

Document ID:



10793

# Incoming Magnet Repair Inspection/Survey

## 318898 / Rev. D

**Job No:** 442  
**MSD Project/Task No.:** 30/30.13.4.6  
**M + S Project/Task No.:** 30/30.13.4.6

**Place This Side Down For Scanning!!!**



Rework/Inspection Travelers

# LNQB2538-0

Document ID:



10793

Job No.:



442

Project/Task No.



30/30.13.4.6

Series:



LNQB

Serial No:



LNQB2538

Rework ID:



0

Specification No.:



318898

Revision:



D

**LNQB2538-0**



**Fermi National Accelerator Laboratory  
Batavia, IL 60510**

**Conventional Magnet/Device  
Incoming Magnet Repair Inspection/Survey**

**Reference Drawing(s):**

**Project # Task #:** 30/30.13.4.6

**Job #:** 442

**Released by:** Jan Szal

**Magnet/Device Series:** LNQB

**Date:** 2/3/2009 4:03:41 PM

**Scan Pages:** 13

**Prepared by:** B.Jensen

Title	Signature	Date
TD / Process Engineering	<i>Bob Jensen</i> Bob Jensen / Designee	12/5/07
TD / E&F Assembly Supervisor	<i>Dan Smith</i> Dan Smith / Designee	12/5/07
TD / E&F Production Physicist	<i>George Velev</i> Gueorgui Velev / Designee	12/5/07

Incoming Magnet Repair / Inspection Survey

Magnet / Devise Serial No.: LNQB2538-0

Note(s): AKA: LQ2538

**Revision Page**

<b>Revision</b>	<b>Step No.</b>	<b>Revision Description</b>	<b>TRR No.</b>	<b>Date</b>
None	N/A	Initial Release	N/A	6/30/95
A	3.2	Transferred from Mac to PC format. Inserted a Radiation and Lead Paint Survey. Changed cover page approval list.	0945	2/3/00
B	Cover 4.2 4.5 4.6 6.1 6.2 8.1 10.1	Corrected spelling of Devise to Device. Add a no 'Removal/Replacement.. check box. Changed 'No Damage Noted' to 'If No Damage is noted, check no damage box. Added check box Added a no water path check box, added if no water path, check box. Add a no water path check box, added if no water path, check box. Added a no water path check box, added if no water path, check box Added check box, 'No MFA/CAC Action Required.' Deleted step, 'O.K. to proceed' tag, not used	1231	9/18/01
C	2.2 7.2	Update DSR Update DSR	1600	1/28/04
D	CvrPge RevPge 2.2 3.0 5.1 5.2 5.2 5.3 7.1 7.2 8.2 9.0	Updated to new format Updated to new format Updated: Added check boxes. New: Physically check all bolts holding magnet cores.... Removed: Step was redundant (serial number on btm of page). Added: Checkboxes to indicate Acceptable or Damaged Changed: Sign-off to Inspector instead of Technician Removed: Acquire previous data (data readily available OnBase) Added: Upper and Lower Magnet flow check Added: Upper and Lower Hydro check with Pass/Fail boxes. Updated: Added check boxes Updated to new format	1944	12/5/07

Ensure appropriate memos and specific instructions are placed with the traveler before issuing the sub traveler binder to production.

1.0 General Notes

- 1.1 White (Lint Free) Gloves (Fermi stock 2250-1800) or Surgical Latex Gloves (Fermi stock 2250-2494) shall be worn by all personnel when handling all product parts after the parts have been prepared/cleaned.
- 1.2 All steps that require a sign-off shall include the Technician/Inspectors first initial and full last name.
- 1.3 No erasures or white out will be permitted to any documentation. All incorrectly entered data shall be corrected by placing a single line through the error, initial and date the error before adding the correct data.
- 1.4 All Discrepancy Reports issued shall be recorded in the left margin next to the applicable step.
- 1.5 Personnel shall perform all tasks in accordance with current applicable ES&H guidelines and those specified within the step.
- 1.6 Cover the product/assembly with Green Herculite (Fermi stock 1740-0100) when not being serviced or assembled.

2.0 Parts Kit List

- 2.1 No Parts Kit List required.
- 2.2 Update DSR.

- Update DSR Keywords
- Location
- Location Verified Date
- Status
- Make entry regarding work performed.

  
\_\_\_\_\_  
Lead Person

2-4-09  
Date

3.0 Magnet Safety Check prior to Truck Un-loading

3.1 Physically check all bolts holding magnet cores together are finger tight. If any bolts are loose, acquire proper dwg/torque values and Production tighten all bolts to the proper torque value.

Note: Prior to tightening the bolts, ensure that the keyway stock is installed and the cores/keyway stock are in the correct alignment position.

Record torque value         N/A         ft/lbs

Welded Magnet, no action needed!

        [Signature]          
Inspector(s)

        2-4-09          
Date

        N/A                 DG          
Technician(s)

        2-5-2009          
Date

4.0 Hazard Survey

4.1 Perform a Radiation Survey and record results below. Describe Location and Level of any "HOT" spots.

mR@ 1 Foot

None Radioactive  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Note(s):

If device is more than Radiation Class 1, reject acceptance of the device, unless there is written authorization from the Section Head.

If written authorization is given attach to the traveler.

J. Sanyal  
Technician(s)

2-04-09  
Date

4.2 Send a sample of the paint to ES & H for lead testing, unless previously cleared by ES & H

No Lead  
ES & H Approved

Lead Based Paint  
Follow Precautions Below

NO PAINT REMOVAL PLANNED  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

N/A D.G.  
Technician(s)

25-2009  
Date

5.0 Visual Inspections

5.1 Attach the "REMOVAL/REPLACEMENT/REPAIR OF A.D. COMPONENTS" sheet or equivalent documentation to this traveler.

No 'Removal/Replacement/Repair of A.D. Components' and/or equivalent documentation received.

[Signature]  
Technician(s)

2-4-09  
Date

5.2 Perform a visual inspection of the magnet/cores from the listed items below. The below list is not all inclusive. Note any damage, missing parts, or other abnormalities below, whether from the below list or not.

Note: Any damage, missing parts or other abnormalities noted should be reported to the Production Supervisor immediately, followed up by a Discrepancy Report.!

	<u>Acceptable</u>	<u>Damaged</u>	<u>N/A</u>
Magnet Cores	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coil Leads/Manifold/Ceramics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coil Ends, Return	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Coil Ends, Lead	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potting Cover, Lead End	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potting Cover, Return End	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beam Tube	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Beam Tube Flanges/Bellows	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Any recorded damage shall be specifically photographed and photos attached to this traveler.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

[Signature]  
Inspector(s)

2-4-09  
Date



7.0 Flow Test and Hydro

7.1 Perform a flow test at a  $\Delta P$  of 60 psi and 100 psi as per the Mechanical (flow) Inspection (ES-318968)

No Water Cooling Passages.

	INNER		OUTER		
	Upper Magnet		Lower Magnet		Full Magnet
$\Delta P$ of 60 psi	10.0	gpm	9.4	gpm	gpm
$\Delta P$ of 100 psi	13.0	gpm	12.3	gpm	gpm

Note(s): Include a diagram of the water input and output test locations, and what part of the magnet is being tested.

D. Gau  
Inspector

2-5-2009  
Date

7.2 Perform a hydro static check of the manifold/coil system at 500 psi for 30 minutes.

No Water Cooling Passages.

	INNER		OUTER		Full Magnet	
	Pass	Fail	Pass	Fail	Pass	Fail
500 psi/30 mins	X	<del>Y</del>	X			

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

D. Gau  
Inspector

2-5-2009  
Date

8.0 Beam Tube Vacuum Inspection

8.1 Perform a vacuum leak check on the Beam Tube.

Check box if no Beam Tube is installed in the Magnet.

PART NO.		SCALE UNITS BEFORE HELIUM PROBE	SCALE UNITS WHILE ENCLOSURE FLOODING	DETERMINATION OF MINIMUM DETECTABLE LEAK				
DATE TIME	OPERATOR'S LAST NAME			MDS + ((Response - Bckgnd) ÷ Leak Value) = MDL				

D. GAW  
Inspector

2-9-2009  
Date

8.2 Update the DSR.

Update DSR Keywords

Location

Location Verified Date

Status

Make entry regarding work performed.

D. GAW  
Lead Person

2-9-2009  
Date

8.3 Photograph the magnet, and store in OnBase.

D. GAW  
Inspector

2-9-2009  
Date

9.0 Production Complete

9.1 Process Engineering verify that the Traveler is accurate and complete. This shall include a review of all steps to ensure that all operations have been completed and signed off. Ensure that all Discrepancy Reports and dispositions have been reviewed by the Responsible Authority for conformance before being approved.

Comments:

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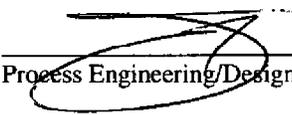
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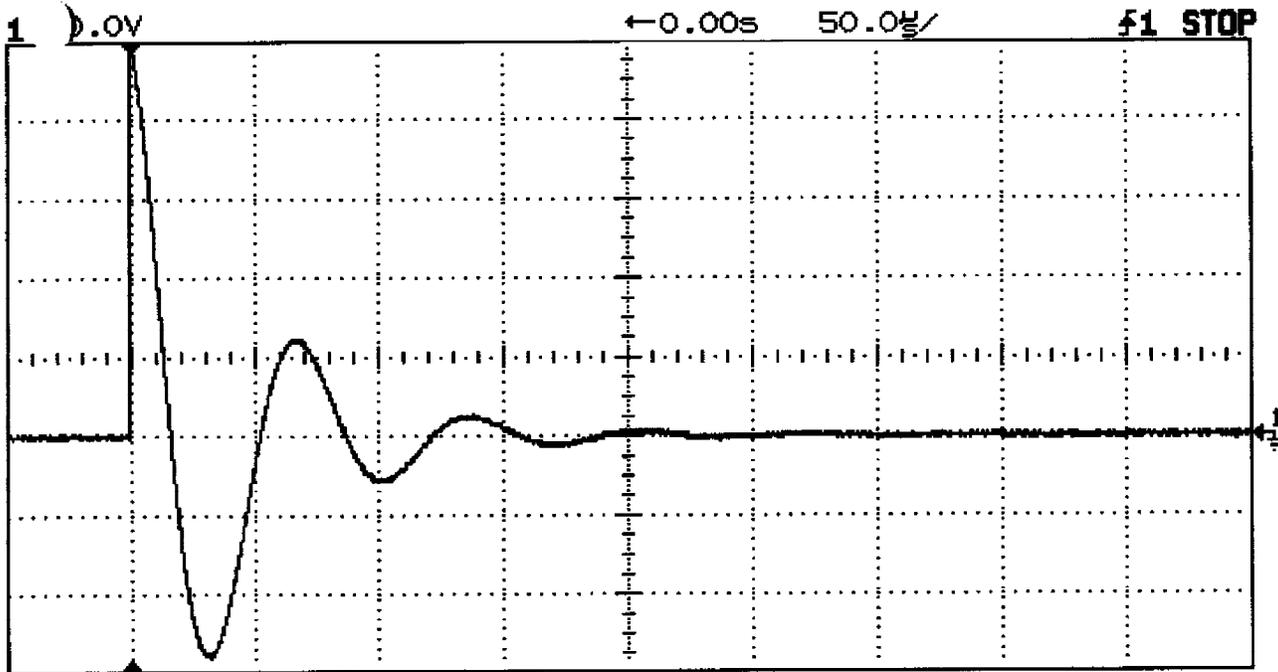
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\_\_\_\_\_  
Process Engineering/Designee

2-9-09  
\_\_\_\_\_  
Date



State	Volts/Div	Position	Cplg	BW Lim	Inv	Probe
Chan 1 On	20.00 V	-20.00 V	DC	Off	Off	10:1
Chan 2 Off	100.0mV	0.000 V	DC	Off	Off	1:1

Mode	Main	Main	Time	Delayed	Delayed
Horizontal	Normal	Time/Div	Ref	Time/Div	Delay
		50.00us/	Left	-----	-----
Delay	0.000 s				

Trigger Mode	Source	Level	Holdoff	Slope	Couplg	Reject	NoiseRej
Normal	Ch 1	5.000 V	200.0ns	Pos	DC	HF	On

Display Mode: Normal

Traveler	31888
Step #	6.3
Magnet Serial Number	LNQB 2538 - 0
Technician	J. [Signature]
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