Alpha Magnetics S.O._____
Revision_____
Date 2-17-94

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
2 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
__X__Upper Outlet Layer 3832.252-ME-267029

Layer No. 2

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. 2.
Conductor Length_____.

2.2 Inspect conductor in accordance with conductor inspection procedure.

Coil Winder — Date: 2-22-94

QC/QA Inspector — Date: 2-22-94

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 PH	1.420	r	1.418	5/17 PH	1.418		1.418
Turn 1	~~4.20~~	X	~~4.18~~	5	~~4.18~~	X	~~4.18~~
5/17 PH	1.42		1.42	PH 5/17	1.42		1.418
2	~~4.20~~	X	~~4.20~~	6	4.20	X	~~4.18~~
5/17 PH	1.42		1.418	PH 5/17	1.42		1.416
3	~~4.20~~	X	~~4.18~~	7	~~4.20~~	X	~~4.16~~
5/17 PH	1.42		1.418	5/17 DH	1.421		1.42
4	~~4.20~~	X	~~4.18~~	8	~~4.21~~		~~4.20~~

Everett Conboy — 2-22-94
Coil Winder — Date

Dennis Ulm — 2-22-94
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.

Everett Conley — Technician — Date: 2-23-94

Dennis Klein — QC/QA Inspector — Date: 2-23-94

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

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. Wipe conductor clean with acetone.

6.3 Wrap conductor with insulating material in accordance with coil fabrication plan and drawing 3832.252-ME-267034.

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

Everett Cobb / 2-24-94
Insulation Leadman Date

Dennis Allen / 2-24-94
QC/QA Inspector 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:

_____
_____
_____

_____ 6-1-94
QA/QC Inspector Date

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

Comments:

_____
_____
_____

_____ 6-1-94
Production Manager Date

7.3 Accepted by Fermilab for use in double layer.

_____ _____
Fermilab Representative Date

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
4 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
__X__Upper Outlet Layer 3832.252-ME-267029

Layer No. 4

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. 4.
Conductor Length 1100 FT.

2.2 Inspect conductor in accordance with conductor inspection procedure.

EVERETT COMBS — Coil Winder — 3-8-94 — Date

Dennis Wells — QC/QA Inspector — 3-8-94 — 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	1.420 X 1.421	5	1.420 x 1.420
2	1.421 X 1.419	6	1.419 x 1.418
3	1.420 X 1.419	7	1.420 x 1.418
4	1.420 X 1.419	8	1.420 x 1.418

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

"A"_____ "B"_____

Coil Width_____

EVERETT COMBS — 3-9-94
Coil Winder — Date

[signature] — 3-9-94
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 P. Gulley — Technician — 3-15-94 — Date

Dennis Allen — QC/QA Inspector — 3-15-94 — 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

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 N. Condon — 4-15-94
Insulation Leadman — Date

Dennis Allen — 4-15-94
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 N. Condon — 4-19-94
Insulation Leadman — Date

Dennis Allen — 4-19-94
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:

_____

_____

_____

Dennis Klein — 6-1-94

QA/QC Inspector — Date

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

Comments:

_____

_____

_____

Dennis Klein — 6-1-94

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
6 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
__X__Upper Outlet Layer 3832.252-ME-267029

Layer No. 6

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.

2.0 Conductor Inspection

2.1 Select proper conductor spool for layer being wound.
Spool No. 6 .
Conductor Length_____.

2.2 Inspect conductor in accordance with conductor inspection procedure.

_____ _____
Coil Winder Date

_____ _____
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	1.415	1.421	5	1.414	1.421
2	1.415	1.42	6	1.414	1.419
3	1.414	1.420	7	1.413	1.42
4	1.414	1.419	8	1.413	1.420

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

"A"_____ "B"_____

Coil Width_____

_____ _____
Coil Winder Date

_____ _____
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. Combs — Technician — 6-17-94 — Date

Dennis Mau — QC/QA Inspector — 6-13-94 — 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

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. Conboy — 6.15.94
Insulation Leadman — Date

D. Allen — 6-15-94
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. Conboy — 6-15-94
Insulation Leadman — Date

D. Allen — 6-15-94
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

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

Comments:

_____
_____
_____

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
__V__Upper Outlet Layer 3832.252-ME-267029

Layer No. 8

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. 9 .
Conductor Length_____.

2.2 Inspect conductor in accordance with conductor inspection procedure.

E. Carbe
Coil Winder

6-9-94
Date

Dennis Ulbe
QC/QA Inspector

6-10-94
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	1.416 x 1.414	5	1.416 X 1.415
2	1.416 x 1.416	6	1.414 x 1.414
3	1.415 x 1.415	7	1.414 x 1.415
4	1.416 x 1.416	8	1.415 x 1.414

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

"A"_____ "B"_____

Coil Width_____

S. Gonzales — Coil Winder — 6-9-94 — Date

Dennis Allen — QC/QA Inspector — 6-10-94 — 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 — Date: 6/20/94

QC/QA Inspector — Date: 6-20-94

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. Gomez — 6-22-94
Insulation Leadman — Date

Dennis Allen — 6-23-94
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. Gomez — 6-23-94
Insulation Leadman — Date

Dennis Allen — 6-23-94
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:

_____
_____
_____

_____ ~~6-27-93~~ 6-27-94
QA/QC Inspector Date

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

Comments:

_____
_____
_____

_____ 6-27-94
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
6 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. 6

KTeV Analysis Magnet Traveler for the Single Coil Layer

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.

2.0 Conductor Inspection

2.1 Select proper conductor spool for layer being wound.
Spool No. 6 .
Conductor Length_____.

2.2 Inspect conductor in accordance with conductor inspection procedure.

_____ _____
Coil Winder Date

_____ _____
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	1.415	X	1.421	5	1.414	X	1.421
2	1.415	X	1.42	6	1.414	X	1.419
3	1.414	X	1.42	7	1.413	X	1.42
4	1.414	X	1.419	8	1.413	X	1.42

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

"A"_____ "B"_____

Coil Width_____

_____ _____
Coil Winder Date

_____ _____
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.

C Cowles — Technician — 6-13-94 — Date

Dennis Mc — QC/QA Inspector — 6-13-94 — 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

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.

C. Conba — 6-15-94
Insulation Leadman — Date

Dennis Klein — 6-15-94
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.

C. Conba — 6-15-94
Insulation Leadman — Date

Dennis Klein — 6-15-94
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

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

Comments:

_____
_____
_____

_____ _____
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. 10

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. 2nd 9A .
Conductor Length_____.

2.2 Inspect conductor in accordance with conductor inspection procedure.

Rob Hamm
Coil Winder

7/12/94
Date

Dennis Klein
QC/QA Inspector

7-12-94
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	1.417 x 1.412	5	1.417 X 1.412
2	1.416 x 1.412	6	1.418 X 1.412
3	1.416 x 1.417	7	1.418 X 1.413
4	1.414 x 1.417	8	1.414 X 1.416

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

"A"_____ "B"_____

Coil Width_____

[signature] 7/12/94
Coil Winder Date

[signature] 7-12-94
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.

Bill Scott — Technician — 7-15-94 — Date

Dennis Allen — QC/QA Inspector — 7-15-94 — 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

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. Cable — 7-15-94
Insulation Leadman — Date

Dennis Klein — 7-15-94
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. Cable — 7-26-94
Insulation Leadman — Date

Dennis Klein — 7-26-94
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 Allen 8-3-94
QA/QC Inspector Date

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

Comments:

_____
_____
_____

Dennis Allen 8-3-94
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
12 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
__V__Upper Outlet Layer 3832.252-ME-267029

Layer No. 12

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. 12 .
Conductor Length 1070 .

2.2 Inspect conductor in accordance with conductor inspection procedure.

Pat Hayes — Coil Winder — 7.27.94 — Date

Dennis Allen — QC/QA Inspector — 7-27-94 — 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	1.412 X 1.418	5	1.412 X 1.417
2	1.411 X 1.417	6	1.412 X 1.417
3	1.413 X 1.417	7	1.411 X 1.417
4	1.413 X 1.416	8	1.412 X 1.416

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

"A"_____ "B"_____

Coil Width_____

Pat Hayes _____ 7-27-94
Coil Winder Date

_____ 7-27-94
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.

Bill Lutt — Technician — 8-1-94 — Date

Dennis Allen — QC/QA Inspector — 8-1-94 — 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.

N/A

Alpha Magnetics S.O._____
Revision_____
Date_____

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.

E Cardo — 9-7-94
Insulation Leadman — Date

Dennis Ulm — 9-7-94
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. Cardo — 9-7-94
Insulation Leadman — Date

Dennis Ulm — 9-7-94
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 Allen 9-19-94
QA/QC Inspector Date

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

Comments:

_____
_____
_____

Dennis Allen 9-19-94
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
14 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. 14

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. 14.
Conductor Length 1105.

2.2 Inspect conductor in accordance with conductor inspection procedure.

Coil Winder — Date: 8-8-94

QC/QA Inspector — Date: 8-8-94

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	1.418	5	1.417	1.419
2	1.417	1.418	6	1.416	1.417
3	1.417	1.419	7	1.416	1.419
4	1.417	1.419	8	1.416	1.418

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

"A"_____ "B"_____

Coil Width_____

Bob Hanna
Coil Winder

8-8-94
Date

Dennis Allen
QC/QA Inspector

8-8-94
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 Lutz — Technician — 9-10-94 — Date

Dennis Allen — QC/QA Inspector — 8-10 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.

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. Gale — Insulation Leadman — 9-14-94 — Date

Dennis Allen — QC/QA Inspector — 9-19-94 — 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 — Insulation Leadman — 9-14-94 — Date

Dennis Allen — QC/QA Inspector — 9-19-94 — 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 — QA/QC Inspector

9-19-94 — Date

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

Comments:

_____
_____
_____

Dennis Allen — Production Manager

9-19-94 — 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
UPPER INLET LAYER 3832.252-ME-267028
16 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. 16

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. 16.
Conductor Length 1145.

2.2 Inspect conductor in accordance with conductor inspection procedure.

Coil Winder — Date 9-6-94

QC/QA Inspector — Date 9-6-94

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	1.419 X 1.414	5	1.419 X 1.415
2	1.418 X 1.416	6	1.419 X 1.416
3	1.419 X 1.414	7	1.419 X 1.415
4	1.419 X 1.415	8	1.419 X 1.416

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

"A"_____ "B"_____

Coil Width_____

Coil Winder _____ Date 9-6-94

QC/QA Inspector _____ Date 9-6-94

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 Latto — Technician — 9-12-94 — Date

Dennis Allen — QC/QA Inspector — 9-12-94 — 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

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 Cone — 10-3-94
Insulation Leadman — Date

Dennis Klem — 10-3-94
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. Cone — 10-3-94
Insulation Leadman — Date

Dennis Klem — 10-3-94
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 Allen — QA/QC Inspector — 10-3-94 — Date

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

Comments:

_____
_____
_____

Dennis Allen — Production Manager — 10-3-94 — 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
UPPER INLET LAYER 3832.252-ME-267028
18 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. 18

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. 19.
Conductor Length 1220.

2.2 Inspect conductor in accordance with conductor inspection procedure.

[signature] 10-12-94
Coil Winder Date

[signature] 10-12-94
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	1.413 X 1.414	5	1.414 X 1.412
2	1.411 X 1.410	6	1.413 X 1.415
3	1.413 X 1.412	7	1.414 X 1.414
4	1.414 X 1.411	8	1.413 X 1.414

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

"A"_____ "B"_____

Coil Width_____

Coil Winder — 10-12-94 Date

QC/QA Inspector — 10-12-94 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 — Technician — 11-3-94 — Date

Dan Allen — QC/QA Inspector — 11-3-94 — 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

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. Cobb — 11-15-94
Insulation Leadman — Date

Dennis Allen — 11-15-94
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. Cobb — 11-15-94
Insulation Leadman — Date

Dennis Allen — 11-15-94
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 Allen — QA/QC Inspector — 11-15-94 — Date

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

Comments:

_____
_____
_____

Dennis Allen — Production Manager — 11-15-94 — 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
UPPER INLET LAYER 3832.252-ME-267028
2 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. 20

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. 18-2.
Conductor Length 590 Feet.

2.2 Inspect conductor in accordance with conductor inspection procedure.

N. Parker — 11-10-94
Coil Winder — Date

Dennis Ale — 11-10-94
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	1.419 X 1.419	5	1.420 X 1.419
2	1.419 X 1.418	6	1.419 X 1.418
3	1.420 X 1.419	7	1.419 X 1.420
4	1.420 X 1.419	8	1.418 X 1.419

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

"A"_____ "B"_____

Coil Width_____

N. Pan _____ 11-10-94
Coil Winder Date

Dennis Mc _____ 11-10-94
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 — Technician — 11-24-94 — Date

Dennis Allen — QC/QA Inspector — 11-24-94 — 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

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. Combs — Insulation Leadman — 12-21-94 — Date

Dawn Allen — QC/QA Inspector — 12-21-94 — 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. Combs — Insulation Leadman — 12-21-94 — Date

Dawn Allen — QC/QA Inspector — 12-21-94 — 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:

_____

_____

_____

_____ 12-22-94
QA/QC Inspector Date

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

Comments:

_____

_____

_____

_____ 12-22-94
Production Manager Date

7.3 Accepted by Fermilab for use in double layer.

_____ _____
Fermilab Representative Date