Alpha Magnetics S.O. 1398
Revision_____
Date_____

ALPHA MAGNETICS, INC.

KTeV ANALYSIS MAGNET TRAVELER FOR THE SINGLE LAYER COILS

LOWER INLET LAYER 3832.252-ME-267042
LOWER OUTLET LAYER 3832.252-ME-267043
UPPER INLET LAYER 3832.252-ME-267028
UPPER OUTLET LAYER 3832.252-ME-267029

Prepared by Don Klein/Dennis Klein

Alpha Magnetics S.O._____
Revision_____
Date_____

Check applicable drawing below, insure that the drawing is legible.

_____Lower Inlet Layer 3832.252-ME-267042
_____Lower Outlet Layer 3832.252-ME-267043
____X____Upper Inlet Layer 3832.252-ME-267028
_____Upper Outlet Layer 3832.252-ME-267029

Layer No.____/____

1.0 General Notes

1.1 White (lint free) gloves or surgical latex gloves 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/Inspector's first initial and full last name. All entries in the Traveler are to be in black ink.

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 Any and all data, signatures or written notes shall be legible by others.

1.5 Half-lap = 40% to 50% coverage (overlap)

1.6 If damage or a deviation from the specifications are found a Discrepancy Report Form must be completed and attached behind the page in which the discrepancy occurred before production can proceed. All Discrepancy Reports issued shall be recorded in the left margin next to the applicable step.

1.7 If coil is not being worked on it shall be protected from the elements and dust by wrapping it in an anti-static sheeting (such as Herculite).

1.8 Attach to the appropriate traveler any requests for a variance from previously accepted procedures and the Fermilab approval.

1.9 Attach to the traveler a copy of that portion of the coil fabrication and testing plan which is relevant to the work covered by the traveler.

Alpha Magnetics S.O._____
Revision_____
Date_____

2.0 Conductor Inspection

2.1 Select proper conductor spool for layer being wound.
Spool No.____1____.
Conductor Length___1000_____.

2.2 Inspect conductor in accordance with conductor inspection procedure.

ED Combs	2-22-94
Coil Winder	Date
Dennis Ulm	2-22-94
QC/QA Inspector	Date

Alpha Magnetics S.O._____
Revision_____
Date_____

3.0 Layer Winding

3.1 Check that the winding fixture dimensions match the layer being wound.

3.2 Check that direction of rotation of winding machine is correct for the layer being wound.

3.2 As conductor is being wound, visually inspect for nicks, sharp edges.

3.3 Verify conductor dimensions at the beginning of each turn.

Turn 1	1.420 X 1.419	5	1.421 x 1.417
2	1.418 X 1.421	6	1.419 x 1.419
3	1.421 X 1.418	7	1.418 x 1.420
4	1.420 X 1.418	8	1.418 x 1.418

3.4 Verify and record "A" and "B" and width dimensions:

"A"_____ "B"_____

Coil Width_____

ED Combs
Coil Winder

2-12-94
Date

Dennis Klem
QC/QA Inspector

2-12-94
Date

Alpha Magnetics S.O._____
Revision_____
Date_____

4.0 Dekeystoning

4.1 Move layer to dekeystoning area and file off dimensional growth on all radii. Use go/no-go gage to check finished dimension of conductor.

4.2 Check that corner radius on conductor is at least 1/8" in dekeystoned area.

Everett Cobb	2-15-94
Technician	Date
[illegible]	2-15-94
QC/QA Inspector	Date

4.3 Prior to insulating single coil layers, per section 6.0 of Single Coil Layer Traveler, coil pairs should be nested together per section 2.1, 2.2, 2.3, 2.4 and 2.5 of Double Coil Layer Traveler.

5.0 Joints Internal to Layer

5.1 It is not desirable to make joints internal to the layers. If this should become necessary a request shall be sent to Fermilab for permission to make an internal splice. Should this be approved a copy of the request, plus the written approval from Fermilab shall be attached to the appropriate traveler.

5.2 If internal joints are made, perform dye penetrant and hydrostatic tests below.

5.3 Water test - Hydrostatic

Fill circuit with water and pressurize to 375 + 25/-0 PSIG. Isolate from pressure. No drop in pressure shall occur within a 30 minute period.

Record:
Pressure_____PSIG
Results_____

_____ _____
Test Technician Date

_____ _____
QC/QA Inspector Date

5.4 Dye Penetrant Test

Cracks longer than 1/16" shall be filed out and rewelded. Attach results.

Tested by_____
Organization_____
Test Date_____

_____ _____
Technician Date

_____ _____
QA/QC Inspector Date

_____ _____
Fermilab Representative Date

Alpha Magnetics S.O._____
Revision_____
Date_____

6.0 Conductor Insulation

6.1 Move coil to clean area.

6.2 Inspect all conductor surfaces with clean white (lint free) gloves. Insure that conductor is free of nicks, burrs and sharp edges. Use Scotch Brite. Wipe conductor clean with acetone.

Everett D. Carlo Jr — 4-4-94
Insulation Leadman — Date

Dawn Allen — 4-4-94
QC/QA Inspector — Date

6.3 Wrap conductor with insulating material in accordance with coil fabrication plan and drawing 3832.252-ME-267034. QC/QA Inspector should inspect taping in process frequently to insure half lap.

Everett D. Carlo Jr — 4-4-94
Insulation Leadman — Date

Dawn Allen — 4-4-94
QC/QA Inspector — Date

_____ — _____
Fermi Lab Representative — Date

6.4 Upon completion of conductor insulation, cover and store layer in clean area until needed for assembly in double layer.

7.0 Layer Production Complete

7.1 QA/QC Inspector verify that sections 1 through 5 are accurate and complete and that all Discrepancy Reports have had disposition made.

Comments:

_____

_____

_____

Dennis Klein _____ 5-28-91 _____
QA/QC Inspector Date

7.2 Production Supervisor verify that section 1 through 5 are accurate and complete.

Comments:

_____

_____

_____

Dennis Klein _____ 5-28-91 _____
Production Manager Date

7.3 Accepted by Fermilab for use in double layer.

_____ _____
Fermilab Representative Date

Alpha Magnetics S.O._____
Revision_____
Date_____

ALPHA MAGNETICS, INC.

KTeV ANALYSIS MAGNET TRAVELER FOR THE SINGLE LAYER COILS

LOWER INLET LAYER 3832.252-ME-267042
LOWER OUTLET LAYER 3832.252-ME-267043
5 x UPPER INLET LAYER 3832.252-ME-267028
UPPER OUTLET LAYER 3832.252-ME-267029

Prepared by Don Klein/Dennis Klein

Alpha Magnetics S.O._____
Revision_____
Date_____

Check applicable drawing below, insure that the drawing is legible.

_____Lower Inlet Layer 3832.252-ME-267042
_____Lower Outlet Layer 3832.252-ME-267043
_____X_____Upper Inlet Layer 3832.252-ME-267028
_____Upper Outlet Layer 3832.252-ME-267029

Layer No._____5_____

1.0 General Notes

1.1 White (lint free) gloves or surgical latex gloves 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/Inspector's first initial and full last name. All entries in the Traveler are to be in black ink.

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 Any and all data, signatures or written notes shall be legible by others.

1.5 Half-lap = 40% to 50% coverage (overlap)

1.6 If damage or a deviation from the specifications are found a Discrepancy Report Form must be completed and attached behind the page in which the discrepancy occurred before production can proceed. All Discrepancy Reports issued shall be recorded in the left margin next to the applicable step.

1.7 If coil is not being worked on it shall be protected from the elements and dust by wrapping it in an anti-static sheeting (such as Herculite).

1.8 Attach to the appropriate traveler any requests for a variance from previously accepted procedures and the Fermilab approval.

1.9 Attach to the traveler a copy of that portion of the coil fabrication and testing plan which is relevant to the work covered by the traveler.

Alpha Magnetics S.O._____
Revision_____
Date_____

2.0 Conductor Inspection

2.1 Select proper conductor spool for layer being wound.
Spool No.___5_____.
Conductor Length_____.

2.2 Inspect conductor in accordance with conductor inspection procedure.

Pratt, Mike Pat Hayes — 4-20-94
Coil Winder — Date

Dennis Allen — 4-20-94
QC/QA Inspector — Date

Alpha Magnetics S.O._____
Revision_____
Date_____

3.0 Layer Winding

3.1 Check that the winding fixture dimensions match the layer being wound.

3.2 Check that direction of rotation of winding machine is correct for the layer being wound.

3.2 As conductor is being wound, visually inspect for nicks, sharp edges.

3.3 Verify conductor dimensions at the beginning of each turn.

5/17 Mp	Turn 1	1.416	X 1.419	5	1.414	X 1.419	5/17 Mp
5/17 Mp	2	1.417	X 1.420	6	1.414	X 1.416	5/17 Mp
5/17 Mp	3	1.416	X 1.421	7	1.415	X 1.418	5/17 Mp
5/17 Mp	4	1.416	X 1.421	8	1.415	X 1.417	5/17 Mp

3.4 Verify and record "A" and "B" and width dimensions:

"A"_____ "B"_____

Coil Width_____

Pratt, Mike [signature] 4.20.94
Coil Winder Date

[signature] 4-20-94
QC/QA Inspector Date

4.0 Dekeystoning

4.1 Move layer to dekeystoning area and file off dimensional growth on all radii. Use go/no-go gage to check finished dimension of conductor.

4.2 Check that corner radius on conductor is at least 1/8" in dekeystoned area.

Everett R. Comeroy	4-24-94
Technician	Date
Dennis Klem	4-25-94
QC/QA Inspector	Date

4.3 Prior to insulating single coil layers, per section 6.0 of Single Coil Layer Traveler, coil pairs should be nested together per section 2.1, 2.2, 2.3, 2.4 and 2.5 of Double Coil Layer Traveler.

5.0 Joints Internal to Layer

5.1 It is not desirable to make joints internal to the layers. If this should become necessary a request shall be sent to Fermilab for permission to make an internal splice. Should this be approved a copy of the request, plus the written approval from Fermilab shall be attached to the appropriate traveler.

5.2 If internal joints are made, perform dye penetrant and hydrostatic tests below.

5.3 Water test - Hydrostatic

Fill circuit with water and pressurize to 375 + 25/-0 PSIG. Isolate from pressure. No drop in pressure shall occur within a 30 minute period.

Record:
Pressure_____PSIG
Results_____

_____ _____
Test Technician Date

_____ _____
QC/QA Inspector Date

5.4 Dye Penetrant Test

Cracks longer than 1/16" shall be filed out and rewelded. Attach results.

Tested by_____
Organization_____
Test Date_____

_____ _____
Technician Date

_____ _____
QA/QC Inspector Date

_____ _____
Fermilab Representative Date

Alpha Magnetics S.O._____
Revision_____
Date_____

6.0 Conductor Insulation

6.1 Move coil to clean area.

6.2 Inspect all conductor surfaces with clean white (lint free) gloves. Insure that conductor is free of nicks, burrs and sharp edges. Use Scotch Brite. Wipe conductor clean with acetone.

Everett R. Carlson	5-12-94
Insulation Leadman	Date
Dennis Allen	5-12-94
QC/QA Inspector	Date

6.3 Wrap conductor with insulating material in accordance with coil fabrication plan and drawing 3832.252-ME-267034. QC/QA Inspector should inspect taping in process frequently to insure half lap.

Everett R. Carlson	5-12-94
Insulation Leadman	Date
Dennis Allen	5-12-94
QC/QA Inspector	Date
Fermi Lab Representative	Date

6.4 Upon completion of conductor insulation, cover and store layer in clean area until needed for assembly in double layer.

7.0 Layer Production Complete

7.1 QA/QC Inspector verify that sections 1 through 5 are accurate and complete and that all Discrepancy Reports have had disposition made.

Comments:

_____

_____

_____

Dennis Klein _____ 6-1-97 _____

QA/QC Inspector Date

7.2 Production Supervisor verify that section 1 through 5 are accurate and complete.

Comments:

_____

_____

_____

Dennis Klein _____ 6-1-97 _____

Production Manager Date

7.3 Accepted by Fermilab for use in double layer.

_____ _____

Fermilab Representative Date

Alpha Magnetics S.O._____
Revision_____
Date_____

ALPHA MAGNETICS, INC.

KTeV ANALYSIS MAGNET TRAVELER FOR THE SINGLE LAYER COILS

LOWER INLET LAYER 3832.252-ME-267042
LOWER OUTLET LAYER 3832.252-ME-267043
7 UPPER INLET LAYER 3832.252-ME-267028
UPPER OUTLET LAYER 3832.252-ME-267029

Prepared by Don Klein/Dennis Klein

Alpha Magnetics S.O._____
Revision_____
Date_____

Check applicable drawing below, insure that the drawing is legible.

_____Lower Inlet Layer 3832.252-ME-267042
_____Lower Outlet Layer 3832.252-ME-267043
_____7_____Upper Inlet Layer 3832.252-ME-267028
_____Upper Outlet Layer 3832.252-ME-267029

Layer No._____7_____

1.0 General Notes

1.1 White (lint free) gloves or surgical latex gloves 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/Inspector's first initial and full last name. All entries in the Traveler are to be in black ink.

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 Any and all data, signatures or written notes shall be legible by others.

1.5 Half-lap = 40% to 50% coverage (overlap)

1.6 If damage or a deviation from the specifications are found a Discrepancy Report Form must be completed and attached behind the page in which the discrepancy occurred before production can proceed. All Discrepancy Reports issued shall be recorded in the left margin next to the applicable step.

1.7 If coil is not being worked on it shall be protected from the elements and dust by wrapping it in an anti-static sheeting (such as Herculite).

1.8 Attach to the appropriate traveler any requests for a variance from previously accepted procedures and the Fermilab approval.

1.9 Attach to the traveler a copy of that portion of the coil fabrication and testing plan which is relevant to the work covered by the traveler.

Alpha Magnetics S.O._____
Revision_____
Date_____

2.0 Conductor Inspection

2.1 Select proper conductor spool for layer being wound.
Spool No.___7___.
Conductor Length_____.

2.2 Inspect conductor in accordance with conductor inspection procedure.

[illegible]	5-31-94
Coil Winder	Date
[illegible]	5-31-94
QC/QA Inspector	Date

Alpha Magnetics S.O._____
Revision_____
Date_____

3.0 Layer Winding

3.1 Check that the winding fixture dimensions match the layer being wound.

3.2 Check that direction of rotation of winding machine is correct for the layer being wound.

3.2 As conductor is being wound, visually inspect for nicks, sharp edges.

3.3 Verify conductor dimensions at the beginning of each turn.

Turn 1	1.414 X 1.412	5	1.415 x 1.412
2	1.415 X 1.412	6	1.412 x 1.411
3	1.415 X 1.412	7	1.411 x 1.410
4	1.416 X 1.411	8	1.412 x 1.412

3.4 Verify and record "A" and "B" and width dimensions:

"A"_____ "B"_____

Coil Width_____

R. Hanna 5-31-99
Coil Winder Date

Dennis Allen 5-31-99
QC/QA Inspector Date

Alpha Magnetics S.O._____
Revision_____
Date_____

4.0 Dekeystoning

4.1 Move layer to dekeystoning area and file off dimensional growth on all radii. Use go/no-go gage to check finished dimension of conductor.

4.2 Check that corner radius on conductor is at least 1/8" in dekeystoned area.

C. Conlon	6-15-94
Technician	Date
Dennis Ulan	6-15-94
QC/QA Inspector	Date

4.3 Prior to insulating single coil layers, per section 6.0 of Single Coil Layer Traveler, coil pairs should be nested together per section 2.1, 2.2, 2.3, 2.4 and 2.5 of Double Coil Layer Traveler.

5.0 Joints Internal to Layer

5.1 It is not desirable to make joints internal to the layers. If this should become necessary a request shall be sent to Fermilab for permission to make an internal splice. Should this be approved a copy of the request, plus the written approval from Fermilab shall be attached to the appropriate traveler.

5.2 If internal joints are made, perform dye penetrant and hydrostatic tests below.

5.3 Water test - Hydrostatic

Fill circuit with water and pressurize to 375 + 25/-0 PSIG. Isolate from pressure. No drop in pressure shall occur within a 30 minute period.

Record:
Pressure_____PSIG
Results_____

_____ _____
Test Technician Date

_____ _____
QC/QA Inspector Date

5.4 Dye Penetrant Test

Cracks longer than 1/16" shall be filed out and rewelded. Attach results.

Tested by_____
Organization_____
Test Date_____

_____ _____
Technician Date

_____ _____
QA/QC Inspector Date

_____ _____
Fermilab Representative Date

Alpha Magnetics S.O._____
Revision_____
Date_____

6.0 Conductor Insulation

6.1 Move coil to clean area.

6.2 Inspect all conductor surfaces with clean white (lint free) gloves. Insure that conductor is free of nicks, burrs and sharp edges. Use Scotch Brite. Wipe conductor clean with acetone.

E. Conbo — 6-20-94
Insulation Leadman — Date

Dennis Allen — 6-20-94
QC/QA Inspector — Date

6.3 Wrap conductor with insulating material in accordance with coil fabrication plan and drawing 3832.252-ME-267034. QC/QA Inspector should inspect taping in process frequently to insure half lap.

~~6-21-9~~ Everett Conbo — 6-21-94
Insulation Leadman — Date

Dennis Allen — 6-21-94
QC/QA Inspector — Date

_____ — _____
Fermi Lab Representative — Date

6.4 Upon completion of conductor insulation, cover and store layer in clean area until needed for assembly in double layer.

Alpha Magnetics S.O._____
Revision_____
Date_____

7.0 Layer Production Complete

7.1 QA/QC Inspector verify that sections 1 through 5 are accurate and complete and that all Discrepancy Reports have had disposition made.

Comments:

_____

_____

_____

Dennis Allen — 6-28-94

QA/QC Inspector — Date

7.2 Production Supervisor verify that section 1 through 5 are accurate and complete.

Comments:

_____

_____

_____

Dennis Allen — 6-28-94

Production Manager — Date

7.3 Accepted by Fermilab for use in double layer.

_____ — _____

Fermilab Representative — Date

Alpha Magnetics S.O._____
Revision_____
Date_____

ALPHA MAGNETICS, INC.

KTeV ANALYSIS MAGNET TRAVELER FOR THE SINGLE LAYER COILS

LOWER INLET LAYER 3832.252-ME-267042
LOWER OUTLET LAYER 3832.252-ME-267043
UPPER INLET LAYER 3832.252-ME-267028
UPPER OUTLET LAYER 3832.252-ME-267029

Prepared by Don Klein/Dennis Klein

Alpha Magnetics S.O._____
Revision_____
Date_____

Check applicable drawing below, insure that the drawing is legible.

_____Lower Inlet Layer 3832.252-ME-267042
_____Lower Outlet Layer 3832.252-ME-267043
____✓____Upper Inlet Layer 3832.252-ME-267028
_____Upper Outlet Layer 3832.252-ME-267029

Layer No.____9____

1.0 General Notes

1.1 White (lint free) gloves or surgical latex gloves 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/Inspector's first initial and full last name. All entries in the Traveler are to be in black ink.

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 Any and all data, signatures or written notes shall be legible by others.

1.5 Half-lap = 40% to 50% coverage (overlap)

1.6 If damage or a deviation from the specifications are found a Discrepancy Report Form must be completed and attached behind the page in which the discrepancy occurred before production can proceed. All Discrepancy Reports issued shall be recorded in the left margin next to the applicable step.

1.7 If coil is not being worked on it shall be protected from the elements and dust by wrapping it in an anti-static sheeting (such as Herculite).

1.8 Attach to the appropriate traveler any requests for a variance from previously accepted procedures and the Fermilab approval.

1.9 Attach to the traveler a copy of that portion of the coil fabrication and testing plan which is relevant to the work covered by the traveler.

Alpha Magnetics S.O._____
Revision_____
Date_____

2.0 Conductor Inspection

2.1 Select proper conductor spool for layer being wound.
Spool No. 10.
Conductor Length_____.

2.2 Inspect conductor in accordance with conductor inspection procedure.

Coil Winder — Date: June 26, 1994

QC/QA Inspector — Date: 6-27-94

Alpha Magnetics S.O._____
Revision_____
Date_____

3.0 Layer Winding

3.1 Check that the winding fixture dimensions match the layer being wound.

3.2 Check that direction of rotation of winding machine is correct for the layer being wound.

3.2 As conductor is being wound, visually inspect for nicks, sharp edges.

3.3 Verify conductor dimensions at the beginning of each turn.

Turn 1	1.412 x 1.413	5	1.418 x 1.412
2	1.413 x 1.412	6	1.418 x 1.411
3	1.414 x 1.412	7	1.418 x 1.413
4	1.417 x 1.411	8	1.417 x 1.412

3.4 Verify and record "A" and "B" and width dimensions:

"A"_____ "B"_____

Coil Width_____

Matthew Parker — June 28 94
Coil Winder — Date

Dennis Allen — 6-28-94
QC/QA Inspector — Date

Alpha Magnetics S.O._____
Revision_____
Date_____

4.0 Dekeystoning

4.1 Move layer to dekeystoning area and file off dimensional growth on all radii. Use go/no-go gage to check finished dimension of conductor.

4.2 Check that corner radius on conductor is at least 1/8" in dekeystoned area.

Bill Todd
Technician

July 11, 94
Date

Dennis Ale
QC/QA Inspector

7-11-94
Date

4.3 Prior to insulating single coil layers, per section 6.0 of Single Coil Layer Traveler, coil pairs should be nested together per section 2.1, 2.2, 2.3, 2.4 and 2.5 of Double Coil Layer Traveler.

5.0 Joints Internal to Layer

5.1 It is not desirable to make joints internal to the layers. If this should become necessary a request shall be sent to Fermilab for permission to make an internal splice. Should this be approved a copy of the request, plus the written approval from Fermilab shall be attached to the appropriate traveler.

5.2 If internal joints are made, perform dye penetrant and hydrostatic tests below.

5.3 Water test - Hydrostatic

Fill circuit with water and pressurize to 375 + 25/-0 PSIG. Isolate from pressure. No drop in pressure shall occur within a 30 minute period.

Record:
Pressure_____PSIG
Results_____

_____ _____
Test Technician Date

_____ _____
QC/QA Inspector Date

5.4 Dye Penetrant Test

Cracks longer than 1/16" shall be filed out and rewelded. Attach results.

Tested by_____
Organization_____
Test Date_____

_____ _____
Technician Date

_____ _____
QA/QC Inspector Date

_____ _____
Fermilab Representative Date

Alpha Magnetics S.O._____
Revision_____
Date_____

6.0 Conductor Insulation

6.1 Move coil to clean area.

6.2 Inspect all conductor surfaces with clean white (lint free) gloves. Insure that conductor is free of nicks, burrs and sharp edges. Use Scotch Brite. Wipe conductor clean with acetone.

Chris Ehman	7-11-94
Insulation Leadman	Date
Dennis Allen	7-11-94
QC/QA Inspector	Date

6.3 Wrap conductor with insulating material in accordance with coil fabrication plan and drawing 3832.252-ME-267034. QC/QA Inspector should inspect taping in process frequently to insure half lap.

E. Gale	7-13-94
Insulation Leadman	Date
Dennis Allen	7-13-94
QC/QA Inspector	Date
Fermi Lab Representative	Date

6.4 Upon completion of conductor insulation, cover and store layer in clean area until needed for assembly in double layer.

7.0 Layer Production Complete

7.1 QA/QC Inspector verify that sections 1 through 5 are accurate and complete and that all Discrepancy Reports have had disposition made.

Comments:

_____

_____

_____

QA/QC Inspector Date 7-19-94

7.2 Production Supervisor verify that section 1 through 5 are accurate and complete.

Comments:

_____

_____

_____

Production Manager Date 7-19-94

7.3 Accepted by Fermilab for use in double layer.

_____ _____

Fermilab Representative Date

Alpha Magnetics S.O._____
Revision_____
Date_____

ALPHA MAGNETICS, INC.

KTeV ANALYSIS MAGNET TRAVELER FOR THE SINGLE LAYER COILS

LOWER INLET LAYER 3832.252-ME-267042
LOWER OUTLET LAYER 3832.252-ME-267043
UPPER INLET LAYER 3832.252-ME-267028
UPPER OUTLET LAYER 3832.252-ME-267029

Prepared by Don Klein/Dennis Klein

Alpha Magnetics S.O._____
Revision_____
Date_____

Check applicable drawing below, insure that the drawing is legible.

_____Lower Inlet Layer 3832.252-ME-267042
_____Lower Outlet Layer 3832.252-ME-267043
_____✓_____Upper Inlet Layer 3832.252-ME-267028
_____Upper Outlet Layer 3832.252-ME-267029

Layer No._____11_____

1.0 General Notes

1.1 White (lint free) gloves or surgical latex gloves 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/Inspector's first initial and full last name. All entries in the Traveler are to be in black ink.

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 Any and all data, signatures or written notes shall be legible by others.

1.5 Half-lap = 40% to 50% coverage (overlap)

1.6 If damage or a deviation from the specifications are found a Discrepancy Report Form must be completed and attached behind the page in which the discrepancy occurred before production can proceed. All Discrepancy Reports issued shall be recorded in the left margin next to the applicable step.

1.7 If coil is not being worked on it shall be protected from the elements and dust by wrapping it in an anti-static sheeting (such as Herculite).

1.8 Attach to the appropriate traveler any requests for a variance from previously accepted procedures and the Fermilab approval.

1.9 Attach to the traveler a copy of that portion of the coil fabrication and testing plan which is relevant to the work covered by the traveler.

Alpha Magnetics S.O._____
Revision_____
Date_____

2.0 Conductor Inspection

2.1 Select proper conductor spool for layer being wound.
Spool No. 11.
Conductor Length 1075.

2.2 Inspect conductor in accordance with conductor inspection procedure.

Coil Winder — Date 7-21-94

QC/QA Inspector — Date 7-21-94

Alpha Magnetics S.O._____
Revision_____
Date_____

3.0 Layer Winding

3.1 Check that the winding fixture dimensions match the layer being wound.

3.2 Check that direction of rotation of winding machine is correct for the layer being wound.

3.2 As conductor is being wound, visually inspect for nicks, sharp edges.

3.3 Verify conductor dimensions at the beginning of each turn.

Turn 1	1.417 x 1.410	5	1.418 x 1.410
2	1.418 x 1.411	6	1.418 x 1.412
3	1.419 x 1.411	7	1.417 x 1.411
4	1.419 x 1.412	8	1.418 x 1.412

3.4 Verify and record "A" and "B" and width dimensions:

"A"_____ "B"_____

Coil Width_____

N. Parham — 7-21-94
Coil Winder — Date

Dennis Allen — 7-21-94
QC/QA Inspector — Date

Alpha Magnetics S.O._____
Revision_____
Date_____

4.0 Dekeystoning

4.1 Move layer to dekeystoning area and file off dimensional growth on all radii. Use go/no-go gage to check finished dimension of conductor.

4.2 Check that corner radius on conductor is at least 1/8" in dekeystoned area.

Bill Little	July 26 1994
Technician	Date
Dennis Allen	7-26-94
QC/QA Inspector	Date

4.3 Prior to insulating single coil layers, per section 6.0 of Single Coil Layer Traveler, coil pairs should be nested together per section 2.1, 2.2, 2.3, 2.4 and 2.5 of Double Coil Layer Traveler.

5.0 Joints Internal to Layer

5.1 It is not desirable to make joints internal to the layers. If this should become necessary a request shall be sent to Fermilab for permission to make an internal splice. Should this be approved a copy of the request, plus the written approval from Fermilab shall be attached to the appropriate traveler.

5.2 If internal joints are made, perform dye penetrant and hydrostatic tests below.

Alpha Magnetics S.O._____
Revision_____
Date_____

6.0 Conductor Insulation

6.1 Move coil to clean area.

6.2 Inspect all conductor surfaces with clean white (lint free) gloves. Insure that conductor is free of nicks, burrs and sharp edges. Use Scotch Brite. Wipe conductor clean with acetone.

Chris Elmore	8-17-94
Insulation Leadman	Date
Dennis Allen	8-19-94
QC/QA Inspector	Date

6.3 Wrap conductor with insulating material in accordance with coil fabrication plan and drawing 3832.252-ME-267034. QC/QA Inspector should inspect taping in process frequently to insure half lap.

Chris Elmore	8-17-94
Insulation Leadman	Date
Dennis Allen	8-19-94
QC/QA Inspector	Date
Fermi Lab Representative	Date

6.4 Upon completion of conductor insulation, cover and store layer in clean area until needed for assembly in double layer.

7.0 Layer Production Complete

7.1 QA/QC Inspector verify that sections 1 through 5 are accurate and complete and that all Discrepancy Reports have had disposition made.

Comments:

_____

_____

_____

QA/QC Inspector 8-25-94 Date

7.2 Production Supervisor verify that section 1 through 5 are accurate and complete.

Comments:

_____

_____

_____

Production Manager 8-25-94 Date

7.3 Accepted by Fermilab for use in double layer.

_____ Fermilab Representative _____ Date

Alpha Magnetics S.O._____
Revision_____
Date_____

ALPHA MAGNETICS, INC.

KTeV ANALYSIS MAGNET TRAVELER FOR THE SINGLE LAYER COILS

LOWER INLET LAYER 3832.252-ME-267042
LOWER OUTLET LAYER 3832.252-ME-267043
15UPPER INLET LAYER 3832.252-ME-267028
UPPER OUTLET LAYER 3832.252-ME-267029

Prepared by Don Klein/Dennis Klein

Alpha Magnetics S.O._____
Revision_____
Date_____

Check applicable drawing below, insure that the drawing is legible.

_____Lower Inlet Layer 3832.252-ME-267042
_____Lower Outlet Layer 3832.252-ME-267043
___V___Upper Inlet Layer 3832.252-ME-267028
_____Upper Outlet Layer 3832.252-ME-267029

Layer No.___15___

1.0 General Notes

1.1 White (lint free) gloves or surgical latex gloves 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/Inspector's first initial and full last name. All entries in the Traveler are to be in black ink.

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 Any and all data, signatures or written notes shall be legible by others.

1.5 Half-lap = 40% to 50% coverage (overlap)

1.6 If damage or a deviation from the specifications are found a Discrepancy Report Form must be completed and attached behind the page in which the discrepancy occurred before production can proceed. All Discrepancy Reports issued shall be recorded in the left margin next to the applicable step.

1.7 If coil is not being worked on it shall be protected from the elements and dust by wrapping it in an anti-static sheeting (such as Herculite).

1.8 Attach to the appropriate traveler any requests for a variance from previously accepted procedures and the Fermilab approval.

1.9 Attach to the traveler a copy of that portion of the coil fabrication and testing plan which is relevant to the work covered by the traveler.

Alpha Magnetics S.O._____
Revision_____
Date_____

2.0 Conductor Inspection

2.1 Select proper conductor spool for layer being wound.
Spool No. ~~1150 Feet~~ 15 E.C. 8-23-94
Conductor Length 1150 Feet.

2.2 Inspect conductor in accordance with conductor inspection procedure.

Coil Winder _____ Date 8-22-94

QC/QA Inspector _____ Date 8-22-94

Alpha Magnetics S.O._____
Revision_____
Date_____

3.0 Layer Winding

3.1 Check that the winding fixture dimensions match the layer being wound.

3.2 Check that direction of rotation of winding machine is correct for the layer being wound.

3.2 As conductor is being wound, visually inspect for nicks, sharp edges.

3.3 Verify conductor dimensions at the beginning of each turn.

Turn 1	1.418 X 1.416	5	1.418 X 1.419
2	1.418 X 1.419	6	1.417 X 1.418
3	1.417 X 1.419	7	1.417 X 1.417
4	1.417 X 1.419	8	1.417 X 1.418

3.4 Verify and record "A" and "B" and width dimensions:

"A"_____ "B"_____

Coil Width_____

Nathan Park — 8-22-94
Coil Winder — Date

Dennis Ale — 8-22-94
QC/QA Inspector — Date

Alpha Magnetics S.O._____
Revision_____
Date_____

4.0 Dekeystoning

4.1 Move layer to dekeystoning area and file off dimensional growth on all radii. Use go/no-go gage to check finished dimension of conductor.

4.2 Check that corner radius on conductor is at least 1/8" in dekeystoned area.

Bill Lotts — 9/7/94
Technician — Date

Dennis Klein — 9-7-94
QC/QA Inspector — Date

4.3 Prior to insulating single coil layers, per section 6.0 of Single Coil Layer Traveler, coil pairs should be nested together per section 2.1, 2.2, 2.3, 2.4 and 2.5 of Double Coil Layer Traveler.

5.0 Joints Internal to Layer

5.1 It is not desirable to make joints internal to the layers. If this should become necessary a request shall be sent to Fermilab for permission to make an internal splice. Should this be approved a copy of the request, plus the written approval from Fermilab shall be attached to the appropriate traveler.

5.2 If internal joints are made, perform dye penetrant and hydrostatic tests below.

5.3 Water test - Hydrostatic

Fill circuit with water and pressurize to 375 + 25/-0 PSIG. Isolate from pressure. No drop in pressure shall occur within a 30 minute period.

Record:
Pressure_____PSIG
Results_____

_____ _____
Test Technician Date

_____ _____
QC/QA Inspector Date

5.4 Dye Penetrant Test

Cracks longer than 1/16" shall be filed out and rewelded. Attach results.

Tested by_____
Organization_____
Test Date_____

_____ _____
Technician Date

_____ _____
QA/QC Inspector Date

_____ _____
Fermilab Representative Date

6.0 Conductor Insulation

6.1 Move coil to clean area.

6.2 Inspect all conductor surfaces with clean white (lint free) gloves. Insure that conductor is free of nicks, burrs and sharp edges. Use Scotch Brite. Wipe conductor clean with acetone.

S. Gold	9-28-94
Insulation Leadman	Date
Dennis Klein	9-28-94
QC/QA Inspector	Date

6.3 Wrap conductor with insulating material in accordance with coil fabrication plan and drawing 3832.252-ME-267034. QC/QA Inspector should inspect taping in process frequently to insure half lap.

S. Gold	9-28-94
Insulation Leadman	Date
Dennis Klein	9-28-94
QC/QA Inspector	Date
Fermi Lab Representative	Date

6.4 Upon completion of conductor insulation, cover and store layer in clean area until needed for assembly in double layer.

Alpha Magnetics S.O._____
Revision_____
Date_____

7.0 Layer Production Complete

7.1 QA/QC Inspector verify that sections 1 through 5 are accurate and complete and that all Discrepancy Reports have had disposition made.

Comments:

_____

_____

_____

Dennis Klein 9-28-94

QA/QC Inspector Date

7.2 Production Supervisor verify that section 1 through 5 are accurate and complete.

Comments:

_____

_____

_____

Dennis Klein 9-28-94

Production Manager Date

7.3 Accepted by Fermilab for use in double layer.

_____ _____

Fermilab Representative Date

Alpha Magnetics S.O._____
Revision_____
Date_____

ALPHA MAGNETICS, INC.

KTeV ANALYSIS MAGNET TRAVELER FOR THE SINGLE LAYER COILS

LOWER INLET LAYER 3832.252-ME-267042
LOWER OUTLET LAYER 3832.252-ME-267043
17 UPPER INLET LAYER 3832.252-ME-267028
UPPER OUTLET LAYER 3832.252-ME-267029

Prepared by Don Klein/Dennis Klein

Alpha Magnetics S.O._____
Revision_____
Date_____

Check applicable drawing below, insure that the drawing is legible.

_____Lower Inlet Layer 3832.252-ME-267042
_____Lower Outlet Layer 3832.252-ME-267043
____✓____Upper Inlet Layer 3832.252-ME-267028
_____Upper Outlet Layer 3832.252-ME-267029

Layer No.__17__

1.0 General Notes

1.1 White (lint free) gloves or surgical latex gloves 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/Inspector's first initial and full last name. All entries in the Traveler are to be in black ink.

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 Any and all data, signatures or written notes shall be legible by others.

1.5 Half-lap = 40% to 50% coverage (overlap)

1.6 If damage or a deviation from the specifications are found a Discrepancy Report Form must be completed and attached behind the page in which the discrepancy occurred before production can proceed. All Discrepancy Reports issued shall be recorded in the left margin next to the applicable step.

1.7 If coil is not being worked on it shall be protected from the elements and dust by wrapping it in an anti-static sheeting (such as Herculite).

1.8 Attach to the appropriate traveler any requests for a variance from previously accepted procedures and the Fermilab approval.

1.9 Attach to the traveler a copy of that portion of the coil fabrication and testing plan which is relevant to the work covered by the traveler.

Alpha Magnetics S.O._____
Revision_____
Date_____

2.0 Conductor Inspection

2.1 Select proper conductor spool for layer being wound.
Spool No. 17.
Conductor Length 1185.

2.2 Inspect conductor in accordance with conductor inspection procedure.

Bob Haynes
Coil Winder

9-27-94
Date

Dennis Ller
QC/QA Inspector

9-27-94
Date

Alpha Magnetics S.O._____
Revision_____
Date_____

3.0 Layer Winding

3.1 Check that the winding fixture dimensions match the layer being wound.

3.2 Check that direction of rotation of winding machine is correct for the layer being wound.

3.2 As conductor is being wound, visually inspect for nicks, sharp edges.

3.3 Verify conductor dimensions at the beginning of each turn.

Turn 1	1.419 x 1.412	5	1.419 X 1.413
2	1.419 x 1.413	6	1.419 X 1.413
3	1.419 x 1.414	7	1.419 X 1.415
4	1.419 x 1.413	8	1.419 X 1.414

3.4 Verify and record "A" and "B" and width dimensions:

"A"_____ "B"_____

Coil Width_____

Pat Hayes _____ 9-27-94 _____
Coil Winder Date

D. Demuth _____ 9-27-94 _____
QC/QA Inspector Date

Alpha Magnetics S.O._____
Revision_____
Date_____

4.0 Dekeystoning

4.1 Move layer to dekeystoning area and file off dimensional growth on all radii. Use go/no-go gage to check finished dimension of conductor.

4.2 Check that corner radius on conductor is at least 1/8" in dekeystoned area.

Bill Fitt _____ 10-4-94 _____
Technician Date

Dennis Allen _____ 10-4-94 _____
QC/QA Inspector Date

4.3 Prior to insulating single coil layers, per section 6.0 of Single Coil Layer Traveler, coil pairs should be nested together per section 2.1, 2.2, 2.3, 2.4 and 2.5 of Double Coil Layer Traveler.

5.0 Joints Internal to Layer

5.1 It is not desirable to make joints internal to the layers. If this should become necessary a request shall be sent to Fermilab for permission to make an internal splice. Should this be approved a copy of the request, plus the written approval from Fermilab shall be attached to the appropriate traveler.

5.2 If internal joints are made, perform dye penetrant and hydrostatic tests below.

5.3 Water test - Hydrostatic

Fill circuit with water and pressurize to 375 + 25/-0 PSIG. Isolate from pressure. No drop in pressure shall occur within a 30 minute period.

Record:
Pressure_____PSIG
Results_____

_____ _____
Test Technician Date

_____ _____
QC/QA Inspector Date

5.4 Dye Penetrant Test

Cracks longer than 1/16" shall be filed out and rewelded. Attach results.

Tested by_____
Organization_____
Test Date_____

_____ _____
Technician Date

_____ _____
QA/QC Inspector Date

_____ _____
Fermilab Representative Date

Alpha Magnetics S.O._____
Revision_____
Date_____

6.0 Conductor Insulation

6.1 Move coil to clean area.

6.2 Inspect all conductor surfaces with clean white (lint free) gloves. Insure that conductor is free of nicks, burrs and sharp edges. Use Scotch Brite. Wipe conductor clean with acetone.

E Cody	10-11-94
Insulation Leadman	Date
Dennis Allen	10-11-94
QC/QA Inspector	Date

6.3 Wrap conductor with insulating material in accordance with coil fabrication plan and drawing 3832.252-ME-267034. QC/QA Inspector should inspect taping in process frequently to insure half lap.

E Cody	10-11-94
Insulation Leadman	Date
Dennis Allen	10-11-94
QC/QA Inspector	Date
Fermi Lab Representative	Date

6.4 Upon completion of conductor insulation, cover and store layer in clean area until needed for assembly in double layer.

7.0 Layer Production Complete

7.1 QA/QC Inspector verify that sections 1 through 5 are accurate and complete and that all Discrepancy Reports have had disposition made.

Comments:

_____

_____

_____

QA/QC Inspector — Date: 10-11-94

7.2 Production Supervisor verify that section 1 through 5 are accurate and complete.

Comments:

_____

_____

_____

Production Manager — Date: 10-19-94

7.3 Accepted by Fermilab for use in double layer.

_____ Fermilab Representative — _____ Date

Alpha Magnetics S.O._____
Revision_____
Date_____

ALPHA MAGNETICS, INC.

KTeV ANALYSIS MAGNET TRAVELER FOR THE SINGLE LAYER COILS

LOWER INLET LAYER 3832.252-ME-267042
LOWER OUTLET LAYER 3832.252-ME-267043
19 UPPER INLET LAYER 3832.252-ME-267028
UPPER OUTLET LAYER 3832.252-ME-267029

Prepared by Don Klein/Dennis Klein

Alpha Magnetics S.O._____
Revision_____
Date_____

Check applicable drawing below, insure that the drawing is legible.

_____Lower Inlet Layer 3832.252-ME-267042
_____Lower Outlet Layer 3832.252-ME-267043
✓ Upper Inlet Layer 3832.252-ME-267028
_____Upper Outlet Layer 3832.252-ME-267029

Layer No. 19

1.0 General Notes

1.1 White (lint free) gloves or surgical latex gloves 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/Inspector's first initial and full last name. All entries in the Traveler are to be in black ink.

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 Any and all data, signatures or written notes shall be legible by others.

1.5 Half-lap = 40% to 50% coverage (overlap)

1.6 If damage or a deviation from the specifications are found a Discrepancy Report Form must be completed and attached behind the page in which the discrepancy occurred before production can proceed. All Discrepancy Reports issued shall be recorded in the left margin next to the applicable step.

1.7 If coil is not being worked on it shall be protected from the elements and dust by wrapping it in an anti-static sheeting (such as Herculite).

1.8 Attach to the appropriate traveler any requests for a variance from previously accepted procedures and the Fermilab approval.

1.9 Attach to the traveler a copy of that portion of the coil fabrication and testing plan which is relevant to the work covered by the traveler.

Alpha Magnetics S.O._____
Revision_____
Date_____

2.0 Conductor Inspection

2.1 Select proper conductor spool for layer being wound.
Spool No. ~~1220~~ 19.
Conductor Length 1220.

2.2 Inspect conductor in accordance with conductor inspection procedure.

Nathan Parham — 10-19-94
Coil Winder — Date

Dennis [illegible] — 10-19-94
QC/QA Inspector — Date

Alpha Magnetics S.O._____
Revision_____
Date_____

3.0 Layer Winding

3.1 Check that the winding fixture dimensions match the layer being wound.

3.2 Check that direction of rotation of winding machine is correct for the layer being wound.

3.2 As conductor is being wound, visually inspect for nicks, sharp edges.

3.3 Verify conductor dimensions at the beginning of each turn.

Turn 1	1.411 x 1.412	5	1.413 x 1.415
2	1.411 x 1.414	6	1.410 x 1.414
3	1.413 x 1.414	7	1.411 x 1.413
4	1.412 x 1.413	8	1.412 x 1.414

3.4 Verify and record "A" and "B" and width dimensions:

"A"_____ "B"_____

Coil Width_____

Nathan Parker — 10-19-94
Coil Winder — Date

Dennis Allen — 10-19-94
QC/QA Inspector — Date

Alpha Magnetics S.O._____
Revision_____
Date_____

4.0 Dekeystoning

4.1 Move layer to dekeystoning area and file off dimensional growth on all radii. Use go/no-go gage to check finished dimension of conductor.

4.2 Check that corner radius on conductor is at least 1/8" in dekeystoned area.

Technician	10-26-94 Date
QC/QA Inspector	10-26-94 Date

4.3 Prior to insulating single coil layers, per section 6.0 of Single Coil Layer Traveler, coil pairs should be nested together per section 2.1, 2.2, 2.3, 2.4 and 2.5 of Double Coil Layer Traveler.

5.0 Joints Internal to Layer

5.1 It is not desirable to make joints internal to the layers. If this should become necessary a request shall be sent to Fermilab for permission to make an internal splice. Should this be approved a copy of the request, plus the written approval from Fermilab shall be attached to the appropriate traveler.

5.2 If internal joints are made, perform dye penetrant and hydrostatic tests below.

Alpha Magnetics S.O._____
Revision_____
Date_____

6.0 Conductor Insulation

6.1 Move coil to clean area.

6.2 Inspect all conductor surfaces with clean white (lint free) gloves. Insure that conductor is free of nicks, burrs and sharp edges. Use Scotch Brite. Wipe conductor clean with acetone.

Insulation Leadman	Date 12-8-94
QC/QA Inspector	Date 12-8-94

6.3 Wrap conductor with insulating material in accordance with coil fabrication plan and drawing 3832.252-ME-267034. QC/QA Inspector should inspect taping in process frequently to insure half lap.

Insulation Leadman	Date 12-12-94
QC/QA Inspector	Date 12-8-94
Fermi Lab Representative	Date

6.4 Upon completion of conductor insulation, cover and store layer in clean area until needed for assembly in double layer.

7.0 Layer Production Complete

7.1 QA/QC Inspector verify that sections 1 through 5 are accurate and complete and that all Discrepancy Reports have had disposition made.

Comments:

_____

_____

_____

QA/QC Inspector — Date 12-8-94

7.2 Production Supervisor verify that section 1 through 5 are accurate and complete.

Comments:

_____

_____

_____

Production Manager — Date 12-8-94

7.3 Accepted by Fermilab for use in double layer.

Fermilab Representative — Date