
Magnet Width	66.00	+/- .25	65.99	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.96	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Murlaze

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

INSPECTION / ACCEPTANCE REPORT OF COMPONENTS FOR LCLS MAGNET ASSEMBLIES

VENDOR: **Shin-Etsu**

PART NAME: **LCLS Magnet**

DRAWING #: **L143-110106-04**

SERIAL #: 09793

P.O. #: **5A13624**

DATE: 10-17-06

ACCEPTANCE CRITERIA

1. Visually inspect for shipping damage.	Accept/Reject

CRITICAL DIMENSIONS (mm)

FEATURE	TARGET	TOLERANCE	MEASURED VALUE	
Magnet height	57.00	+/- .05	57.03	Accept/Reject
Magnet Width	66.00	+/- .25	66.07	Accept/Reject
Magnet thickness	9.00	+0 / -.10	8.98	Accept/Reject

INSPECTOR: Simon

QA Supervisor: Murlaze

TEST EQUIPMENT USED: **Drop Indicators**

COMMENTS:

LOT21 magnets Serial # 9601-10080

Bottom Jaw

Slot Number	Serial No.	Main filed Orientation	x-axis orientation
1	9793	Upstream	Left
2	9623	Downstream	Right
3	9835	Upstream	Right
4	9681	Downstream	Left
5	9904	Upstream	Left
6	9745	Downstream	Left
7	10034	Upstream	Right
8	9877	Downstream	Left
9	9841	Upstream	Right
10	9887	Downstream	Left
11	9880	Upstream	Left
12	9611	Downstream	Left
13	10035	Upstream	Right
14	9728	Downstream	Right
15	9621	Upstream	Left
16	9840	Downstream	Left
17	9915	Upstream	Left
18	9617	Downstream	Left
19	9937	Upstream	Right
20	10051	Downstream	Right
21	9830	Upstream	Left
22	9808	Downstream	Left
23	9962	Upstream	Right
24	9878	Downstream	Right
25	9763	Upstream	Right
26	9733	Downstream	Right
27	9729	Upstream	Left
28	10023	Downstream	Left
29	9875	Upstream	Left
30	9963	Downstream	Left
31	9814	Upstream	Right
32	9690	Downstream	Left
33	9843	Upstream	Right
34	9756	Downstream	Left
35	9731	Upstream	Left
36	9706	Downstream	Left
37	9890	Upstream	Left
38	9746	Downstream	Right
39	9646	Upstream	Right
40	9914	Downstream	Right
41	10074	Upstream	Left
42	9954	Downstream	Right
43	9965	Upstream	Right
44	9680	Downstream	Left
45	9975	Upstream	Left
46	9908	Downstream	Left
47	9719	Upstream	Left

Top Jaw

Slot Number	Serial No.	Main filed Orientation	x-axis orientation
1	9628	Downstream	Left
2	9817	Upstream	Left
3	9831	Downstream	Left
4	10050	Upstream	Left
5	10005	Downstream	Left
6	9655	Upstream	Left
7	9671	Downstream	Left
8	9767	Upstream	Left
9	9709	Downstream	Right
10	9861	Upstream	Left
11	9921	Downstream	Right
12	10021	Upstream	Right
13	9661	Downstream	Left
14	9848	Upstream	Left
15	9815	Downstream	Left
16	9698	Upstream	Left
17	9791	Downstream	Right
18	9997	Upstream	Left
19	9651	Downstream	Right
20	10031	Upstream	Left
21	10072	Downstream	Right
22	9858	Upstream	Right
23	9856	Downstream	Left
24	9870	Upstream	Left
25	9786	Downstream	Left
26	9625	Upstream	Right
27	10015	Downstream	Right
28	9601	Upstream	Right
29	10032	Downstream	Left
30	9609	Upstream	Right
31	9714	Downstream	Left
32	9993	Upstream	Right
33	9605	Downstream	Right
34	9941	Upstream	Right
35	9918	Downstream	Right
36	10059	Upstream	Left
37	9775	Downstream	Left
38	9730	Upstream	Left
39	10000	Downstream	Left
40	9907	Upstream	Right
41	10017	Downstream	Right
42	9742	Upstream	Left
43	9872	Downstream	Left
44	9735	Upstream	Right
45	9712	Downstream	Left
46	9658	Upstream	Right
47	9961	Downstream	Left

48	10022	Downstream	Right
49	9852	Upstream	Right
50	9985	Downstream	Right
51	9649	Upstream	Right
52	9685	Downstream	Right
53	9677	Upstream	Left
54	9645	Downstream	Right
55	9939	Upstream	Right
56	9951	Downstream	Right
57	9819	Upstream	Left
58	9630	Downstream	Right
59	9673	Upstream	Left
60	9670	Downstream	Right
61	9724	Upstream	Right
62	10055	Downstream	Right
63	9770	Upstream	Left
64	9726	Downstream	Right
65	9768	Upstream	Left
66	9842	Downstream	Left
67	9806	Upstream	Left
68	9688	Downstream	Left
69	9659	Upstream	Right
70	9931	Downstream	Left
71	9874	Upstream	Left
72	9694	Downstream	Right
73	9697	Upstream	Left
74	9800	Downstream	Left
75	9780	Upstream	Left
76	9744	Downstream	Right
77	10053	Upstream	Right
78	9713	Downstream	Right
79	9855	Upstream	Left
80	9772	Downstream	Right
81	9976	Upstream	Right
82	9881	Downstream	Right
83	9723	Upstream	Left
84	9715	Downstream	Left
85	9992	Upstream	Left
86	9968	Downstream	Right
87	9938	Upstream	Right
88	9614	Downstream	Left
89	9851	Upstream	Left
90	9799	Downstream	Right
91	9757	Upstream	Left
92	9669	Downstream	Left
93	10073	Upstream	Left
94	10037	Downstream	Right
95	9790	Upstream	Left
96	9700	Downstream	Right
97	9718	Upstream	Left
98	9654	Downstream	Left
99	9771	Upstream	Right

48	9866	Upstream	Right
49	10001	Downstream	Left
50	9626	Upstream	Left
51	9893	Downstream	Left
52	9637	Upstream	Left
53	9948	Downstream	Right
54	10064	Upstream	Left
55	9753	Downstream	Right
56	9692	Upstream	Left
57	9667	Downstream	Left
58	9811	Upstream	Left
59	10068	Downstream	Left
60	9935	Upstream	Right
61	9660	Downstream	Left
62	9602	Upstream	Right
63	10079	Downstream	Right
64	9901	Upstream	Right
65	9998	Downstream	Right
66	9953	Upstream	Left
67	9619	Downstream	Left
68	9813	Upstream	Left
69	9977	Downstream	Right
70	9847	Upstream	Left
71	10052	Downstream	Left
72	10057	Upstream	Right
73	9703	Downstream	Right
74	9618	Upstream	Right
75	9798	Downstream	Left
76	9849	Upstream	Right
77	9702	Downstream	Left
78	9991	Upstream	Left
79	9732	Downstream	Left
80	9773	Upstream	Right
81	9903	Downstream	Right
82	9834	Upstream	Right
83	9784	Downstream	Right
84	9691	Upstream	Right
85	9862	Downstream	Right
86	9674	Upstream	Left
87	9978	Downstream	Left
88	9807	Upstream	Left
89	9803	Downstream	Right
90	10036	Upstream	Left
91	9785	Downstream	Left
92	9955	Upstream	Right
93	9859	Downstream	Left
94	9752	Upstream	Left
95	9923	Downstream	Left
96	9782	Upstream	Right
97	9910	Downstream	Right
98	9802	Upstream	Left
99	9717	Downstream	Right

100	10046	Downstream	Left
101	9641	Upstream	Right
102	10042	Downstream	Left
103	9960	Upstream	Right
104	9607	Downstream	Left
105	9648	Upstream	Left
106	9902	Downstream	Right
107	9969	Upstream	Right
108	9996	Downstream	Right
109	9988	Upstream	Right
110	10049	Downstream	Right
111	9606	Upstream	Right
112	9971	Downstream	Right
113	9820	Upstream	Right
114	9769	Downstream	Right
115	9699	Upstream	Right
116	9631	Downstream	Left
117	9750	Upstream	Right
118	10006	Downstream	Right
119	9809	Upstream	Right
120	9853	Downstream	Right
121	9867	Upstream	Right
122	9984	Downstream	Right
123	9721	Upstream	Right
124	9917	Downstream	Left
125	9836	Upstream	Right
126	9986	Downstream	Left
127	9957	Upstream	Left
128	9672	Downstream	Left
129	9864	Upstream	Right
130	9879	Downstream	Left
131	9634	Upstream	Left
132	9966	Downstream	Right
133	9704	Upstream	Left
134	9707	Downstream	Left
135	9734	Upstream	Right
136	9708	Downstream	Left
137	9913	Upstream	Right
138	10039	Downstream	Right
139	9895	Upstream	Right
140	9827	Downstream	Left
141	9865	Upstream	Right
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221	9777	Downstream	Right
222	9990	Upstream	Left
223	9789	Downstream	Left
224	10008	Upstream	Left
225	9603	Downstream	Right

For "X-Axis Orientation" column
"Right" stands for right-numbered surface should face to the undulator axis.
"Left" stands for left-numbered surface should face to the undulator axis.
This "Right", "Left" procedure applies for both Top and Bottom Jaw

For "Main-Field Orientation" column **(see Assembly Procedure Document)**
"Downstream" side corresponts to the direction of lower-numbered slot.
Arrow should point toward the lower numbered slots.
"Upstream" side corresponds to the direction of higher-numbered slot.
Arrow should point toward the higher numbered slots.

Spare magnets

serial No.	Reduced Magnetization
9629	33%
9804	80%
9698	went TJ16
9967	
9689	
9929	
9738	
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9896	
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Sample magnets

serial No.	
9632	
9720	
9822	
9905	
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9898
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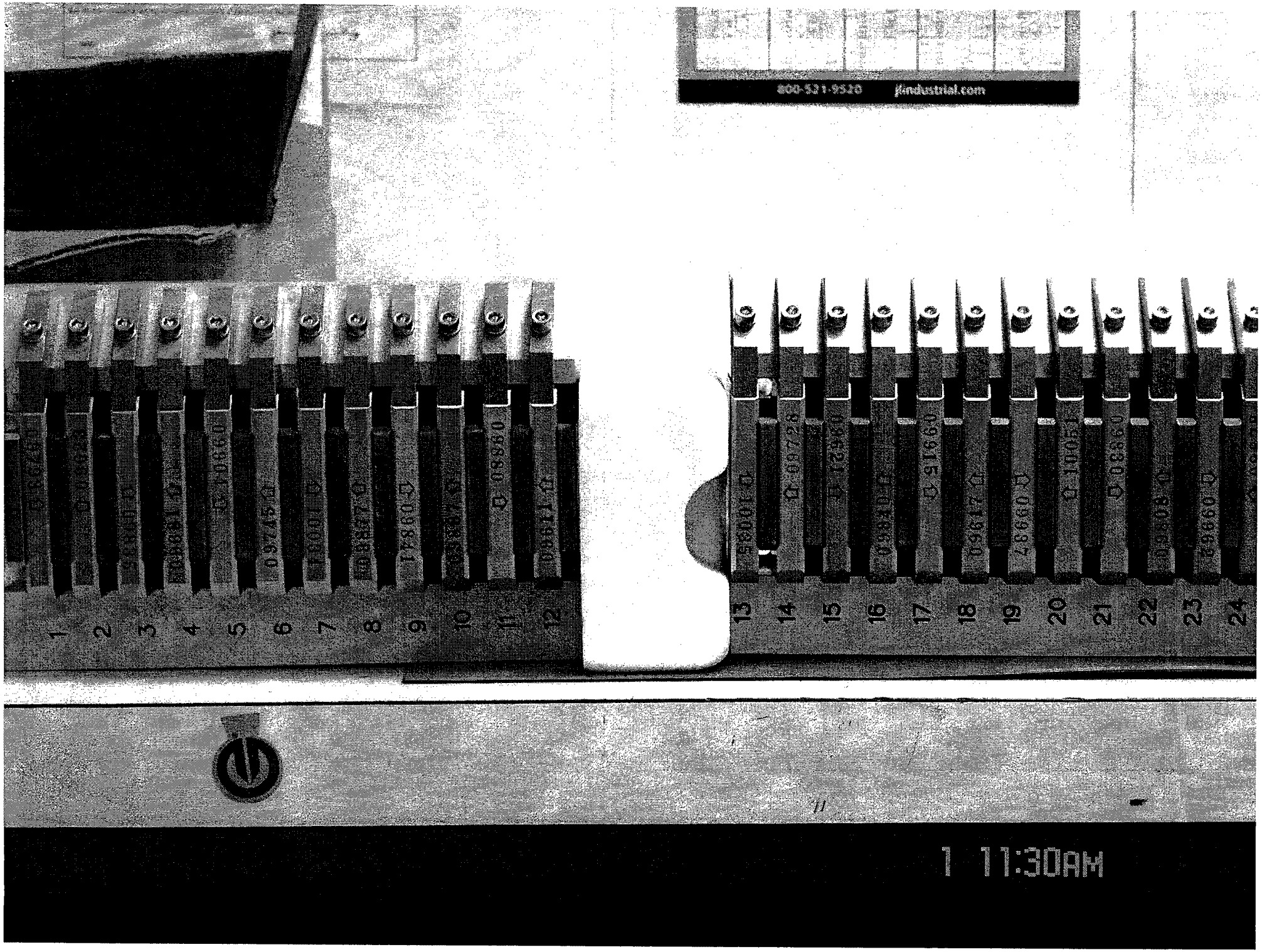
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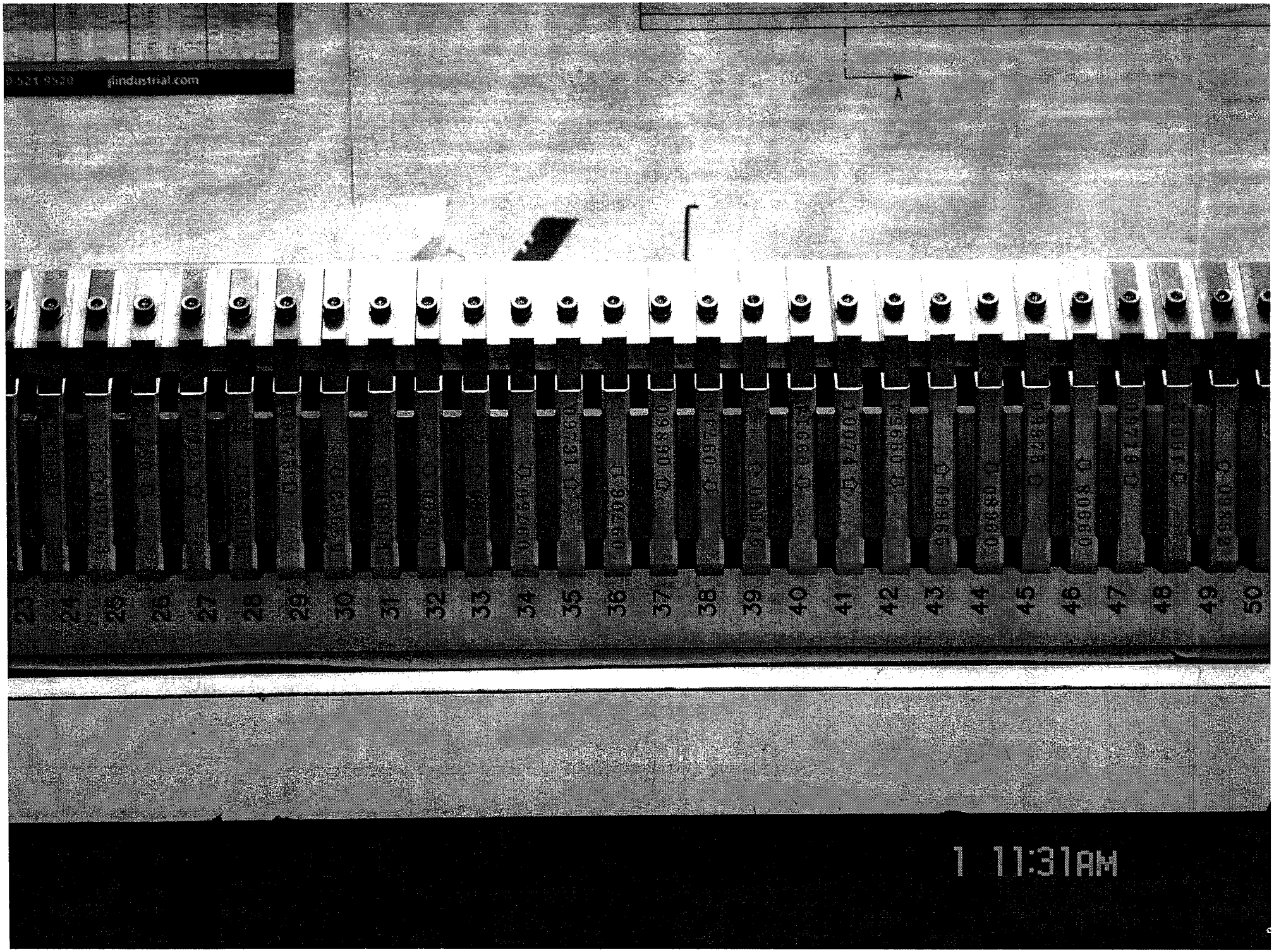
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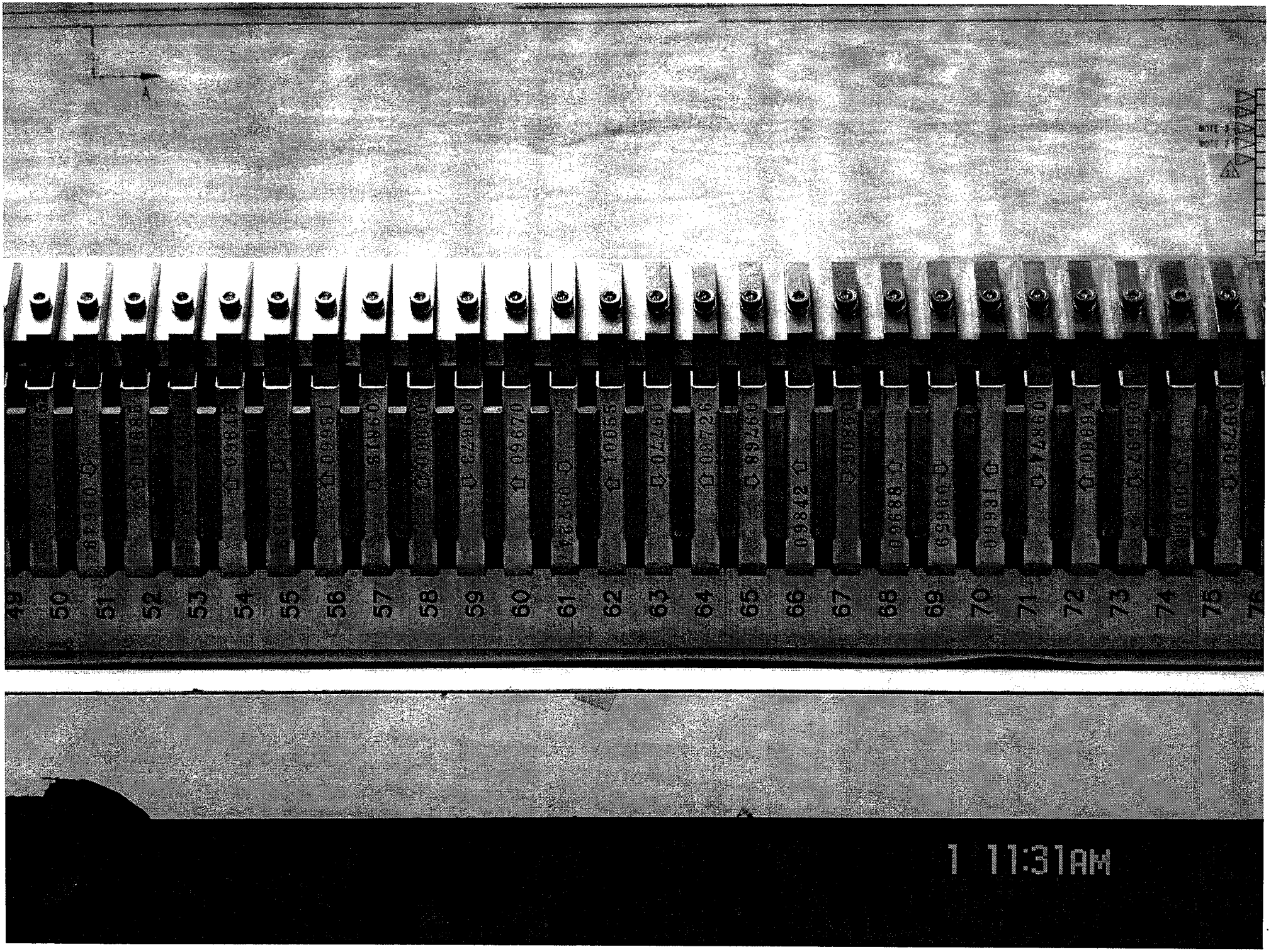
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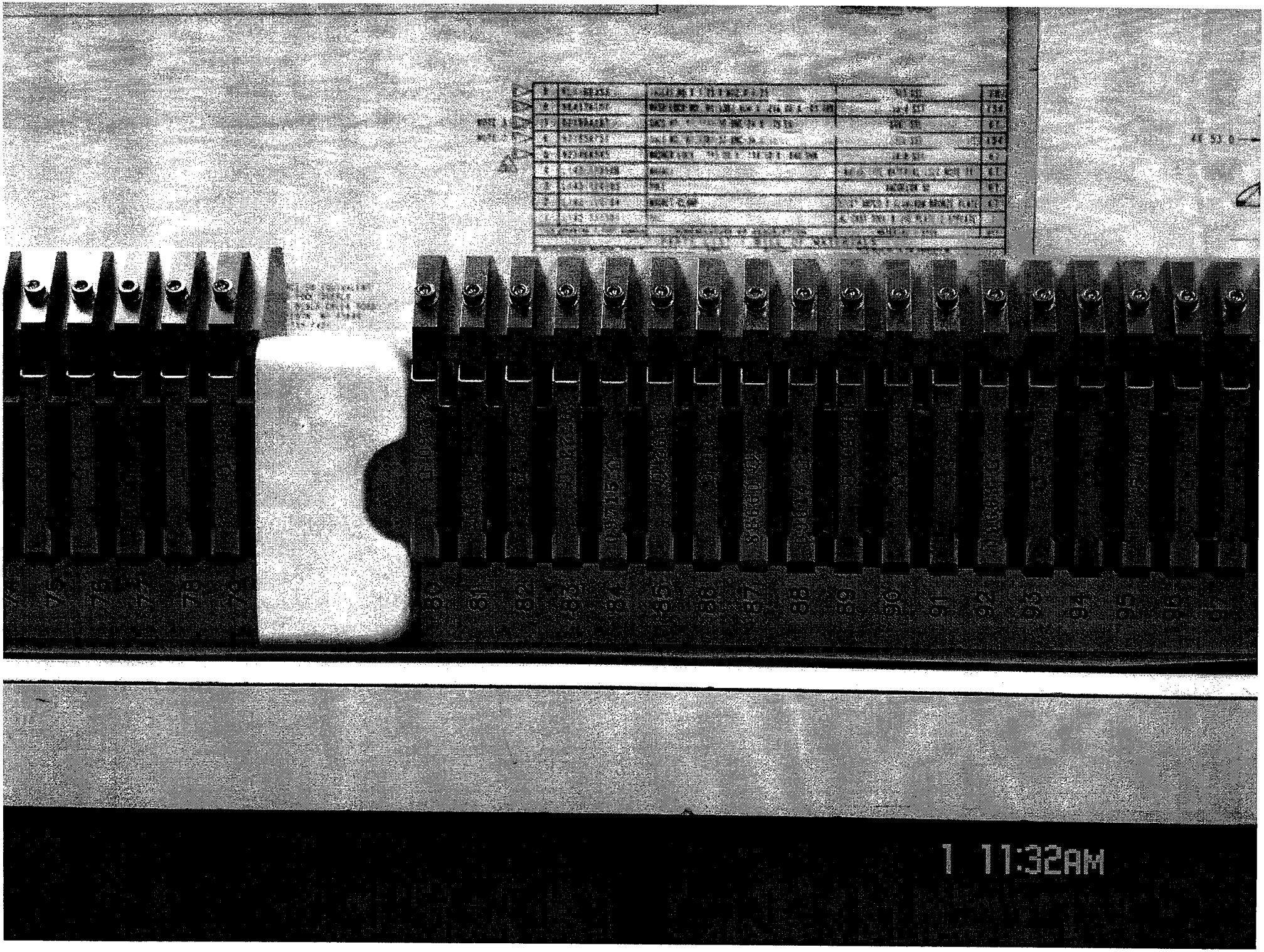
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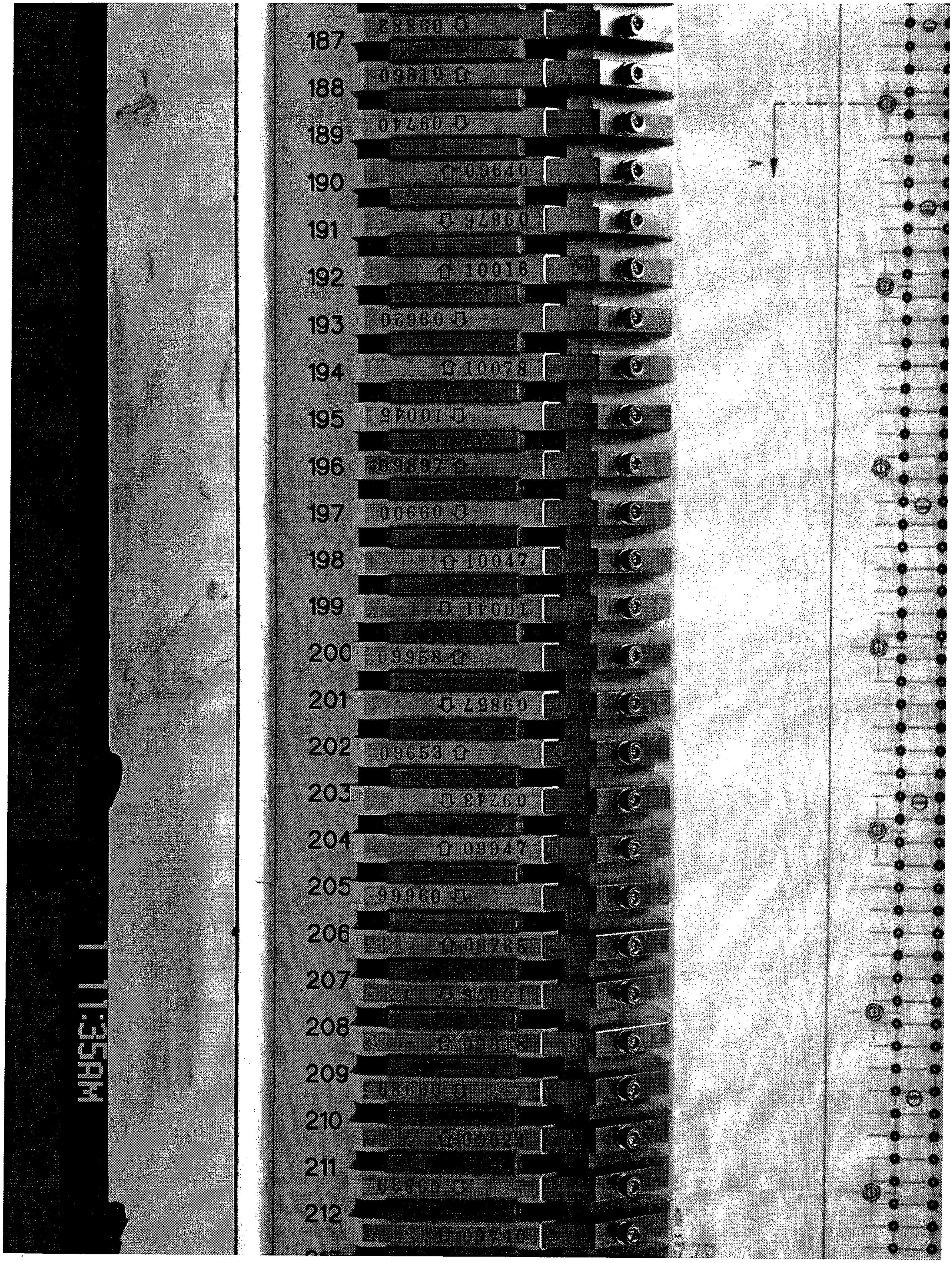
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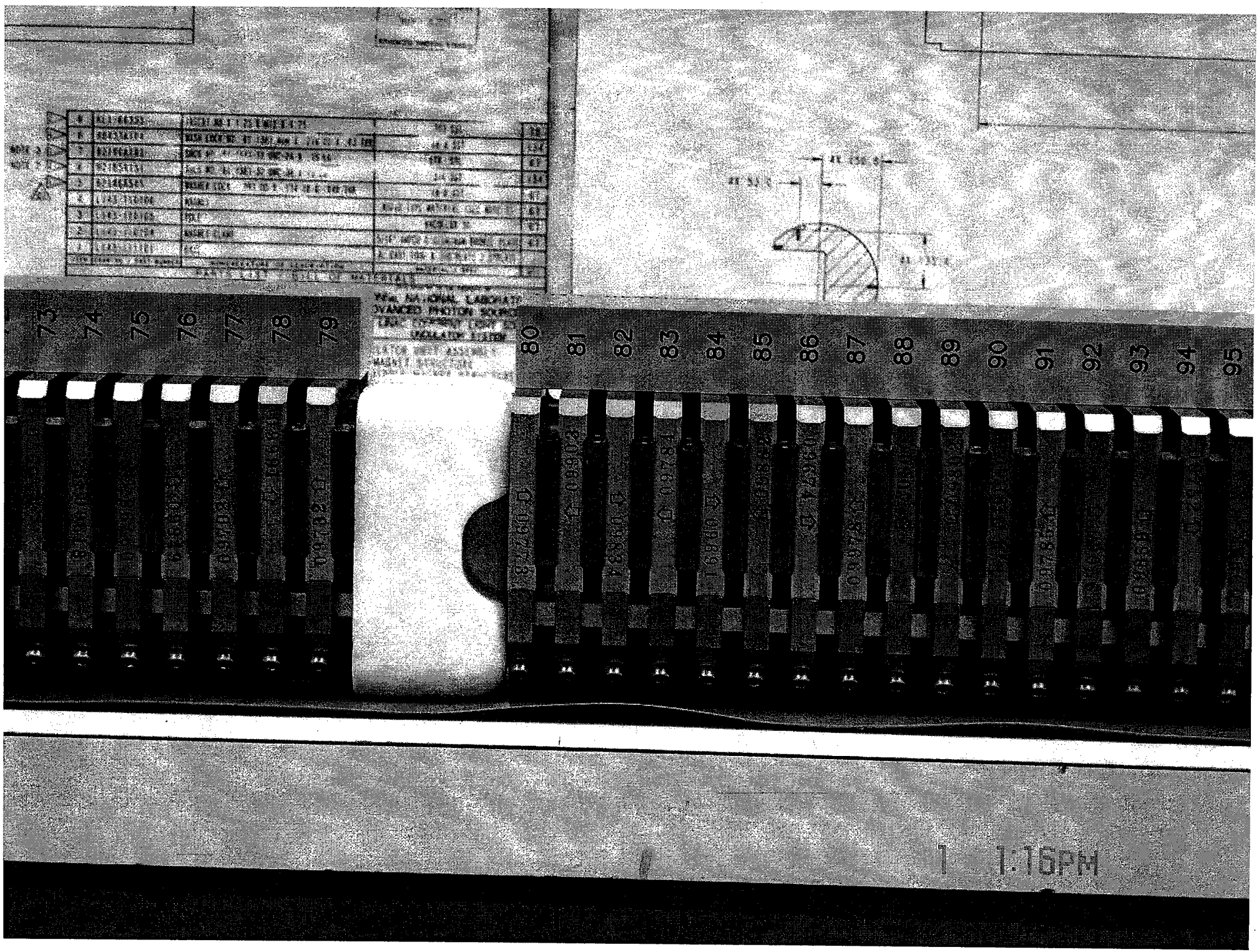
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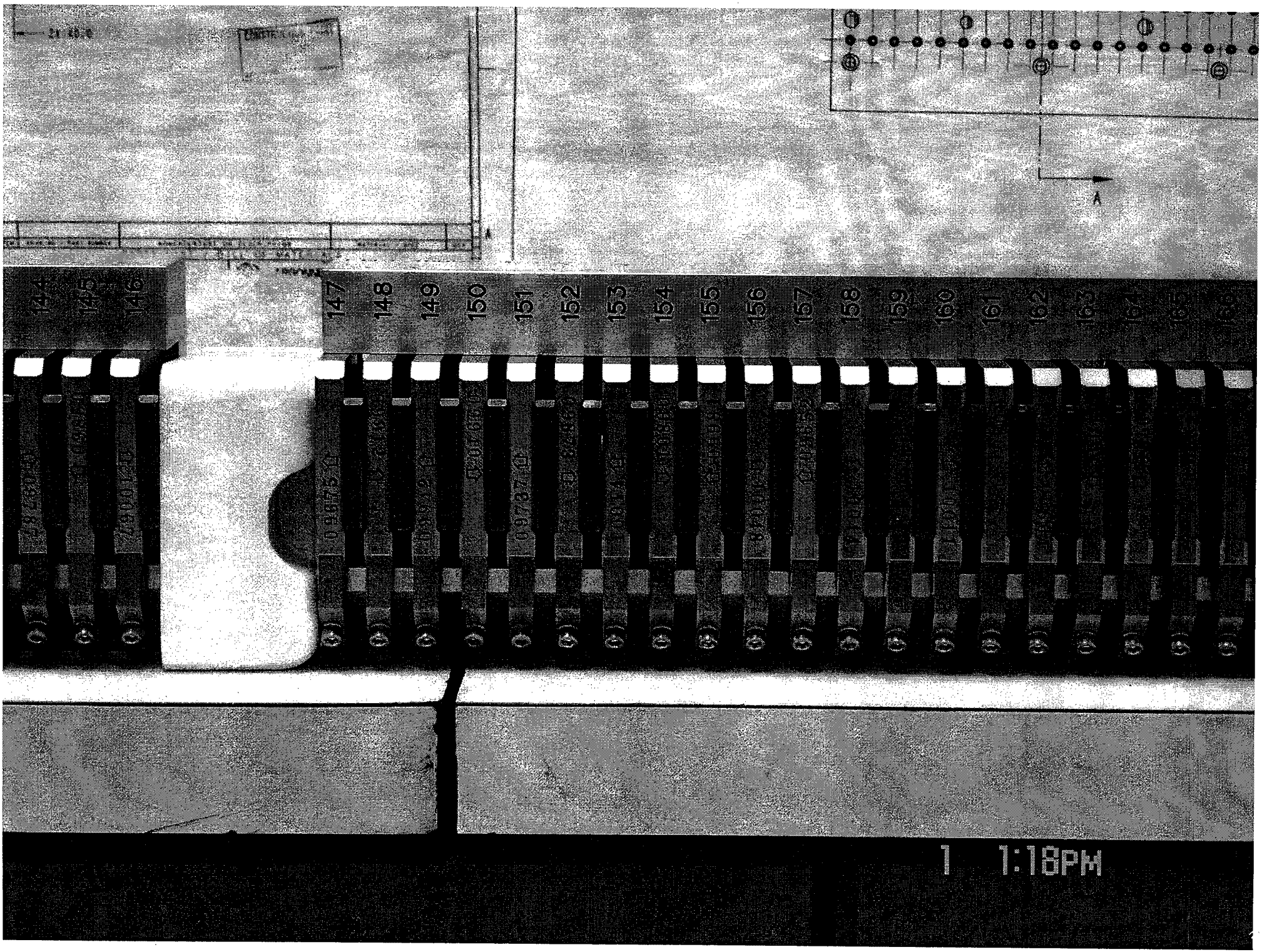
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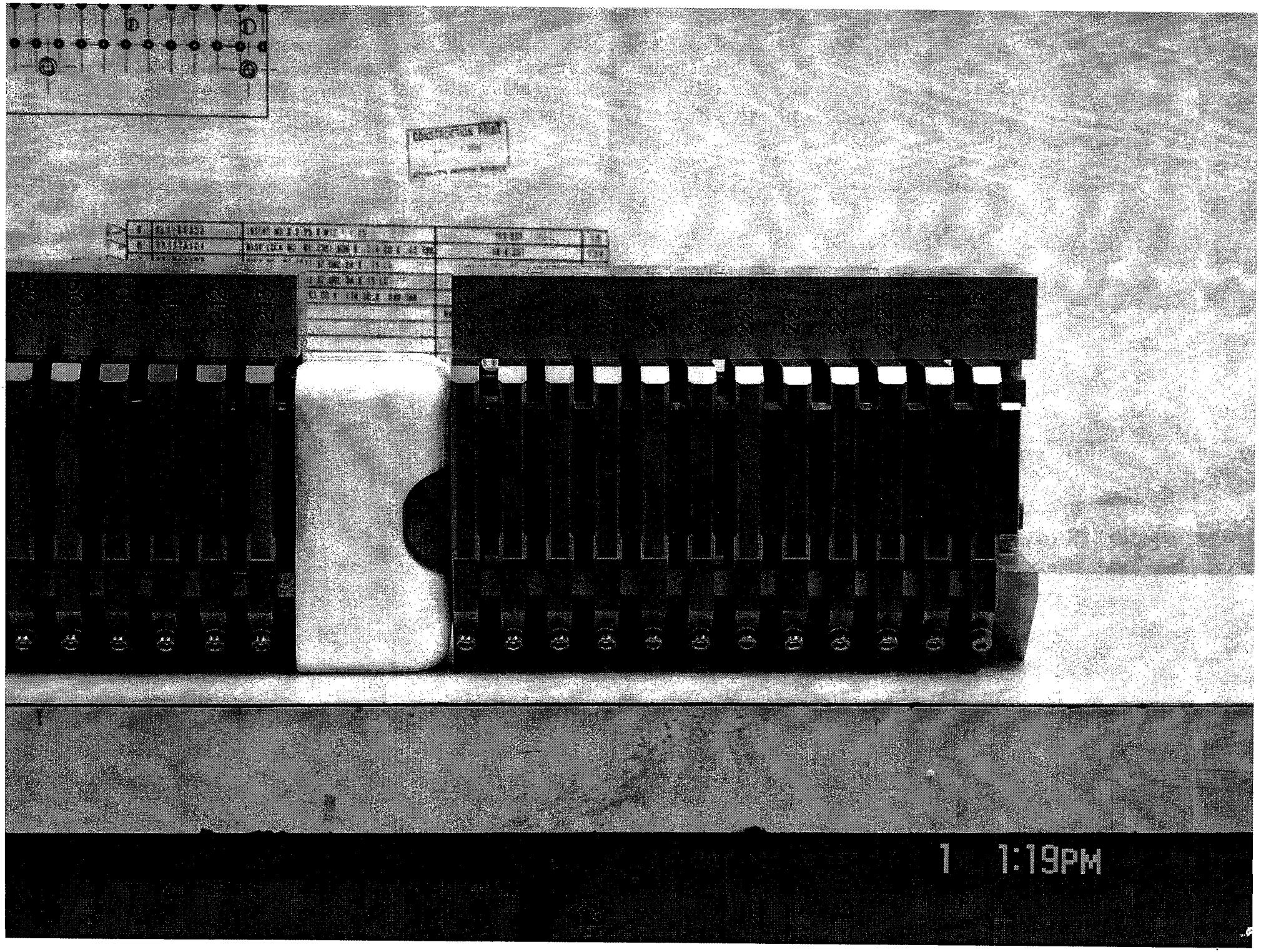
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