

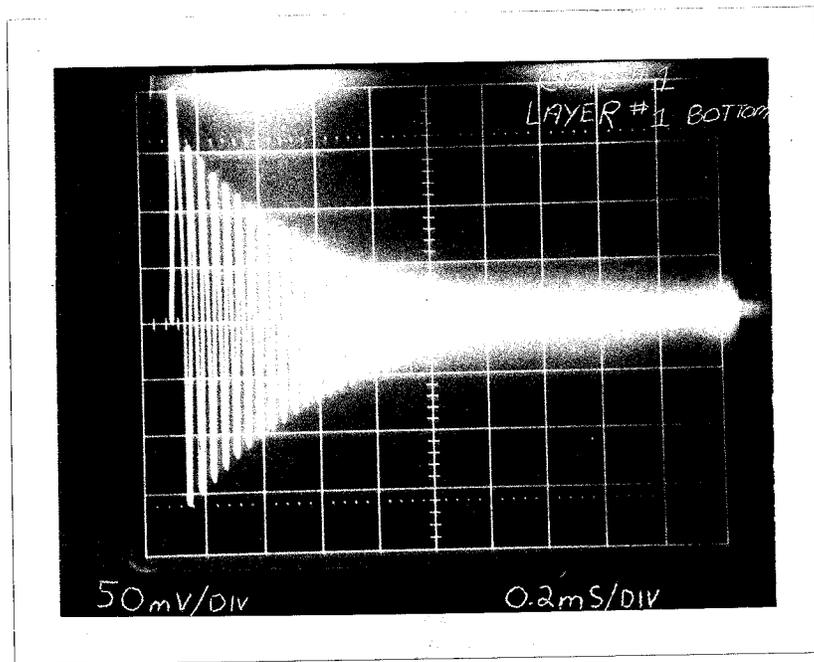
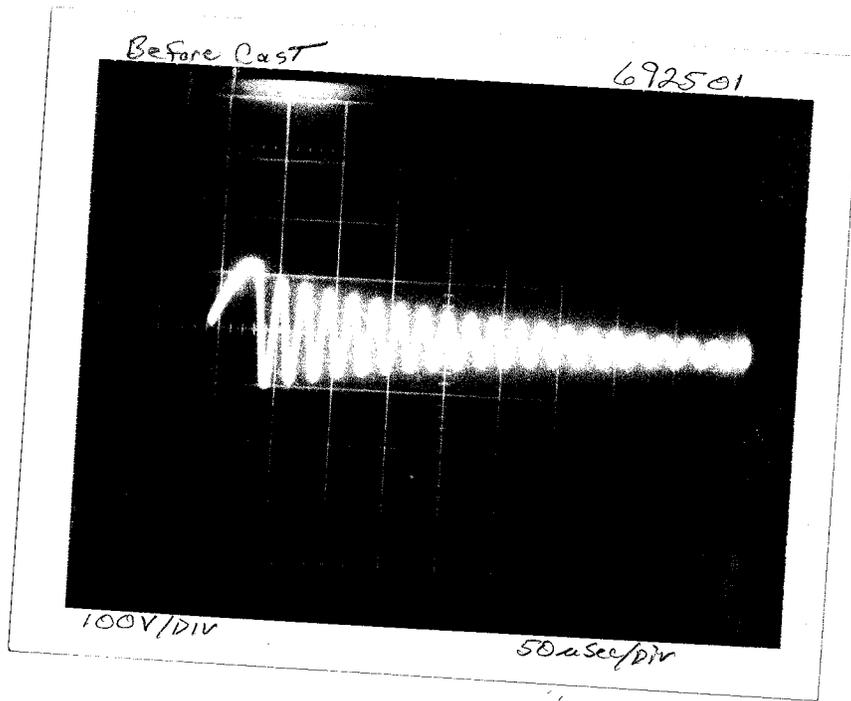


# ELMA ENGINEERING

QA TRAVELER FOR FERMI LABORATORY

JOB # 6925 Single Pancake # 01 8 Layer coil# ~~02~~ 01

DESCRIPTION	ACTION/RESULTS	DATE	INITIAL
INSPECTION OF CONDUCTOR PRIOR TO WINDING: Surface cleaned.	✓	7 Nov 94	ZL
INSULATION INSPECTION IN PROCESS: ½ Lapped glass tape/ DMD between layers.	✓	11 Nov 94	ZL
WELDED JOINTS INSPECTION: Visual inspection to check for chips/cleaning.	✓	11-8-94	TTL
LEAK CHECK: Dye Penetrate Test. Air Pressure (Soap Bubble Test) @ 100psi	✓	11-8-94	RKB
WATER CIRCUITS CHECK DOUBLE LAYER: 10 MINUTE FLUSH  WATER FLOW @ 60 PSI  HYDROSTATIC TEST 375 psig/ 30 min	gal/min		
ELECTRICAL TESTS  DC RESISTANCE Double Layer:  8 Layer:  RING TEST: Before Casting: Pancake @ 100 V  After Casting: 8 Layer @ 320 V  DC HI-POT: Before casting: 200 V  DC HI-POT After casting: 2000 V	11.79 mΩ  ✓  < 10 mA	2 Dec 94  11 Nov 94  1 Feb 95	ZL  ZL  ZL
DIMENSIONAL CHECKS Drwg. # _____ SURFACE EVALUATION  SHIPPING PREPARATIONS			





# ELMA ENGINEERING

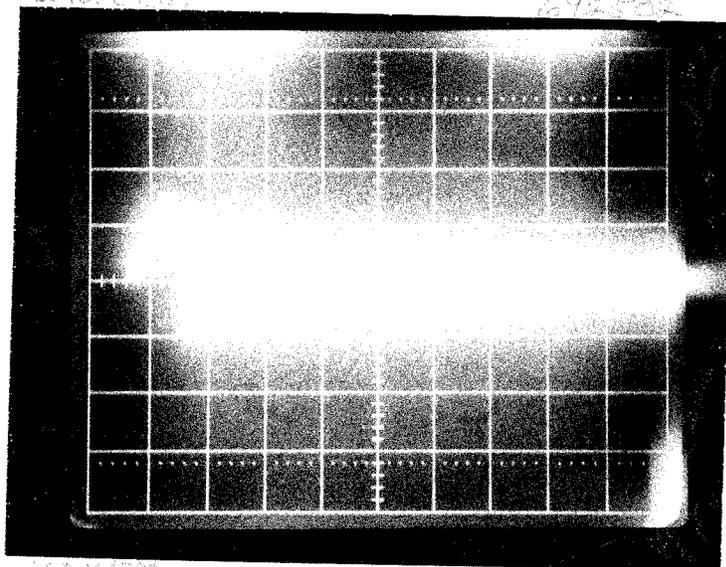
## QA TRAVELER FOR FERMI LABORATORY

JOB # 6925 Single Pancake # 02 8 Layer coil# ~~02~~ 01

DESCRIPTION	ACTION/RESULTS	DATE	INITIAL
INSPECTION OF CONDUCTOR PRIOR TO WINDING: Surface cleaned.	✓	11 Nov 94	JL
INSULATION INSPECTION IN PROCESS: ½ Lapped glass tape/ DMD between layers.	✓	15 Nov 94	JL
WELDED JOINTS INSPECTION: Visual inspection to check for chips/cleaning.	✓	11-10-94	TTL
LEAK CHECK: Dye Penetrate Test. Air Pressure (Soap Bubble Test) @ 100psi	✓	11-10-94	RKB
WATER CIRCUITS CHECK DOUBLE LAYER: 10 MINUTE FLUSH	_____	_____	
WATER FLOW @ 60 PSI	_____ gal/min	_____	
HYDROSTATIC TEST 375 psig/ 30 min	_____	_____	
ELECTRICAL TESTS			
DC RESISTANCE Double Layer:	11.83 mΩ	2 Dec 94	JL
8 Layer:	_____	_____	
RING TEST: Before Casting: Pancake @ 100 V	✓	16 Nov 94	JL
After Casting: 8 Layer @ 320 V	_____	_____	
DC HI-POT: Before casting: 200 V	<10mA	1 Feb 95	JL
DC HI-POT After casting: 2000 V	_____	_____	
DIMENSIONAL CHECKS Drwg. # _____	_____	_____	
SURFACE EVALUATION	_____	_____	
SHIPPING PREPARATIONS	_____	_____	

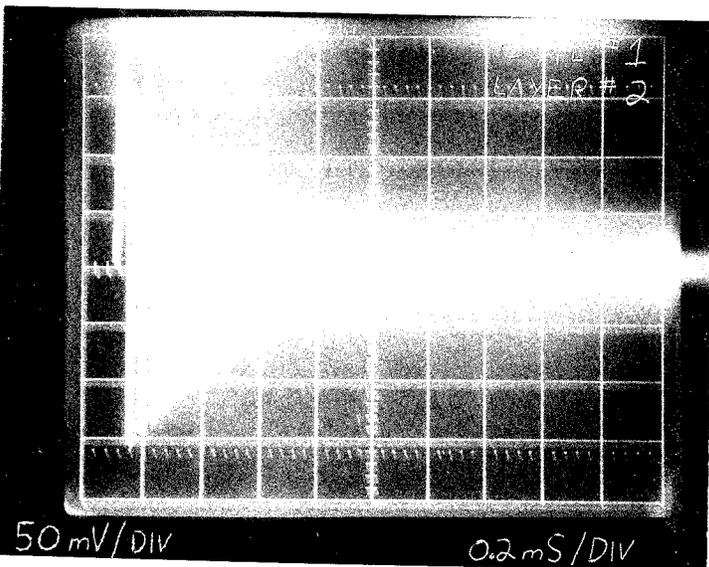
B. Core Out

692502



100 V/DIV

50 ns/DIV



50 mV/DIV

0.2 mS/DIV

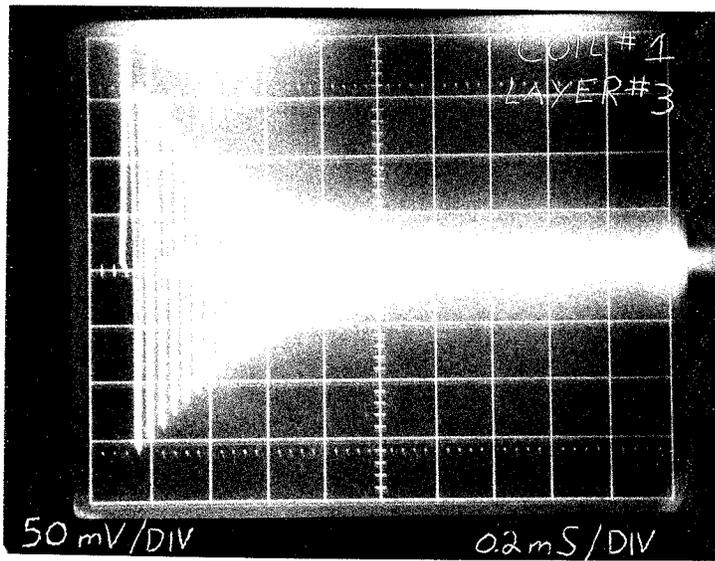
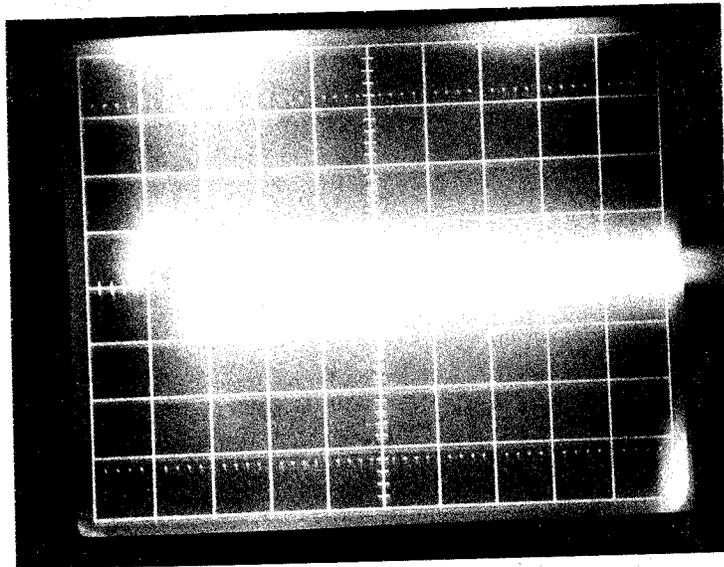


# ELMA ENGINEERING

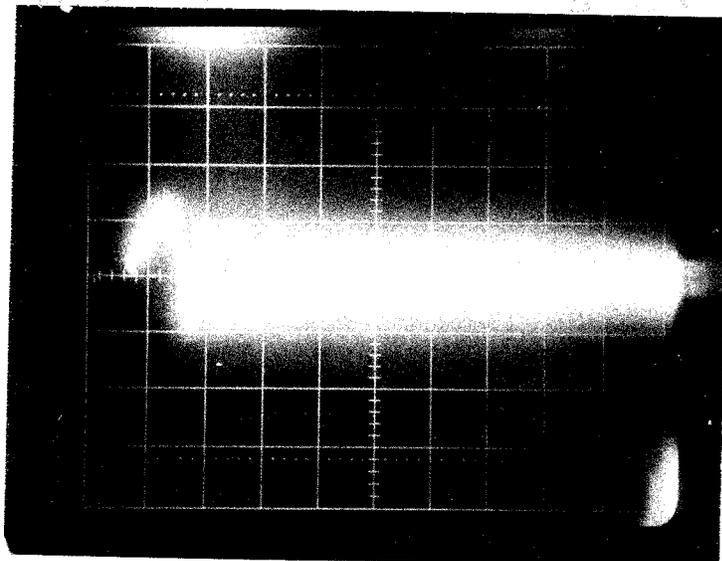
QA TRAVELER FOR FERMI LABORATORY

JOB # 6925 Single Pancake # 03 8 Layer coil# ~~02~~ 01

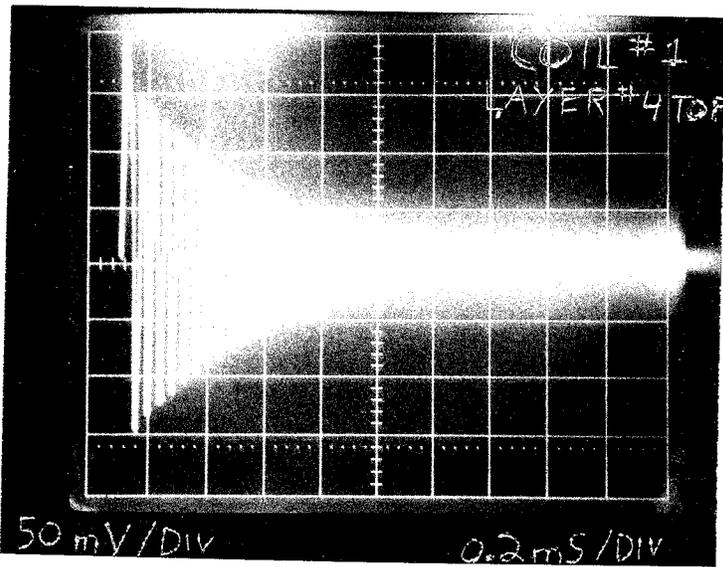
DESCRIPTION	ACTION/RESULTS	DATE	INITIAL
INSPECTION OF CONDUCTOR PRIOR TO WINDING: Surface cleaned.	✓	11-14-94	RKB
INSULATION INSPECTION IN PROCESS: ½ Lapped glass tape/ DMD between layers.	✓	16 Nov 94	RKB
WELDED JOINTS INSPECTION: Visual inspection to check for chips/cleaning.	✓	11-15-94	RKB
LEAK CHECK: Dye Penetrate Test. Air Pressure (Soap Bubble Test) @ 100psi	✓	11-15-94	RKB
WATER CIRCUITS CHECK DOUBLE LAYER: 10 MINUTE FLUSH			
WATER FLOW @ 60 PSI	_____ gal/min	_____	
HYDROSTATIC TEST 375 psig/ 30 min			
ELECTRICAL TESTS			
DC RESISTANCE Double Layer:	11.58 mΩ	2 Dec 94	RKB
8 Layer:			
RING TEST: Before Casting: Pancake @ 100 V	✓	16 Nov 94	RKB
After Casting: 8 Layer @ 320 V			
DC HI-POT: Before casting: 200 V	< 10 uA	1 Feb 95	RKB
DC HI-POT After casting: 2000 V			
DIMENSIONAL CHECKS Drwg. # _____			
SURFACE EVALUATION			
SHIPPING PREPARATIONS			







1000 Hz



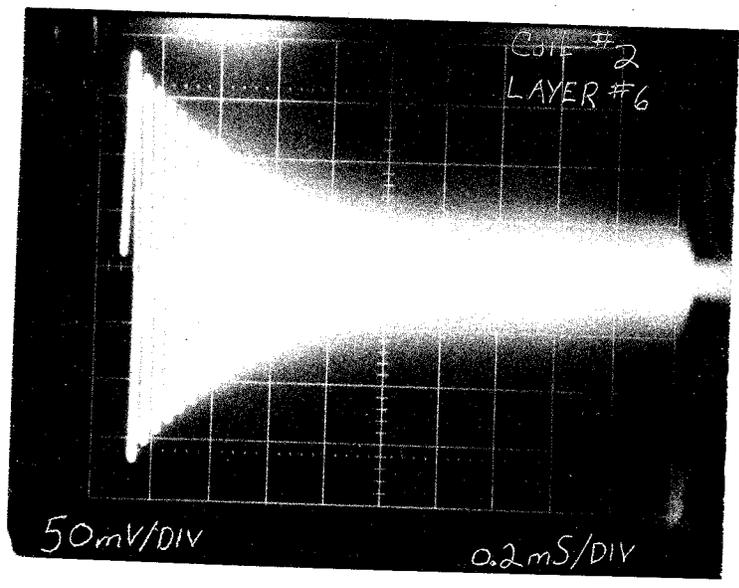
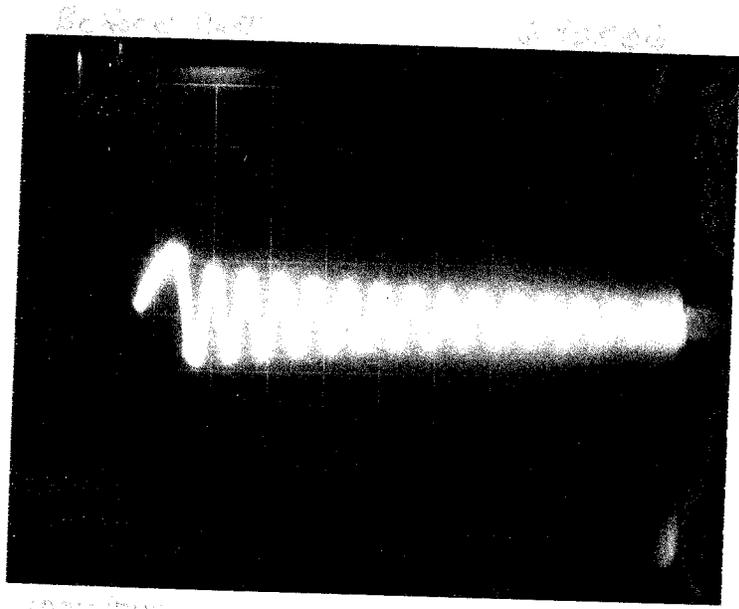


# ELMA ENGINEERING

## QA TRAVELER FOR FERMI LABORATORY

JOB #                      Single Pancake #                      8 Layer coil #                      32

DESCRIPTION	ACTION/RESULTS	DATE	INITIAL
INSPECTION OF CONDUCTOR PRIOR TO WINDING: Surface cleaned.	✓	20/10/02	
INSULATION INSPECTION IN PROCESS: 1/2 Lapped glass tape/ DMD between layers.	✓	20/10/02	
WELDED JOINTS INSPECTION: Visual inspection to check for chips/cleaning.	✓	20/10/02	
LEAK CHECK: Dye Penetrate Test. Air Pressure (Soap Bubble Test) @ 100psi	✓	20/10/02	
WATER CIRCUITS CHECK DOUBLE LAYER: 10 MINUTE FLUSH			
WATER FLOW @ 60 PSI	_____ gal/min		
HYDROSTATIC TEST 375 psig/ 30 min			
ELECTRICAL TESTS			
DC RESISTANCE Double Layer:	11.75 ohm	20/10/02	
8 Layer:			
RING TEST: Before Casting: Pancake @ 100 V	✓	20/10/02	
After Casting: 8 Layer @ 320 V			
DC HI-POT: Before casting: 200 V	< 10 uA	20/10/02	
DC HI-POT After casting: 2000 V	< 10 uA	20/10/02	
DIMENSIONAL CHECKS Drwg. # _____			
SURFACE EVALUATION			
SHIPPING PREPARATIONS			





# ELMA ENGINEERING

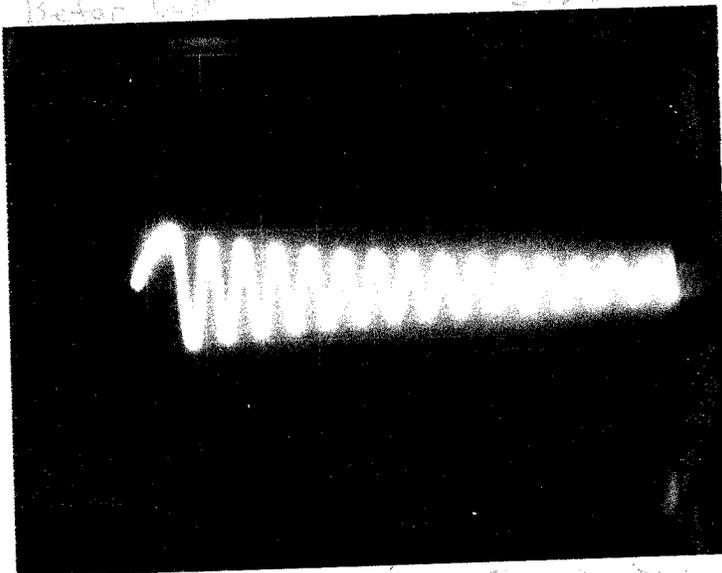
QA TRAVELER FOR FERMI LABORATORY

JOB # 6925 Single Pancake # 05 8 Layer coil# 02

DESCRIPTION	ACTION/RESULTS	DATE	INITIAL
INSPECTION OF CONDUCTOR PRIOR TO WINDING: Surface cleaned.	✓	11-18-94	RKB
INSULATION INSPECTION IN PROCESS: ½ Lapped glass tape/ DMD between layers.	✓	2 Dec 94	RL
WELDED JOINTS INSPECTION: Visual inspection to check for chips/cleaning.	✓	11-19-94	RKB
LEAK CHECK: Dye Penetrate Test. Air Pressure (Soap Bubble Test) @ 100psi	✓	11-19-94	RKB
WATER CIRCUITS CHECK DOUBLE LAYER: 10 MINUTE FLUSH  WATER FLOW @ 60 PSI  HYDROSTATIC TEST 375 psig/ 30 min	_____ gal/min	_____	_____
ELECTRICAL TESTS  DC RESISTANCE Double Layer:  8 Layer:  RING TEST: Before Casting: Pancake @ 100 V  After Casting: 8 Layer @ 320 V  DC HI-POT: Before casting: 200 V  DC HI-POT After casting: 2000 V	11.60 mΩ       < 10 μA  < 10 μA	2 Dec 94       25 Jan 95  30 Jan 95	RL       RL  RL
DIMENSIONAL CHECKS Drwg. # _____ SURFACE EVALUATION  SHIPPING PREPARATIONS	_____ _____ _____	_____ _____ _____	_____ _____ _____

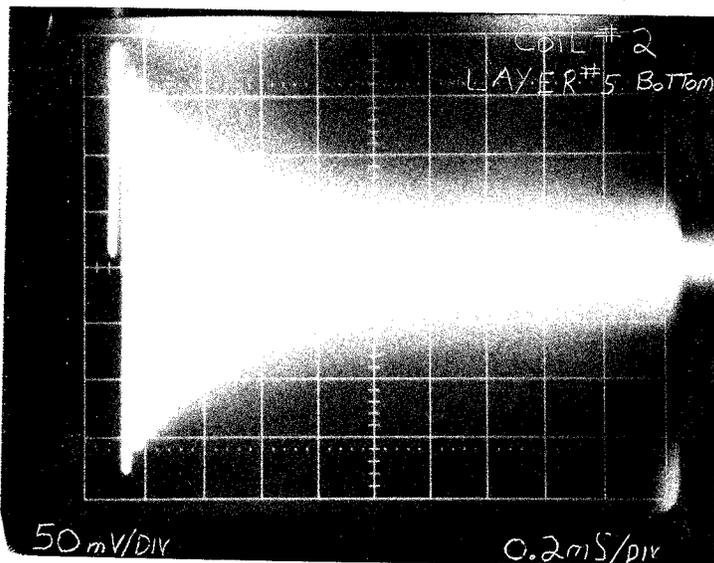
Refer V-17

642505



100V/DIV

50ns/DIV



50 mV/DIV

0.2ms/DIV



# ELMA ENGINEERING

1066 EAST MEADOW CIRCLE  
PALO ALTO, CALIFORNIA 94303

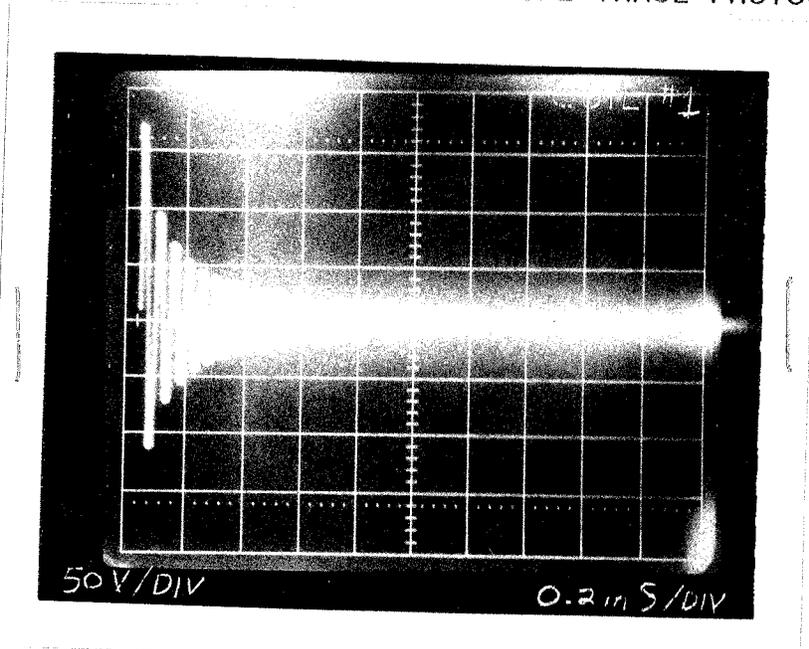
## TEST AND INSPECTION REPORT

<b>CUSTOMER</b> FERMI NATIONAL LAB.	<b>JOB#</b> 6925
<b>PART DESCRIPTION</b> KTEV Sweeping Magnet Coils	<b>SERIAL#</b> 01
<b>PART# SPEC.#</b> 3832.235-ES-267133	<b>NO. OF UNITS:</b> 1
<b>DRAWING#</b>	<b>P.O.#</b> B70280
<input checked="" type="checkbox"/> FINAL <input type="checkbox"/> IN PROCESS <input type="checkbox"/> REPAIR	

OPERATION	TEST AND INSPECTION REMARKS				DATE & INITIAL
	LAYER #1	LAYER #2	LAYER #3	LAYER #4	
ELECTRICAL  Resistance @ 20 °C m Ω	11.79	11.83	11.58	11.65	
Ring Test @ 320 Vp-p	Good				11 Feb 95 JL
HI-POT Coil to Mold @ 2kVDC	< 0.1mA Leakage				
HYDROSTATIC FLOW PRESSURE	375 PSI ✓ NO Leaks 1.6 gpm @ 60 PSIG Water Temp. 67°F				11 Feb 95 JL
MECHANICAL INSPECTION	Dimensions per Drawing # D-13293 All dimensions are within tolerance Y/N <u>Y</u> Comments:				11 Feb 95 JL
DISPOSITION	Approval for shipment Y/N _____ Other _____				

SERIAL NO. 492801

TURN-TO-TURN SCOPE TRACE PHOTOGRAPH



VERTICAL SCALE: ~~00~~ <sub>50</sub> v/cm      HORIZONTAL SCALE: ~~usec~~ <sub>0.2ms</sub> /cm



# ELMA ENGINEERING

1066 EAST MEADOW CIRCLE  
PALO ALTO, CALIFORNIA 94303

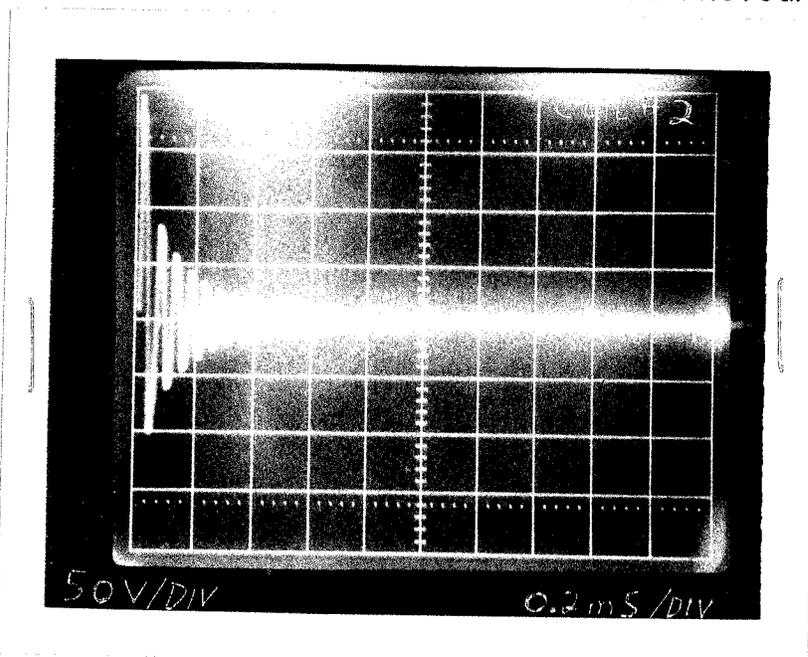
## TEST AND INSPECTION REPORT

<b>CUSTOMER</b> FERMI NATIONAL LAB.	<b>JOB#</b> 6925
<b>PART DESCRIPTION</b> KTEV Sweeping Magnet Coils	<b>SERIAL#</b> 02
<b>PART# SPEC.#</b> 3832.235-ES-267133	<b>NO. OF UNITS:</b> 1
<b>DRAWING#</b>	<b>P.O.#</b> B70280
<input checked="" type="checkbox"/> FINAL <input type="checkbox"/> IN PROCESS <input type="checkbox"/> REPAIR	

OPERATION	TEST AND INSPECTION REMARKS				DATE & INITIAL
<b>ELECTRICAL</b>	LAYER #1	LAYER #2	LAYER #3	LAYER #4	
	Resistance @ 20 °C m Ω	11.60	11.75	11.66	
Ring Test @ 320 Vp-p	Good				14 Feb 95 gcl
HI-POT Coil to Mold @ 2kVDC	< 0.1mA Leakage				
<b>HYDROSTATIC FLOW PRESSURE</b>	375 PSI ✓ NO LEAKS 1.6 gpm @ 60 PSIG Water Temp. 67°F				14 Feb 95 gcl
<b>MECHANICAL INSPECTION</b>	Dimensions per Drawing # D-13293 All dimensions are within tolerance Y/N <u>Y</u> Comments:				14 Feb 95 gcl
<b>DISPOSITION</b>	Approval for shipment Y/N _____ Other _____				

SERIAL NO. 679502

TURN-TO-TURN SCOPE TRACE PHOTOGRAPH



VERTICAL SCALE: ~~00~~ <sup>50</sup> v/cm HORIZONTAL SCALE: ~~usee~~ <sup>0.2 mS</sup> /cm

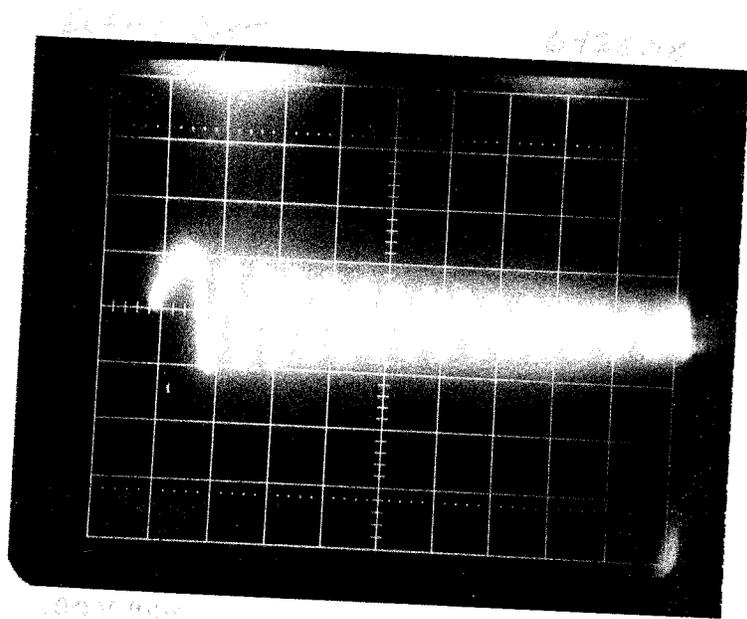


# ELMA ENGINEERING

QA TRAVELER FOR FERMI LABORATORY

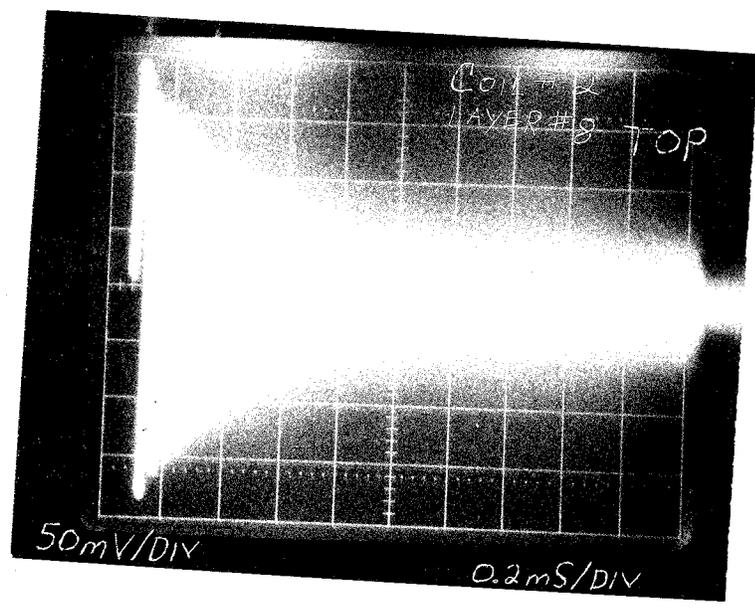
JOB # 6925 Single Pancake # 08 8 Layer coil# Q

DESCRIPTION	ACTION/RESULTS	DATE	INITIAL
INSPECTION OF CONDUCTOR PRIOR TO WINDING: Surface cleaned.	✓	<u>24 Nov 94</u>	<u>ZB</u>
INSULATION INSPECTION IN PROCESS: ½ Lapped glass tape/ DMD between layers.	✓	<u>2 Dec 94</u>	<u>ZB</u>
WELDED JOINTS INSPECTION: Visual inspection to check for chips/cleaning.	✓	<u>25 Nov 94</u>	<u>ZB</u>
LEAK CHECK: Dye Penetrate Test. Air Pressure (Soap Bubble Test) @ 100psi	✓	<u>25 Nov 94</u>	<u>ZB</u>
WATER CIRCUITS CHECK DOUBLE LAYER: 10 MINUTE FLUSH	_____	_____	
WATER FLOW @ 60 PSI	_____ gal/min	_____	
HYDROSTATIC TEST 375 psig/ 30 min	_____	_____	
ELECTRICAL TESTS			
DC RESISTANCE Double Layer:	<u>11.73 mΩ</u>	<u>16 Dec 94</u>	<u>ZB</u>
8 Layer:	_____	_____	
RING TEST: Before Casting: Pancake @ 100 V	✓	<u>19 Jan 95</u>	<u>ZB</u>
After Casting: 8 Layer @ 320 V	_____	_____	
DC HI-POT: Before casting: 200 V	<u>&lt; 10 mA</u>	<u>25 Jan 95</u>	<u>ZB</u>
DC HI-POT After casting: 2000 V	<u>&lt; 10 mA</u>	<u>25 Jan 95</u>	<u>ZB</u>
DIMENSIONAL CHECKS Drwg. # _____	_____	_____	
SURFACE EVALUATION	_____	_____	
SHIPPING PREPARATIONS	_____	_____	



50mV/DIV

500ns/DIV



50mV/DIV

0.2mS/DIV



# ELMA ENGINEERING

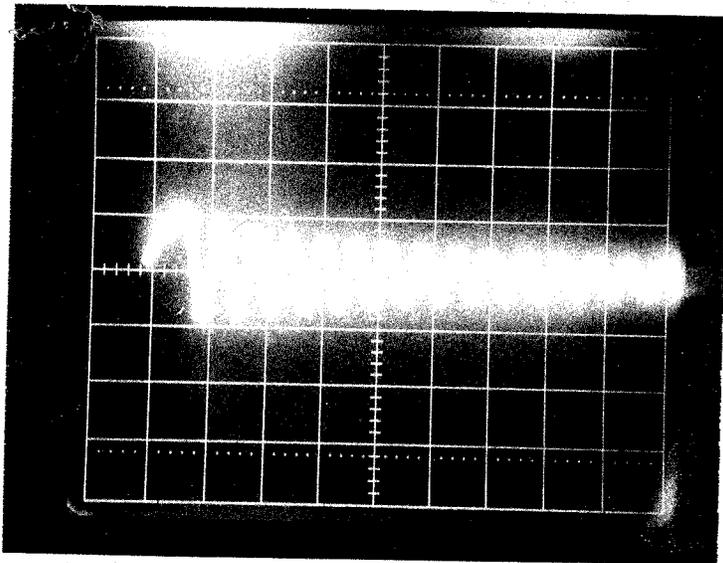
## QA TRAVELER FOR FERMI LABORATORY

JOB # 6925

Single Pancake # 07

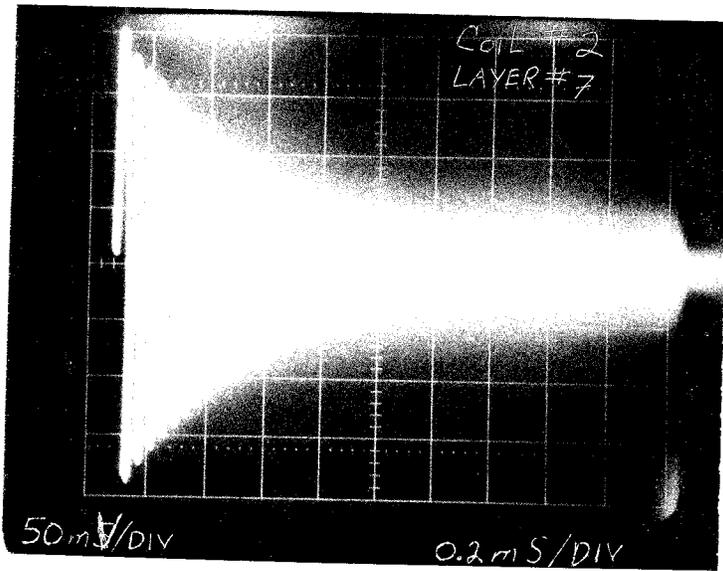
8 Layer coil# 02

DESCRIPTION	ACTION/RESULTS	DATE	INITIAL
INSPECTION OF CONDUCTOR PRIOR TO WINDING: Surface cleaned.	✓	<u>22 Nov 94</u>	<u>gls</u>
INSULATION INSPECTION IN PROCESS: ½ Lapped glass tape/ DMD between layers.	✓	<u>2 Dec 94</u>	<u>gls</u>
WELDED JOINTS INSPECTION: Visual inspection to check for chips/cleaning.	✓	<u>23 Nov 95</u>	<u>gls</u>
LEAK CHECK: Dye Penetrate Test. Air Pressure (Soap Bubble Test) @ 100psi	✓	<u>23 Nov 95</u>	<u>gls</u>
WATER CIRCUITS CHECK DOUBLE LAYER: 10 MINUTE FLUSH	_____	_____	
WATER FLOW @ 60 PSI	_____ gal/min	_____	
HYDROSTATIC TEST 375 psig/ 30 min	_____	_____	
ELECTRICAL TESTS			
DC RESISTANCE Double Layer:	<u>11.66 m-Ω</u>	<u>16 Dec 94</u>	<u>gls</u>
8 Layer:	_____	_____	
RING TEST: Before Casting: Pancake @ 100 V	✓	<u>19 Jan 95</u>	<u>gls</u>
After Casting: 8 Layer @ 320 V	_____	_____	
DC HI-POT: Before casting: 200 V	<u>&lt; 10 μA</u>	<u>25 Jan 95</u>	<u>gls</u>
DC HI-POT After casting: 2000 V	<u>&lt; 10 μA</u>	<u>25 Jan 95</u>	<u>gls</u>
DIMENSIONAL CHECKS Drwg. # _____	_____	_____	
SURFACE EVALUATION	_____	_____	
SHIPPING PREPARATIONS	_____	_____	



100V/DIV

20ns/DIV



COTL #2  
LAYER #7

50mV/DIV

0.2ms/DIV