DFBX-D 24C362 Manufacturing Travelers

Meyer Tool & Mfg., Inc.
4601 W. Southwest Highway
Oak Lawn, IL 60453
708/423-5900 Fax 708/423-5613

Production Floor Traveler

Date: 06/17/2004
Time - 08:15:44
Page # 1

CONTROLLED DOCUMENT

Job Order 00918-0039

REV: 8 DATE: 6/23/04
APPROVED: [signature]

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
Description DFBX-D 24C362 Feed Box Assembly							
10	AS 3-A ASSEMBLY	1.00	0.00	1.00	1.00	0.00	1.00

Operation Description Detail :

1.0 Dwg 24C362 D Feed Box Assembly- Piping Assemblies Dwg 25I235
1.1 Pull the piping assemblies shown on 25I235.
1.2 Stage to OP20.

20	WE 2-A WELDERS	1.00	0.00	1.00	1.00	0.00	1.00

Operation Description Detail :

2.0 Deleted.

30	AS 3-A ASSEMBLY	1.00	0.00	1.00	1.00	0.00	1.00

Operation Description Detail :

3.0 Deleted.

40	AS 3-A ASSEMBLY	1.00	0.00	0.08	12.00	0.00	12.00

Operation Description Detail :

4.0 Dwg Dwg 24C362 D Feed Box Assembly- Bus Duct Q3 End Dwg 25M857
CUSTOMER WITNESS POINT.
Reference: Specification M994; Dwg 25C362; 25I235 Sht 10; 25M857;25H400
Bus Duct 25M857 assembles to the Q3 End of the LHe Tank.
4.1 Remove the 25M857 MQX1 Pipe from the crate. Use a choker sling around the long horizontal run to lift.
4.2 Enter the serial number of the 25M857 Bus Assembly below:

SN 25I448-7 By: E.D.K. Date: 6-12-04

4.3 Remove the protective pipe cover from the conductors. Remove the protective Teflon tube form the conductors.
4.4 Clean for welding with acetone and isopropyl alcohol the end of the weld neck flange on the Bus Duct and the area on the LHe Tank end plate.
4.5 Place a protective Teflon sleeve in the LHe Tank end plate hole.
Carefully insert the conductors through the LHe Tank end plate hole, feeding the bus conductors though the Cable Looms to their intended splice location. Reference 25C352 sht 10 Detail N. (Note MTM assumes that the bus conductors are individually

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Production Floor Traveler

Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
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Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time

Description DFBX-D 24C362 Feed Box Assembly

identified by LBNL.) Leave slack in the assembly so the piping portion of the Bus Duct can be fit to the LHe Vessel.

4.7 Fit the Bus Duct to the LHe vessel. Move the Tie Down Ring back out of the way. Assemble the Lambda Plug Flange to the LHe Tank end plate by using 4 clamps in the end plate bolt circle to clamp the Lambda Plug Flange to the LHe Tank. Bolts may be lubricated with a small amount of Krytox or Apiezon vacuum grease. Note the horizontal run of the Bus Duct must be supported during and after this assembly.

4.8 After assembly confirm that the Bus Duct is in positional location and level to the Top Plate per 24C362 sht 8. Record locations: (Use Romer Portable CMM.)

X:_____
Y:_____
Z:_____

By:_____Date:_____

4.9 Complete the assembly of the bus conductors in the Cable Looms and confirm that the conductors are all long enough to reach and complete their splices.

Confirmed By: D. TC Date: 10/20/04

4.10 Remove the Teflon sleeve from the end plate hole.

4.11 Stage to OP50.

	50	WE 2-A WELDERS	1.00	0.00	0.25	4.00	0.00	4.00

Operation Description Detail :

5.0 Dwg 24C362 G Feed Box Assembly- Bus Duct Q3 End Dwg 25M857
CUSTOMER WITNESS POINT.
Reference: Specification M994; Dwg 25C362; 25I235 Sht 10; 25M857;25H400
Bus Duct 25M857 assembles to the Q3 End of the LHe Tank.
STAMP YOUR WELDS.

5.1 From the inside of the LHe Tank, attach 4x-Omeagalabel BU-100/38 temperature monitors on the Lambda Plate Housing at 4 equally spaced locations. These are for LBNL record. Attach thermocouple wire to the same area and bring the readout outside the LHe Tank where it can be monitored during welding.

5.2 Reference Dwg 24C362 Sht 4 Zone A3 for weld detail.

5.3 From the outside of the LHe Tank, proceed to weld the Lamdba Plug Flange to the LHe Tank end plate in the following manner.

5.3.1 WPS GTAW-SS/LT. Monitor the temperature indicators at all times. Temperature not to exceed 40C (104F).

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Production Floor Traveler

Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00

Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y

Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab

Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time

Description DFBX-D 24C362 Feed Box Assembly

5.3.2 Tack weld the Flange at 4 equally spaced locations, 1" long x .06" fillet leg. Allow 4 tacks to cool to room temperature before proceeding. Check alignment.

5.3.3 Repeat step 5.3.2 for 4 more fleet tacks. Move clamps as needed. Check alignment.

5.3.4 Repeat step 5.3.2 for 4 more fleet tacks. Move clamps as needed. Check alignment.

5.3.5 Remove clamps and confirm that the Ring can be installed.

5.3.6 Complete the welding by repeating step 5.3.2 until the weld is complete.

5.3.7 Check alignment.

5.3.8 Install the Retaining Ring, tighten the 12 bolts in a star pattern to 25 ft-lb torque. Bolts may be lubricated with a small amount of Krytox or Apiezon vacuum grease

5.3.9 Tack weld the bolt heads to the Retaining Ring to prevent their loosening.

5.3.10 Remove the Omegalable temperature monitors and forward them to the project engineer for inclusion in the data package.

5.3.11 Remove the thermocouple wire.

5.4 Confirm that the Bus Duct is in positional location and level to the Top Plate per 24C362 sht 8. Record locations: (Use Romer Portable CMM.)

X:_____

Y:_____

Z:_____

By:_____Date:_____

5.5 Stage to OP60.

	60 AS 3-A ASSEMBLY	1.00	0.00	1.00	1.00	0.00	1.00

Operation Description Detail :

6.0 Dwg 24C362 G Feed Box Assembly- Bus Duct Q3 End Dwg 25M857
CUSTOMER WITNESS POINT.

6.1 Deleted.

6.2 Stage to OP70.

Meyer Tool & Mfg., Inc.
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Production Floor Traveler

Date: 06/17/2004
Time - 08:15:45
Page # 4

Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
Description DFBX-D 24C362 Feed Box Assembly							
70	AS 3-A ASSEMBLY	1.00	0.00	0.08	12.00	0.00	12.00

Operation Description Detail :

7.0 Dwg 24C362 G Feed Box Assembly- Bus Duct D1 End Dwg 25M859
CUSTOMER WITNESS POINT.
Reference: Specification M994; Dwg 25C362; 25I235 Sht 10; 25M589;25H400
Bus Duct 25I859 assembles to the D1 End of the LHe Tank.

7.1 Remove the 25M858 MBX1 Pipe from the crate. Use a choker sling around the long horizontal run to lift.

7.2 Enter the serial number of the 25M859 Bus Assembly below:

SN 25I941 - By: ECB Date: 6-14-04

..3 Remove the protective pipe cover from the conductors. Remove the protective Teflon tube form the conductors.

7.4 Clean for welding with acetone and isopropyl alcohol the end of the weld neck flange on the Bus Duct and the area on the LHe Tank end plate.

7.5 Place a protective Teflon sleeve in the LHe Tank end plate hole.

7.6 Carefully insert the conductors through the LHe Tank end plate hole, feeding the bus conductors though the Cable Looms to their intended splice location. Reference 25C362 sht 10 Detail N. (Note MTM assumes that the bus conductors are individually identified by LBNL.) Leave slack in the assembly so the piping portion of the Bus Duct can be fit to the LHe Vessel.

7.7 Fit the Bus Duct to the LHe vessel. Move the Tie Down Ring back out of the way. Assemble the Lambda Plug Flange to the LHe Tank end plate by using 4 clamps in the end plate bolt circle to clamp the Lambda Plug Flange to the LHe Tank. Bolts may be lubricated with a small amount of Krytox or Apiezon vacuum grease. Note the horizontal run of the Bus Duct must be supported during and after this assembly.

7.8 After assembly confirm that the Bus Duct is in positional location and level to the Top Plate per 24C362 sht 8. Record locations: (Use Romer Portable CMM.)

X:_____
Y:_____
Z:_____
By:_____Date:_____

..9 Complete the assembly of the bus conductors in the Cable Looms and confirm that the conductors are all long enough to reach and complete their splices.

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Production Floor Traveler

Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00

Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y

Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab

Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
80	WE 2-A WELDERS	1.00	0.00	0.25	4.00	0.00	4.00

Description DFBX-D 24C362 Feed Box Assembly

Confirmed By:_____Date:_____

7.10 Remove the Teflon sleeve from the end plate hole.

7.11 Stage to OP80.

Operation Description Detail :

8.0 Dwg 24C362 D Feed Box Assembly- Bus Duct D1 End Dwg 25M859
CUSTOMER WITNESS POINT.
Reference: Specification M994; Dwg 25C362; 25I235 Sht 10; 25M859;25H400
Bus Duct 25M859 assembles to the D1 End of the LHe Tank.
STAMP YOUR WELDS.

1 From the inside of the LHe Tank, attach 4x-Omeagalabel BU-100/38 temperature monitors on the Lambda Plate Housing at 4 equally spaced locations. These are for LBNL record. Attach thermocouple wire to the same area and bring the readout outside the LHe Tank where it can be monitored during welding.

8.2 Reference Dwg 24C362 Sht 4 Zone A3 for weld detail.

8.3 From the outside of the LHe Tank, proceed to weld the Lamdba Plug Flange to the LHe Tank end plate in the following manner.

8.3.1 WPS GTAW-SS/LT. Monitor the temperature indicators at all times. Temperature not to exceed 40C (104F).

8.3.2 Tack weld the Flange at 4 equally spaced locations, 1" long x .06" fillet leg. Allow 4 tacks to cool to room temperature before proceeding. Check alignment.

8.3.3 Repeat step 5.3.2 for 4 more fleet tacks. Move clamps as needed. Check alignment.

8.3.4 Repeat step 5.3.2 for 4 more fleet tacks. Move clamps as needed. Check alignment.

8.3.5 Remove clamps and confirm that the Ring can be installed.

8.3.6 Complete the welding by repeating step 5.3.2 until the weld is complete.

8.3.7 Check alignment.

8.3.8 Install the Retaining Ring, tighten the 12 bolts in a star pattern to 25 ft-lb torque. Bolts may be lubricated with a small amount of Krytox or Apiezon vacuum grease

8.3.9 Tack weld the bolt heads to the Retaining Ring to prevent their loosening.

3.3.10 Remove the Omegalable temperature monitors and forward them to the project engineer for inclusion in the data package.

8.3.11 Remove the thermocouple wire.

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Production Floor Traveler

Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
Description	DFBX-D 24C362 Feed Box Assembly						

8.4 Confirm that the Bus Duct is in positional location and level to the Top Plate per 24C362 sht 8. Record locations: (Use Romer Portable CMM.)

X:_____
Y:_____
Z:_____
By:_____Date:_____

8.5 Stage to OP90.

90 AS 3-A ASSEMBLY		1.00	0.00	1.00	1.00	0.00	1.00

Operation Description Detail :

0 Dwg 24C362 G Feed Box Assembly- Bus Duct D1 End Dwg 25M859 CUSTOMER WITNESS POINT.
9.1 Deleted.
9.2 Stage to OP100.

100 AS 3-A ASSEMBLY		1.00	0.00	0.04	24.00	0.00	24.00

Operation Description Detail :

10.0 Dwg 24C362 D Feed Box Assembly- Item 11 120 Amp VC Lead Splicing & Testing CUSTOMER WITNESS POINT.
Reference: Specification M983; Dwg 25C362; 25C322; 25I864
Read and follow the M983 procedure with the Traveler. Drawing 25I864 gives an overview of the position of the components 24C362 Sht 10 Detail N gives an overview of the conductor locations.
10.1 Install Item 11 the 120 AMP VC Power Lead in the Feed Box. Lubricate the M8 bolts for the CF flange with vacuum grease. Torque to standard CF flange seal value.
10.2 Cover the bottom of the LHe Vessel with a plastic sheet.
10.3 Follow procedure steps 1 through 3 for all ten 120 AMP leads. (Reference 25I615 Detail 2 for wire layout)

Wire Layout Completed: Glen Okonsky Date: 11/04/04
Confirmed Correct: D. [illegible] Date: 11/04/04

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Production Floor Traveler

Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time

Description DFBX-D 24C362 Feed Box Assembly

10.4 Follow procedure steps 4 thorough 11 for all 10 leads.
10.5 Step 12 . Perform a electrical continuity test to verify that the correct bus wire has been connected to the correct lead. (Reference 25I615 Detail 2)

Continuity Test: Pass/Fail By: D.K. / DJC **Date:** 11/04/04

10.6 Follow procedure steps 13 through 15.

Completed By: D.K. / DJC **Date:** 11/04/04

10.7 Perform the HiPot Electrical Performance Test per the Procedure. Make sure that the free ends of the Voltage Tap wires are not grounded.
TAPE OFF THE AREA AND PUT UP HIGH VOLTAGE SIGNS.
INFORM THE AREA SUPERVISOR THAT THE TEST IS TAKING PLACE.
Complete the test per the procedure for each of 10 leads in the 120 AMP Power Lead.

Lead#1 Reading: PASSED **Lead#2 Reading:** PASSED **Lead#3 Reading:** PASSED

Lead#4 Reading: PASSED **Lead#5 Reading:** PASSED **Lead#3 Reading:** PASSED

Lead#7 Reading: PASSED **Lead#8 Reading:** PASSED **Lead#6 Reading:** PASSED

Lead#9 Reading: PASSED **Lead#10 Reading:** PASSED

Completed By: [illegible] **Date:** 11/12/04 PERSON NO NEED TO PRINT COPY

10.8 Stage to OP110.

110	AS	1.00	0.00	0.10	10.00	0.00	10.00
	3-A ASSEMBLY						

Operation Description Detail :

11.0 Dwg 24C362 D Feed Box Assembly- Item 29 600 Amp 2-Lead Assy Splicing & Testing CUSTOMER WITNESS POINT.
Reference: Specification M982; Dwg 25C362; 25I164; 25I864
Read and follow the M982 procedure with the Traveler. Drawing 25I864 gives an overview of the position of the components 24C362 Sht 10 Detail N gives an overview of the conductor locations.
11.1 Install Item 29 the 600 AMP 2-Lead Power Lead in the Feed Box. Lubricate the M8 bolts for the CF flange with vacuum grease. Torque to standard CF flange seal

Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time

Description DFBX-D 24C362 Feed Box Assembly

value.

11.2 Cover the bottom of the LHe Vessel with a plastic sheet.

11.3 Follow procedure steps 1 through 3 for the 2 leads. (Reference 25I615 Detail 1 for wire layout)

Wire Layout Completed: Glen Korely Date: 11/04/04

Confirmed Correct: D. Klein Date: 11/04/04

11.4 Follow procedure steps 4 thorough 11 for both leads.

11.5 Step 12 . Perform a electrical continuity test to verify that the correct bus wire has been connected to the correct lead. (Reference 25I615 Detail 1)

Continuity Test: Pass/Fail By: D.K./DJC Date: 11/04/04

11.6 Follow procedure steps 13 through 15.

Completed By: D.K./DJC Date: 11/04/04

11.7 Perform the HiPot Electrical Performance Test per the Procedure. Make sure that the free ends of the Voltage Tap wires are not grounded.
TAPE OFF THE AREA AND PUT UP HIGH VOLTAGE SIGNS.
INFORM THE AREA SUPERVISOR THAT THE TEST IS TAKING PLACE.
Complete the test per the procedure for each of leads in the 600 AMP Power Lead.

Lead#1 Reading: PASSED Lead#2 Reading: PASSED

Completed By: D K Date: 11/12/04

11.8 Stage to OP120.

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
120	AS 3-A ASSEMBLY	1.00	0.00	0.03	30.00	0.00	30.00

Operation Description Detail :

12.0 Dwg 24C362 D Feed Box Assembly- Item 12 Qty 2 600 Amp 6-Lead Assy Splicing & Testing
CUSTOMER WITNESS POINT.
Reference: Specification M982; Dwg 25C352; 24C353; 25I864
Read and follow the M982 procedure with the Traveler. Drawing 25I864 gives an overview of the position of the components 24C352 Sht 10 Detail N gives an

Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time

Description DFBX-D 24C362 Feed Box Assembly

overview of the conductor locations.

12.1 Install Item 12 the 600 AMP 6-Lead Power Lead in the Feed Box. Lubricate the M8 bolts for the CF flange with vacuum grease. Torque to standard CF flange seal value.

12.2 Cover the bottom of the LHe Vessel with a plastic sheet.

12.3 Follow procedure steps 1 through 3 for the 6 leads. (Reference 25I615 Detail 1 for wire layout)

Wire Layout Completed: Glenn Kowalsky **Date:** 11/11/04

Confirmed Correct: D.J.C. **Date:** 11/11/04

12.4 Follow procedure steps 4 thorough 11 for both leads.

12.5 Step 12 . Perform a electrical continuity test to verify that the correct bus wire has been connected to the correct lead. (Reference 25I615 Detail 1)

Continuity Test: Pass/Fail P-N 11/11/04 **By:** DJC **Date:** 11/11/04

12.6 Follow procedure steps 13 through 15.

Completed By: P N / DJC **Date:** 11/11/04

12.7 Perform the HiPot Electrical Performance Test per the Procedure. Make sure that the free ends of the Voltage Tap wires are not grounded.
TAPE OFF THE AREA AND PUT UP HIGH VOLTAGE SIGNS.
INFORM THE AREA SUPERVISOR THAT THE TEST IS TAKING PLACE.
Complete the test per the procedure for each of leads in the 600 AMP Power Lead.

Lead#1 Reading: PASSED **Lead#2 Reading:** PASSED **Lead#3 Reading:** PASSED

Lead#4 Reading: PASSED **Lead#5 Reading:** PASSED **Lead#6 Reading:** PASSED

Completed By: DJC. **Date:** 11/12/04

12.8 Repeat for second Item 12.

12.9 Wire Layout Confirmation
Wire Layout Completed: Glenn Kowalsky **Date:** 11/12/04

Confirmed Correct: D J C **Date:** 11/12/04

12.10 Continuity Test

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Production Floor Traveler

Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time

Description DFBX-D 24C362 Feed Box Assembly

Continuity Test: Pass/Fail By: D. K **Date:** _____

12.11 HiPot Test

Lead#1 Reading: PASSED **Lead#2 Reading:** PASSED **Lead#3 Reading:** PASSED

Lead#4 Reading: PASSED **Lead#5 Reading:** PASSED **Lead#6 Reading:** PASSED

Completed By: D.K. **Date:** 11/2/04

12.12 Stage to OP130.

130 AS 3-A ASSEMBLY		1.00	0.00	0.03	30.00	0.00	30.00

eration Description Detail :

13.0 Dwg 24C362 D Feed Box Assembly- Item 8 Qty 6 HTS Leads Assy Splicing & Testing CUSTOMER WITNESS POINT.
Reference: Specification M985; Dwg 25C362; 25I156; 25I864
Read and follow the M982 procedure with the Traveler. Drawing 25I864 gives an overview of the position of the components 24C352 Sht 10 Detail N gives an overview of the conductor locations.

13.1 Install Item 8 the HTS-Lead Power Lead in the Feed Box. Lubricate the Threaded Rods bolts for the CF flange with vacuum grease. Torque to drawing requirements.

13.2 Cover the bottom of the LHe Vessel with a plastic sheet.

13.3 Follow procedure steps 1 through 3 for the leads. (Reference 25I615 Detail 8 for wire layout)

Wire Layout Completed: D.K. **Date:** 6/25/04

Confirmed Correct: ECB **Date:** 6/25/04

13.4 Follow procedure steps 4 through 11.

Completed By: D.K. **Date:** 7/1/04

13.5 Repeat for the remaining 5 Leads.

Completed By: D.K **Date:** 7/1/04
Completed By: D.K **Date:** 7/1/04
Completed By: D.K **Date:** 7/1/04

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Production Floor Traveler

Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
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Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time

Description DFBX-D 24C362 Feed Box Assembly

Completed By:_____ **Date:**_____
Completed By:_____ **Date:**_____

13.6 Note the HiPot Test of the HTS Leads is to be performed in a Nitrogen atmosphere. Blank off all ports of the LHe Tank. Evacuate the LHe Tank and back fill with Nitrogen prior to performing the test.

13.7 Perform the HiPot Electrical Performance Test per the Procedure. Make sure that the free ends of the Voltage Tap wires are not grounded.
TAPE OFF THE AREA AND PUT UP HIGH VOLTAGE SIGNS.
INFORM THE AREA SUPERVISOR THAT THE TEST IS TAKING PLACE.
Complete the test per the procedure for each HTS Power Leads.

HTS#1 Reading:_____ **HTS#2 Reading:**_____ **HTS#3 Reading:**_____

HTS#4 Reading:_____ **HTS#5 Reading:**_____ **HTS#6 Reading:**_____

Completed By:_____ **Date:**_____ SEE REPORTS

13.8 Perform the HiPot Electrical Performance Test per the Procedure. Make sure that the free ends of the Voltage Tap wires are not grounded.
TAPE OFF THE AREA AND PUT UP HIGH VOLTAGE SIGNS.
INFORM THE AREA SUPERVISOR THAT THE TEST IS TAKING PLACE.
Complete the test per the procedure for each HTS Power Leads Heater (2x per HTS).

HTS#1A Reading:_____ **HTS#1B Reading:**_____
HTS#2A Reading:_____ **HTS#2B Reading:**_____
HTS#3A Reading:_____ **HTS#3B Reading:**_____
HTS#4A Reading:_____ **HTS#4B Reading:**_____
HTS#5A Reading:_____ **HTS#5B Reading:**_____ SEE REPORTS
HTS#6A Reading:_____ **HTS#6B Reading:**_____

13.9 Completed By:_____ **Date:**_____
13.10 Disassemble the covers from the LHe Vessel.
13.11 Stage to OP140.

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Production Floor Traveler

Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
Description DFBX-D 24C362 Feed Box Assembly							
140	AS 3-A ASSEMBLY	1.00	0.00	0.13	8.00	0.00	8.00

Operation Description Detail :

14.0 Dwg 24C362 D Feed Box Assembly
Forward test reports to the project engineer.
14.1 Clean the interior of the LHe Tank for cryogenic service.
14.2 Install Item 6 25I162 LHe Diagnostic Assembly.
14.3 Re-conform the continuity of all Power Lead splices.
14.4 Re-confirm the continuity of all Voltage Taps for all Power Leads.
14.5 Measure and record the electrical resistance of the temperature sensors on the HTS Leads (3 per lead).
14.6 Measure and record electrical resistance of Level Sensor installed on 25I162.
14.7 Stage to OP150.

Completed: D. 7C - W.T -By:_____

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
150	WE 2-A WELDERS	1.00	0.00	0.08	12.00	0.00	12.00

Operation Description Detail :

15.0 Dwg 24C362 D Feed Box Assembly-Dwg 25I573 LHe Tank
STAMP YOUR WELDS. GTAW-SS/LT root passes/FCAW-SS/LT covers.
15.1 Fit Item 32 and Item 33 Cover Plates to the LHe Tank. Reference 24C362 Sht 6 for weld details.
15.2 Root pass both Cover Plates.
15.3 Dye penetrant test the root pass of the Item 32 Cover Plate. Forward test report to project engineer.
Completed By:_____Date:_____
15.4 Complete the Cover Plate welding.
15.5 Dye penetrant test the cover pass of the Item 32 Cover Plate. Forward test report to project engineer.
Completed By:_____Date:_____
15.6 Stage to OP160.

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
160	WE 2-A WELDERS	1.00	0.00	0.25	4.00	0.00	4.00

Operation Description Detail :

16.0 24C362 D Feed Box Assembly-Dwg 25I573 LHe Tank-25I235 Piping Assembly
16.1 Partially assemble the 25I610 Center Pipe Support to the LHe Tank.

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Production Floor Traveler

Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time

Description: DFBX-D 24C362 Feed Box Assembly

16.2 Install the 25M916 LD3 Cross Over Pipe and fit it to the Bus Ducts per 25I247.
Weld complete.
16.3 Stage to OP170.

170	AS	1.00	0.00	0.25	4.00	0.00	4.00
	3-A ASSEMBLY						

Operation Description Detail :

17.0 24C362 D Feed Box Assembly-Dwg 25I573 LHe Tank
Forward test reports to the project engineer.
17.1 Cold shock per MTM-MP-1040 the new welds from OP150 and OP160.
17.2 Secure the pipes and the LHe Tank for pressure test.
Constrain the system to protect all bellows.
7.3 Using ROMER Portable CMM measure lead chimney straightness and bellows offsets.
Complete and inspection report.
17.4 Stage to OP180.

180	AS	1.00	0.00	0.07	14.00	0.00	14.00
	3-A ASSEMBLY						

Operation Description Detail :

18.0 24C362 D Feed Box Assembly-Dwg 25I573 LHe Tank
CUSTOMER WITNESS POINT
Forward test reports to the project engineer.
18.1 Reference Specification M989 Figure A-2. With LHe Tank at atmospheric pressure.
Perform Bus Ducts pressure test to 2.5 MPa (364psig) hold for for 10 minutes.
18.2 Reference Specification M989 Figure A-2.Pressure Test LHe Tank and Bus Ducts
together at 0.54 Mpa (79 psig) for 10 minutes.
18.3 Reference Specification M989 Figure A-2. Measure and record lambda plug leak
rate with deltaP =0.1 Mpa.
18.4 Reference Specification M989 Figure A-3. Leak test to MTM-MP-1110 the LHe Vessel
and Bus Duct Assembly. BACKFILL WITH HELIUM GAS.
18.5 Stage to OP190.

190	AS	1.00	0.00	0.13	8.00	0.00	8.00
	3-A ASSEMBLY						

Operation Description Detail :

).0 24C362 D Feed Box Assembly-Dwg 25I573 LHe Tank
CUSTOMER WITNESS POINT

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Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

	Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
Description	DFBX-D 24C362 Feed Box Assembly							

Forward test reports to the project engineer.
19.1 Reference Appendix Figure A-4 with the LHe Tank/Bus Duct Assembly backfilled with helium gas at atmospheric pressure. Perform the following HiPot Tests.
TAPE OFF THE AREA AND PUT UP HIGH VOLTAGE SIGNS.
INFORM THE AREA SUPERVISOR THAT THE TEST IS TAKING PLACE.
19.2 600 AMP 2 Wire Leads (0.65 kV, I<7 microamp)
19.3 600 AMP 6 Wire Leads (0.65 kV, I<7 microamp)
19.4 120 AMP 10 Wire Leads (0.65 kV, I<7 microamp)
19.5 HTS Leads (1.4kV, I<15 microamp)
19.6 HTS Lead Temperature Sensors (120 V, I<1 microamp)
19.7 LHe Tank Level Sensor (200 V, I<2 microamp)
19.8 Record values on a test report and Forward test reports to the project engineer.
19.9 Stage to OP200.

200	AS	1.00	0.00	0.05	20.00	0.00	20.00
	3-A ASSEMBLY						

Operation Description Detail :

20.0 24C362 G Feed Box Assembly-Dwg 25I573 LHe Tank
CUSTOMER WITNESS POINT
20.0 Remove the LHe Tank Support Fixture.
20.1 Insulate the LHe Tank, Lead Chimneys, LD3 and Bus Duct Pipes with 10 layers of MLI. Reference Specification M-990. NOTE: In locations where pipes pass through support assembles the insulation is to be wrapped with kapton tape for protection from abrasion during thermal cycling.
20.2 Insulate Bellows on Chimneys, and all piping per Specification M-990 6.7b.
20.3 Stage to OP210.

210	AS	1.00	0.00	0.03	32.00	0.00	32.00
	3-A ASSEMBLY						

Operation Description Detail :

21.0 24C362 D Feed Box Assembly-Piping Dwg 25I235
NOTE: In locations where pipes pass through support assembles the insulation is to be wrapped with kapton tape for protection from abrasion during thermal cycling.
21.1 Install the following pipes in the assembly. Insulate with MLI all bellows per Specification M-990 6.7b prior to installing. Use temporary supports as necessary until the Item 25I235-20 thru 25I235-19 Supports are in place.
Following procedure LHC-QIT-AP-0002 4.2.4 Case "LT-Pipe" install the Cernox

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Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00

Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y

Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab

Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time

Description DFBX-D 24C362 Feed Box Assembly

temperature sensors on the following pipes: SEE ECB.

21.3 Install piping.

21.4 Customer Witness Point. Install 25I226-14 (25I249 Pipe, MBX2). Weld to Top Plate at LQX port (24C362 Section F-F). Be careful of instrumentation wires. Follow M996 procedure up to step 4.2.7.
Record SN: DH 02 By: CLP Date: 9-7-04

21.5 Customer Witness Point. Install 25I226-16 (25I301 Pipe, MQX2). Weld to Top Plate at MQX port (24C362 Section G-G). Be careful of instrumentation wires. Follow M996 procedure up to step 4.2.7.
Record SN: 02 By: EK Date: 9-7-04

21.14 Route 8 sets of Cernox temperture sensor wires to (25I177) the 4.5 Pumping Port, Cryogenic Diagnostic Assy (24C352 Sht 6 Section L-L)

21.15 Stage to OP220.

220 AS 3-A ASSEMBLY	1.00	0.00	0.07	14.00	0.00	14.00

Operation Description Detail :

22.0 24C362 D Feed Box Assembly-Piping Dwg 25I235

22.1 Confirm the minimum clearance from any pipe to any other is >=12 mm (.47"). Document piping assembly with photos.

22.2 Cold shock per MTM-MP-1040 the new welds in OP220. 7437984

22.3 Leak test to MTM-MP-1110 the new welds in OP220.

22.4 W22.5 Install the 25I235-17,-18, -19 & -20 G-10 Supports.

22.6 Stage to OP230.

230 WE 2-A WELDERS	1.00	0.00	0.10	10.00	0.00	10.00

Operation Description Detail :

23.0 24C362 D Feed Box Assembly- (Weld and Assembly)
Customer Witness Point.
Reference Specification M996; Dwg 25I235 sheet 3; 24C362

23.1 Pull the instrumentation wires from 25I226-14 (24C362 Section G-G up through the Top Plate. Pull the staged kit for 25I163. Fit the Item 25I163-1/4 weldment to the Top Plate. Protect wires from high frequency.

23.2 Perform a continuity check of wires to check received condition.
Continuity Check: Pass/Fail? By: MIKE J. Date: 9-11-04

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Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time

Description DFBX-D 24C362 Feed Box Assembly

23.3 Weld Body to Top Plate.
23.4 Perform a continuity check of wires.
Continuity Check: Pass/Fail? By: CINDY Date:_____
23.5 Solder the wires to the connector pins per wiring diagram 251619 Item 6.
23.6 Perform a continuity check of wires. Complete a test report and forward to the project engineer.
Continuity Check: Pass/Fail? By: CINDY Date:_____
Wiring Correct Confirmed by: D.C Date:_____
23.7 Mix a small batch of Stycast 2850MT. De-gas by placing in container and with quartz window, evacuate. The Stycast is de-gassed when it stops bubbling.
23.8 Encapsulate the soldered connections in the de-gassed Stycast 285MT(blue). Pour it into a cut out paper cup surrounding the pins. Allow the epoxy to cure.
23.9 Perform a continuity check of wires to check received condition. Complete a test report and forward to the project engineer.
23.10 Continuity Check: Pass/Fail? By: CINDY Date:_____
23.11 Weld Top Plate with connectors to Body.
23.12 Stage to OP240.

	240	WE 2-A WELDERS	1.00	0.00	0.03	30.00	0.00	30.00

Operation Description Detail :

24.0 24C362 D Feed Box Assembly- (Weld and Assembly)
Customer Witness Point.
Reference Specification M996; Dwg 251226 sheet 3; 24C352
24.1 Pull the instrumentation wires from 251226-16 (24C362 Section F-F up through the Top Plate. Pull the staged kit for 251831. Fit the Item 251831-5 and 251831-7 the Top Plate. Protect wires from high frequency. Wind the bundles for feedthru holes A through L counterclockwise 4 twists and insert the bundles through the appropriate hole in the LQX Diagnostic Assy.
24.2 Perform a continuity check of wires to check received condition.
Continuity Check: Pass/Fail? By: MJ Date: 8/16-04
24.3 Peform weld to Top Plate and between 251831-5 and 251831-7 per Section F-F.
24.4 Perform a continuity check of wires.
Continuity Check: Pass/Fail? By: WJ-CD Date: 8-18-04
24.5 Solder the wires to the connector pins per wiring diagram 251619 Item 7.
24.6 Perform a continuity check of wires. Complete a test report and forward to the project engineer.
Continuity Check: Pass/Fail? By: CD Date: 8-18-04
Wiring Correct Confirmed by: CD Date: 8-18-04

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Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00

Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y

Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab

Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time

Description DFBX-D 24C362 Feed Box Assembly

24.7 Mix a batch of Stycast 2850MT. De-gas by placing in container and with quartz window, evacuate. The Stycast is de-gassed when it stops bubbling.
24.8 Encapsulate the soldered connections in the de-gassed Stycast 285MT(blue). Pour it into a cut out paper cup surrounding the pins. Allow the epoxy to cure.
24.9 Perform a continuity check of wires. Complete a test report and forward to the project engineer.
Continuity Check: Pass/Fail? By: D K Date:_____ SEE REMARKS
24.10 Fit the 12 feedthrus to the LQX Purcupine. Tack to position and weld complete.
24.11 Install the 25I831-5 on the Purcupine.
24.12 Fit and weld the 25I831-6 Connector to the Purcupine.
24.13 Stage to OP250.

250 AS 3-A ASSEMBLY	1.00	0.00	0.14	7.00	0.00	7.00

Operation Description Detail :

25.0 24C362 D Feed Box Assembly-Instrumentation Duct Testing
Customer Witness Point.
25.1 Perform a continuity check of wires. Complete a test report and forward to the project engineer.
Continuity Check: Pass/Fail? By: D. Mc Date:_____
25.2 Pressure test the LBX circuit to 364 psig. Hold for 10 minutes. Forward a test report to the project engineer.
25.3 Evacuate the LBX circuit. Leak test per MTM-MP-1110 the new welds. Back fill with helium gas. Forward test report to the project engineer.
25.4 Hipot per M989 2.3.3.2. Forward test report to the project engineer.
TAPE OFF THE AREA AND PUT UP HIGH VOLTAGE SIGNS.
INFORM THE AREA SUPERVISOR THAT THE TEST IS TAKING PLACE.
25.5 Pressure test the LBX circuit to TBD psig. Hold for 10 minutes. Forward a test report to the project engineer.
25.6 Evacuate the LQX circuit. Leak test per MTM-MP-1110 the new welds. Back fill with helium gas. Forward test report to the project engineer.
25.7 Hipot per M989 2.3.3.2. Forward test report to the project engineer.
TAPE OFF THE AREA AND PUT UP HIGH VOLTAGE SIGNS.
INFORM THE AREA SUPERVISOR THAT THE TEST IS TAKING PLACE.
25.8 Stage to OP260.

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Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
Description DFBX-D 24C362 Feed Box Assembly							
260	WE 2-A WELDERS	1.00	0.00	0.06	16.00	0.00	16.00

Operation Description Detail :

26.0 24C362 D Feed Box Assembly-Jumper Assembly JC1
26.1 Reference 24C362 Section B-B: Insulate the pipe assemblies coming out of JC1 with a 10 layer MLI blanket surrounding the pipes.
26.2 Install the 25I193 Thermal Shield Jumper Assembly over the pipe assemblies. GTAW-CU weld the clam shell halves.
26.3 Insulate the Thermal Shield Jumper Assembly with a 30 layer MLI blanket.
26.4 Fit the 25I168 Enclosure Jumper Clamshells over the Shield Jumper. (Use backing strips at seams.) Place copper sheet between clamshells and MLI. Weld seams. Remove copper sheet.
26.5 Fit 25I168-3 Flange to Enclosure Jumper. Confirm location and parallelism/perpendicularity of flange per Section B-B. Place copper sheet behind weld to protect MLI. Weld Flange complete. Remove copper sheet.
26.6 Confirm location and parallelism/perpendicularity of flange per Section B-B. Forward inspection report to project engineer.
26.7 Stage to OP270.

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
270	WE 2-A WELDERS	1.00	0.00	0.06	18.00	0.00	18.00

Operation Description Detail :

27.0 24C362 D Feed Box Assembly-Jumper Assembly JC2
27.1 Reference 24C362 Section K-K: Insulate the pipe assemblies coming out of JC2 with a 10 layer MLI blanket surrounding the pipes.
27.2 Install the 25I194 Thermal Shield Jumper Assembly over the pipe assemblies. GTAW-CU weld the clam shell halves.
27.3 Insulate the Thermal Shield Jumper Assembly with a 30 layer MLI blanket.
27.4 Fit the 25I167 Enclosure Jumper Clamshells over the Shield Jumper. (Use backing strips at seams.) Place copper sheet between clamshells and MLI. Weld seams. Remove copper sheet.
27.5 Fit 25I167-3 Flange to Enclosure Jumper. Confirm location and parallelism/perpendicularity of flange per Section K-K. Place copper sheet behind weld to protect MLI. Weld Flange complete. Remove copper sheet.
27.6 Confirm location and parallelism/perpendicularity of flange per Section K-K. Forward inspection report to project engineer.
27.7 Stage to OP280.

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Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
Description DFBX-D 24C362 Feed Box Assembly							
280	AS 3-A ASSEMBLY	1.00	0.00	0.13	8.00	0.00	8.00

Operation Description Detail :

28.0 24C362 D Feed Box Assembly
28.1 Wrap a 10 layer MLI blanket (slit for thermal straps) around the piping assemblies that will be within the Shield Assembly. Pull the thermal straps out through the blanket.
28.2 Stage to OP290.

290	AS 3-A ASSEMBLY	1.00	0.00	0.02	60.00	0.00	60.00

Operation Description Detail :

9.0 24C362 D Feed Box Assembly
29.1 Pull 25I858 Base Plate Assy kit. Pull the 25I079 Thermal Shield Assy kit.
29.2 Reference 25I858. Assemble the 4x-Stantions looses to the Bottom Plate.
29.3 Reference 25I079. Insulate the Shield Bottom Cover with a 30 layer MLI blanket. Assemble the Shield Bottom Cover over the Bottom Plate. Patch around the Stantions areas to prevent shine through.
29.4 Install the assembly under the LHe Tank on the bottom assembly plate. Position the Bottom Plate correctly in relation to the Feed Box Assy. Feed the two 25I858-1 Support Rods through the Stantions and the LHe Tank brackets. Install the hex nuts and loosely position everything. Shim the Stantions to level as necessary. Tighten all fasteners and nuts on the Support Rods.
29.5 Reference 25I079: Install the 4 side covers of the Thermal Shield Assembly to the Feed Box Assy. Pull all the thermal straps through the slits in the shield components to the outside of the shield. Note the thermal straps include all straps on piping assemblies and the thermal anchors on the Chimneys. Rivet the straps to the shield to hold them in place.
29.6 Assemble the 2x Shield Access Covers to the Shield Assy.
29.7 Reference 25I235-5 Pipe, EX. Install the Pipe, EX assembly to the Shield assembly, positioning location to 24C362. Rivet the thermal straps to the shield to hold them in place.
29.8 Cover the Bottom MLI blanket with plastic.
29.9 Soft solder all thermal straps to the Shield Assy.
29.10 Clean per MTM-MP-1030 for vacuum service. Remove the plastic and redo the MLI as necessary.
29.11 Stage to OP300.

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Job Order 00918-0039

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Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
Description	DFBX-D 24C362 Feed Box Assembly						
300	AS 3-A ASSEMBLY	1.00	0.00	0.03	32.00	0.00	32.00

Operation Description Detail :

30.0 24C362 D Feed Box Assembly
30.1 Reference Specification M990. Insulate the Thermal Shield.
30.2 Stage to OP310.

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
310	WE 2-A WELDERS	1.00	0.00	0.01	94.00	0.00	94.00

Operation Description Detail :

31.0 24C362 D Feed Box Assembly
CUSTOMER WITNESS POINT
STAMP YOUR WELDS
31.1 Fit the four sides of the Feed Box Vacuum Vessel to the Vacuum Vessel Top Plate and Bottom Plate. Fit the Side Plate Cover into Vacuum Vessel Side, tack in place.
31.2 Tack the Bottom Plate to the bottom assembly plate (which is bolted to the floor).
31.3 Use the Romer Portable CMM to confirm the position and perpendicularity/parallelism of the Vacuum Vessel Components.
31.4 Set up machinist indicators of the assembly frame on the Top Plate and Sides to monitor movement during welding. (May have to use Romer Portable CMM is vibration from stress relief system make indicators useless.)
31.5 Set up the Bonal Vibratory Stress Relief System to the Feed Box, follow the manual instructions to run for stress relief during welding.
31.6 Install Test Cans to Jumpers and End Plates to seal off the openings on the Vacuum Vessel. The Pipes must fit through the Test Cans for access for testing on the Jumpers. Weld the pipes to the Test Cans. An extension of the Pipe,EX must fit through the Q3 End Test Can for access for testing.
31.7 Set up the O2 analyzer and purge the Vacuum vessel with pure Argon gas of a dewar.
31.8 GTAW-SS/LT, no filler fuse weld only to seal all around. Use two welders working together. Sequence welding to limit heating of vessel and cause opposing distortions.
31.9 Continuously monitor movement. Review results upon completion of seal pass.
1.10 Repeat this time adding filler metal approx. 1/8" pass.
31.11 Continuously monitor movement. Review results upon completion of seal pass.
31.12 Stage to OP320.

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Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
Description	DFBX-D 24C362 Feed Box Assembly						
320	AS 3-A ASSEMBLY	1.00	0.00	0.04	24.00	0.00	24.00

Operation Description Detail :

32.0 24C362 D Feed Box Assembly
32.1 With the Vacuum Vessel seal welded, blank off openings and evacuate the Vacuum Vessel.
32.2 Leak check the Vacuum Vessel per MTM-MP-1110. Forward test report to the project engineer.
32.3 Pressurize the LHe Tank and Bus Ducts with helium gas to 3 psig. Forward a test report to the project engineer.
32.4 Pressurize the piping assemblies individually one with helium gas at a time to 3 psig. Forward test reports the project engineer.
32.5 Back fill the Vacuum Vessel with Argon gas.
32.6 Stage to OP330.

330	WE 2-A WELDERS	1.00	0.00	0.01	70.00	0.00	70.00

Operation Description Detail :

33.0 24C362 D Feed Box Assembly
CUSTOMER WITNESS POINT
STAMP YOUR WELDS
33.1 FCAW-SS/LT. Use two welders working together. Sequence welding to limit heating of vessel and to cause opposing distortions.
33.2 Continuously monitor movement. Review results upon completion of seal pass.
33.3 Repeat this time adding filler metal approx. 12 passes expected to fill weld detail shown.
33.4 Continuously monitor movement. Review results upon completion each pass.
33.5 Stage to OP340.

340	WE 2-A WELDERS	1.00	0.00	0.04	24.00	0.00	24.00

Operation Description Detail :

34.0 24C362 DG Feed Box Assembly
34.1 Remove Test Cans.
34.2 Fit 25I129-4 Q3 Flange to Vessel.

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Date: 06/17/2004
Time - 08:15:50
Page # 22

Job Order 00918-0039

Part Number DFBX-D 24C362 FB Assy Revision NS U / M EA Quantity 1.00
Due Date 06/14/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y
Calc Rel Date 04/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab
Actual Rel Date 06/11/2004

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time

Description DFBX-D 24C362 Feed Box Assembly

34.3 Fit 25I133-2 D1 Flange to Vessel.
34.4 Check dimensional requirements per Sheet 4 Section D-D.
34.5 Weld complete.
34.6 Recheck dimensional requirements. Record on inspection report and forward to the project engineer.
34.7 Stage to OP350.

350 AS 3-A ASSEMBLY		1.00	0.00	0.06	16.00	0.00	16.00

Operation Description Detail :

35.0 24C362 D Feed Box Assembly
Install the following remaining subassemblies to the Top Plate.
35.1 25I851 Helium Guard Assembly.
.2 25I868 2x-Tooling Balls
35.3 25M820 Alignment Plate (Tack weld in place, see 24C352 sheet 11)
35.4 25I339 Helium Port Relief Valve Assembly
35.5 25I910 Rough Port Assembly
35.6 24C352-28 4x-Hoist Rings
35.7 Stage to subjob-0008

Total Times -	0.00		656.00	0.00	656.00

End Of Report

*** Represents Sub-Contract days, these days are not included in the column total.**

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Page # 1

Job Order 00918-0007

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Part Number DFBX-D FB Final Insp/Test Revision NS U / M EA Quantity 1.00

Due Date 07/13/2005 Sales Order Coordinator ECB Ship Item Y Ship Early Y Split Ship Y

Cole Rel Date 06/14/2005 Sales Order 000750 Customer Lawrence Berkeley National Lab

Actual Rel Date 01/11/2005

Operation	Work Center	Operation Quantity	Setup Time	Pieces per Hour	Operation Time	Move Time	Elapsed Time
Description: DFBX-D Feed Box Assy Final Inspection and Test							
10	AS 3-A ASSEMBLY	1.00	0.00	0.07	14.00	0.00	14.00

Operation Description Detail :

1.0 24C362 D Feed Box Assy- Final Inspection and Test
CUSTOMER WITNESS POINT
(Test Caps have been removed.)
Critical Dimensions Reference Specification M989 3.1;24C352
1.1 Using Romer Portable CMM measure and record the following critical dimensions.
1.1.1 Measure and record positions (x,y,z) of the two Taylor Hobson Tooling Balls with respect to Datum Planes B, E and D respectively.
1.1.2 Measure and record roll angel of the top plate tooling flat about y-axis relative to datum plane D.
1.1.3 Verify and record Q3 interface vacuum flange and pipe positions per drawing 25C352 sheet 8. Since pipe positions are flexible, shim pipes to center of the support arc in teh G-10 support spider and hold them parallel to the y-axis (box long axis) for this measurement.
1.1.4 Verfiy and record DI interface vacuum flange and pipe positions per drawing 25C352 sheet 8. Since pipe positions are flexible, shim pipes to center of the support arc in teh G-10 support spider and hold them parallel to the y-axis (box long axis) for this measurement.
1.1.5 Verfiy and record JC1 interface vacuum flange and pipe positions per drawing 25C352 sheet 7. Since pipe positions are flexible, shim pipes to center of the support arc in teh G-10 support spider and hold them parallel to the x-axis for this measurement.
1.1.6 Verfiy and record JC2 interface vacuum flange and pipe positions per drawing 25C352 sheet 7. Since pipe positions are flexible, shim pipes to center of the support arc in teh G-10 support spider and hold them parallel to the x-axis for this measurement.
Other Dimensions
1.2 Measure and record the following dimensions.
1.2.1 All external dimensions on 25C352 sheet 4.
1.2.2 All external dimensions on 25C352 sheet 5.

1.3 Stage to OP20.

Meyer Tool & Mfg., Inc.
4601 W. Southwest Highway
Oak Lawn, IL 60453
708/425-9000 Fax 708/425-2612

Production Floor Traveler

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Description	DFBX-D Feed Box Assy Final Inspection and Test						
20	AS 3-A ASSEMBLY	1.00	0.00	0.05	20.00	0.00	20.00

Operation Description Detail :

2.0 24C362 D Feed Box Assy- Final Inspection and Test
CUSTOMER WITNESS POINT
Pressure and Leak Testing

2.1 Re-install test caps on Q3 Flange, D1 Flange, Jumper JC1 Flange and Jumper JC2 Flange. Note test caps are also designed to act as shipping restriants for loose piping.

2.2 Pressure test Vacuum Vessel. Pressurize with 0.14 MPa(3.5 psig) nitrogen gas. Hold for 10 minutes. Forward test report to project engineer.

2.3 Evacuate the Vacuum Vessel. Leak check the Vacuum Vessel per MTM-MP-1110 spray method. Acceptance criteria 1x10-8 stdcc/sec HE. Forward test report to the project engineer.

2.4 With the Vacuum Vessel evacuated and connected to the HMSLD, pressurize the LHe Tank and Bus Ducts with helium gas to 3 psig. Acceptance criteria 1x10-8 stdcc/sec HE. Forward a test report to the project engineer. Vent helium.

2.5 With the Vacuum Vessel evacuated and connected to the HMSLD,Pressurize the piping assemblies (manifolded together) with helium gas to 3 psig. Forward test reports the project engineer. Vent helium.

2.6 Back fill the Vacuum Vessel with 3 psig nitrogen gas.

2.7 Back fill LHe Tank and Bus Duct with 3 psig nitrogen gas.

2.8 Back fill piping assemblies with 3 psig nitrogen gas.
Record Ambient Temperature: 68
Record Ambient Pressure: 30.28 in Hg

2.9 Stage to OP30.

SEE CLARIFICATIONS: IF A COLD TEST OF THE LHE VESSEL AND BUS IS DESIRED THIS IS THE POINT IN WHICH TO DO IT.

30	AS 3-A ASSEMBLY	1.00	0.00	0.03	40.00	0.00	40.00

Operation Description Detail :

3.0 24C362 D Feed Box Assy- Preparation for Shipment
CUSTOMER WITNESS POINT

3.2 Pull Shipping Frame Kit from storage and stage in Feed Box Assy area.

3.1 Remove 4x supporting threaded rods, allowing Feed Box to sit on bottom fixture plate.