



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

**LARGE HADRON COLLIDER
LQXB
CRYOSTAT FINAL ASSEMBLY TRAVELER**

**Reference Drawing(s)
Vacuum Vessel and Cryostat Assembly
(ME-390206)**

Project/Task Number: 300/1.1.1.6.2

Project: *Large Hadron Collider* Magnet/Device Series: *LQXB*

Budget Code: *LPT* Project Code: *CRYO*

Released by: *J. Szostak* Date: *6/17/02*

Date Closed: Scanned Pages: *45*

Prepared by: J. Larson, M. Cullen, J. Szostak

Title	Signature	Date
TD / E&F Process Engineering	<i>Bob Jensen</i> Bob Jensen / Designee	<i>6/17/02</i>
TD / LHC Production Supervisor	<i>Jim Rife</i> Jim Rife / Designee	<i>6/17/02</i>
TD / LHC Production Engineer	<i>Rodger Bossert</i> Rodger Bossert / Designee	<i>6/17/02</i>
TD / LHC Project Engineer Cryostat	<i>Tom Nicol</i> Tom Nicol / Designee	<i>6-17-02</i>
TD / LHC Project Physicist	<i>Michael Lamm</i> Michael Lamm / Designee	<i>6-17-02</i>
TD / LHC Program Manager	<i>Jim Kerby</i> Jim Kerby / Designee	<i>6-17-02</i>

Revision Page

Revision	Step No.	Revision Description	TRR No.	Date
None	N/A	Initial Release	N/A	6/17/02

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

1.0 General Notes

- 1.1 All steps that require a sign-off shall include the Technician/Inspectors first initial and full last name.
- 1.2 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.
- 1.3 All Discrepancy Reports issued shall be recorded in the left margin next to the applicable step.
- 1.4 All personnel performing steps in this traveler must have documented training for this traveler and associated operating procedures.
- 1.5 Personnel shall perform all tasks in accordance with current applicable ES&H guidelines and those specified within the step.
- 1.6 Cover the product/assembly with Green Herculite (Fermi stock 1740-0100) when not being serviced or assembled.

2.0 Parts Kit List

- 2.1 Attach the completed Parts Kit for this production operation to this traveler. Ensure that the serial number on the Parts Kit matches the serial number of this traveler. Verify that the Parts Kit received is complete.

J. Szostak
Process Engineering/Designee

6/17/02
Date

Parts were ordered through
Additional Parts Request Forms,

J. Szostak

3.0 Vacuum Vessel Preparation and Painting

3.1 Grind spiral welds per (Mx-xxxxxx).

J. Bice
 Technician(s)

4/30/02
 Date

3.2 Add Insertion Rails per (Mx-xxxxxx).

J. Bice
 Technician(s)

4/30/02
 Date

3.3 Leak Check the Vacuum Vessel Assembly (ME-390003) per ES-107240 and record results in table below.

Part No.		DETERMINATION OF DETECTABLE LEAK						
PART NO.	OPERATOR'S LAST NAME	SCALE UNITS BEFORE HELIUM PROBE	SCALE UNITS WHILE ENCLOSURE FLOODING	DETERMINATION OF MINIMUM DETECTABLE LEAK				
DATE TIME				MDS - ((Response - Bckgnd) + Leak Value) = MDL				
390129B								
4-30-02	J. Bice	62	62	2	230	49	± 2SE-F	2.496/0

SEE ABOVE
 Inspector

 Date

3.4 Prepare the outside of the Vacuum Vessel (ME-390003) for painting with Ethyl Alcohol (Fermi stock 1920-0550) and Kimwipes (Fermi stock 1660-2500) or equivalent.

J. Bice
 Technician(s)

5/3/02
 Date

3.5 Mask the Stainless Steel Components of the Vacuum Vessel for painting.

A. Gould
 Technician(s)

5/4/02
 Date

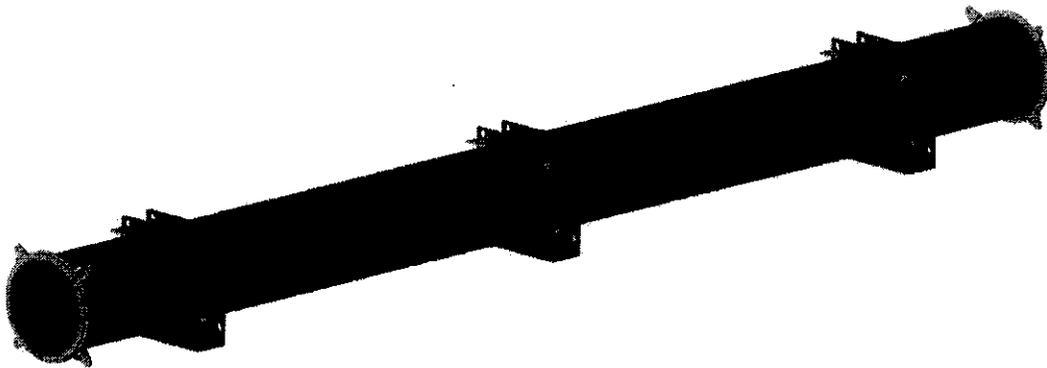
3.6 Prime the Vacuum Vessel using Rust-o-leum (Fermi stock 1825-4000).

A. Gould
 Technician(s)

5/4/02
 Date

3.7 Paint the Vacuum Vessel using Flambeau Red (Fermi stock 1825-3710).

**Vacuum Vessel
(ME-390126)**



O. Trianga

Technician(s)

15
6-19⁰²

Date

4.0 Suspension System

- 4.1 Clean the Suspension System with Ethyl Alcohol (Fermi stock 1920-0550) and Kimwipes (Fermi stock 1660-2500) or equivalent

Part Name	Part Number	Quantity	Completed
Fixed Support Assembly	(ME-390041)	1	✓
Sliding Support Assembly	(ME-390042)	2	✓
Tie Bar Assembly	(ME-390167)	4	✓
Tie Bar Shim, .250"	(ME-390118)	6	✓
Tie Bar Shim, .093"	(ME-390119)	6	✓
Tie Bar Shim, .031"	(ME-390120)	6	✓

Label the IP End and the Non-IP end of the Vacuum Vessel per (Mx-xxxxxx).

Shoued
 Technician(s)

6/17/02
 Date

- 4.2 Insert the Fixed Support Assembly (ME-390041) into the vacuum vessel and position at the center support.

J. Rice
 Technician(s)

6/17/02
 Date

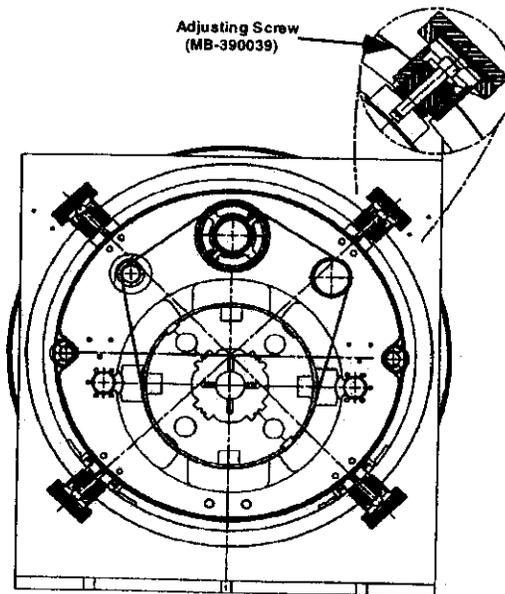
- 4.3 Install the Suspension System Adjusting Screws (MB-390039) into the Vacuum Vessel to hold the Fixed Support Assembly in place. Coat with Molybdenum disulfide prior to installation.



J. Gould
 Technician(s)

6/17/02
 Date

- 4.4 Adjust the Vertical and rotational alignment of the Supports using the Suspension System Adjusting Screws (MB-390039). Ensure all four screws are in contact with the Support and that Diametrically Opposing Support Lugs are equidistant from the Vacuum Vessel Wall.



J. Rice
 Technician(s)

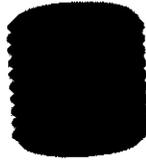
6/17/02
 Date

- 4.5 Insert the Sliding Support Assemblies (ME-390042) in to the Vacuum Vessel and position at each of the outboard support sections.

[Signature]
Technician(s)

6/17/02
Date

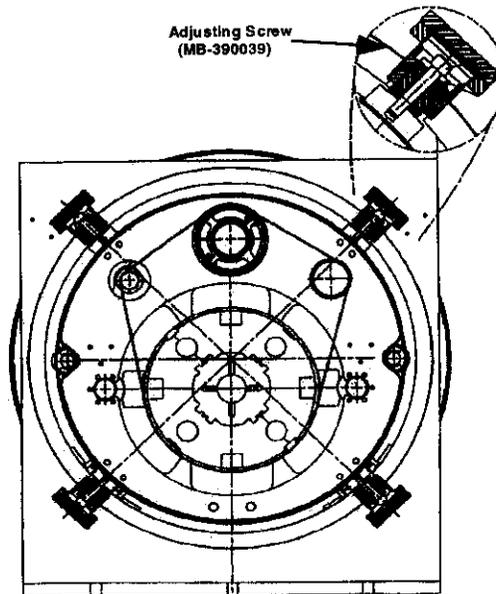
- 4.6 Install the Suspension System Adjusting Screws (MB-390039) into the Vacuum Vessel to hold the Sliding Support Assemblies in place. Coat with Molybdenum Disulfide prior to installation.



[Signature]
Technician(s)

6/17/02
Date

- 4.7 Adjust the Vertical and rotational alignment of the Supports using the Suspension System Adjusting Screws (MB-390039). Ensure all four screws are in contact with the Support and that Diametrically Opposing Support Lugs are equidistant from the Vacuum Vessel Wall.



[Signature]
Technician(s)

6/17/02
Date

4.8 Assemble the Suspension System using the Fixed Support Assembly (ME-390041), the Sliding Support Assemblies (ME-390042) and the Tie Bar Assemblies (MC-390167). Insert Tie Bar Shims (MC-390118),(MB-390119) and (MB-390120) between the Sliding Support Assemblies (ME-390042) and the Tie Bar Assemblies (MC-390167) as required. (Reference drawing: ME-390310)

[Signature]
Technician(s)

6/17/02
Date

4.9 Label the IP End Support and the Non-IP End Support. (Writing on the G-11 Support is acceptable).

[Signature]
Technician(s)

6/17/02
Date

4.10 Loosen each Suspension System Adjusting Screw (MB-390039) 1/2 turn and remove the Suspension System from the Vacuum Vessel. Configure the Suspension Tooling for Q2 Assembly per (ME-364604). Place Suspension Assembly on the tooling and make necessary adjusts to the tooling.

[Signature]
Technician(s)

6/17/02
Date

4.11 Slide the Suspension System over the Cold Mass and place on tooling.

Note(s):

Ensure that the Suspension System is configured properly to the Cold Mass with respect to the IP and Non-IP Ends.

[Signature]
Technician(s)

6/17/02
Date

4.12 Assemble the Outboard Suspension Mounting Brackets (MD-390280) to the Sliding Support Assemblies (outboard supports, ME-390042).

[Signature]
Technician(s)

6/17/02
Date

4.13 Assemble the Center Suspension Mounting Brackets (MD-390281) to the Sliding Fixed Assemblies (center support, ME-390041).

[Signature]
Technician(s)

6/17/02
Date

X 4.14 Verify locking collars exist only at center support.

[Signature]
Lead Person

6/17/02
Date

4.15 Establish alignment between the Cold Mass and the Support system.

[Signature]
Technician(s)

6/17/02
Date

X Jim

4.16 Verify the Alignment of the Cold Mass and the Support System.

[Signature]
Crew Chief

6-17-02
Date

4.17 Weld the Cold Mass to the ~~Outboard~~ Cold Mass Brackets as per (ME-390310).

[Signature]
Welder(s)

6-18-2002.
Date

5.0 Piping Assembly

5.1 Clean the Pipe Supports with Ethyl Alcohol (Fermi stock 1920-0550) and Kimwipes (Fermi stock 1660-2500) or equivalent.

G. Finney
Technician(s)

6-25-02
Date

5.2 Install the Pipe Supports (MD-390258)(Qty. 4) on the Cold Mass per (ME-390208).

Note(s):

A Tie Bar may be disconnected, if necessary, from the Fixed Support Assembly to install the central two pipe supports.

PIPE SUPPORT ASSEMBLY



J. Howard
Technician(s)

6/26/02
Date

5.3 Clean the Heat Exchanger Outer Shell Pipe (MD-390145), Pumping Line Pipe (MB-390147) and the Cool Down Pipe (MB-390146) with Ethyl Alcohol (Fermi stock 1920-0550) and Kimwipes (Fermi stock 1660-2500) or equivalent.

J. Howard
Technician(s)

6/26/02
Date

5.4 Clean one of each of the Pumping Line Flange (MB-390032), the Cool Down Line Flange (MB-390033) and the Heat Exchanger Outer Shell Flange (MB-390031) with Ethyl Alcohol (Fermi stock 1920-0550) and Kimwipes (Fermi stock 1660-2500) or equivalent.

J. Howard
Technician(s)

6/26/02
Date

- 5.5 Weld one of each of the Pumping Line Flange (MB-390032), the Cool Down Line Flange (MB-390033) and the Heat Exchanger Outer Shell Flange (MB-390031) to one end of the corresponding pipes.

Note(s):

The Heat Exchanger Outer Shell flange should be welded to the xxxxx End. The Pumping Line and Cool Down Line Flanges can be welded to either end of the pipes.

[Signature]
Technician(s)

7/15/02
Date

- 5.6 Slide the Heat Exchanger Outer Shell Pipe (MD-390145), Pumping Line Pipe (MB-390147) and the Cool Down Pipe (MB-390146) through all 7 supports.

Note(s):

Ensure the cross over hole in the Heat Exchanger Pipe is lined up with the hole in the Cold Mass Center Tube.

[Signature]
Technician(s)

7/15/02
Date

- 5.7 Clean one of each of the Pumping Line Flange (MB-390032), the Cool Down Line Flange (MB-390033) and the Heat Exchanger Outer Shell Flange (MB-390031) with Ethyl Alcohol (Fermi stock 1920-0550) and Kimwipes (Fermi stock 1660-2500) or equivalent.

[Signature]
Technician(s)

7/15/02
Date

- 5.8 Weld the Heat Exchanger Outer Shell Flange (MB-390031), the Pumping Line Flange (MB-390032) and the Cool Down Line Flange (MB-390033) to the ends of the corresponding pipes.

^{bw} ~~[Signature]~~ Bob Williams (SG)
Welder(s)

7/15/02
Date

- 5.9 Clean the Cold Mass and the Retainer Clips (MA-390103) with Ethyl Alcohol (Fermi stock 1920-0550) and Kimwipes (Fermi stock 1660-2500) or equivalent.

[Signature]
Technician(s)

7/15/02
Date

- 5.10 Weld the Retainer Clips (MA-390103) to the Cold Mass Outer Shell as per the Pipe Support Assembly (ME-390087) or (ME-390208).

D. Watkins
Welder(s)

7/15/02
Date

5.19 Leak Check the Cold Mass Assembly. (This will include the Exchanger Outer Shell).

Part No.	DETERMINATION OF DETECTABLE LEAK						
	M.D.S. ÷ ((Response - Background) ÷ Leak value) = MDL						
OPERATOR'S LAST NAME	SCALE UNITS BEFORE HELIUM PROBE	SCALE UNITS WHILE ENCLOSURE FLOODING	MDS	Response	Background	Leak Value	MDL
<u>COLD MASS</u>							
G Au	50	50	2	320	50	4.75 x E ⁻⁸	3.5 x E ⁻¹⁰

D. Gae
Inspector

7-15-02
Date

5.20 Leak Check the Cool Down Line.

Part No.	DETERMINATION OF DETECTABLE LEAK						
	M.D.S. ÷ ((Response - Background) ÷ Leak value) = MDL						
OPERATOR'S LAST NAME	SCALE UNITS BEFORE HELIUM PROBE	SCALE UNITS WHILE ENCLOSURE FLOODING	MDS	Response	Background	Leak Value	MDL
	60	60	2	450	60	4.75 x E ⁻⁸	2.1 x E ⁻¹⁰

D. Gae
Inspector

7-18-02
Date

5.21 Leak Check the Pumping Line.

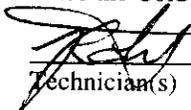
Part No.	DETERMINATION OF DETECTABLE LEAK						
	M.D.S. ÷ ((Response - Background) ÷ Leak value) = MDL						
OPERATOR'S LAST NAME	SCALE UNITS BEFORE HELIUM PROBE	SCALE UNITS WHILE ENCLOSURE FLOODING	MDS	Response	Background	Leak Value	MDL
G Au	40	40	2	500	40	4.75 x E ⁻⁸	2.1 x E ⁻¹⁰

D. Gae
Inspector

7-18-02
Date

6.0 Shield Assembly

6.1 Place the Cold Mass Assembly on the Insertion Rail System.



Technician(s)

7/15/02

Date

6.2 Install the Cold Mass MLI Center Blanket (ME-390110), and both Cold Mass MLI End Blankets (ME-390109).

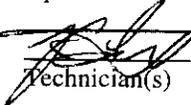


Technician(s)

7/18/02

Date

6.3 Assemble the Lower Half of the Q2P1 Thermal Shield Assembly (ME-390079) and clean using Ethyl Alcohol (Fermi stock 1920-0550) and Kimwipes (Fermi stock 1660-2500) or equivalent.



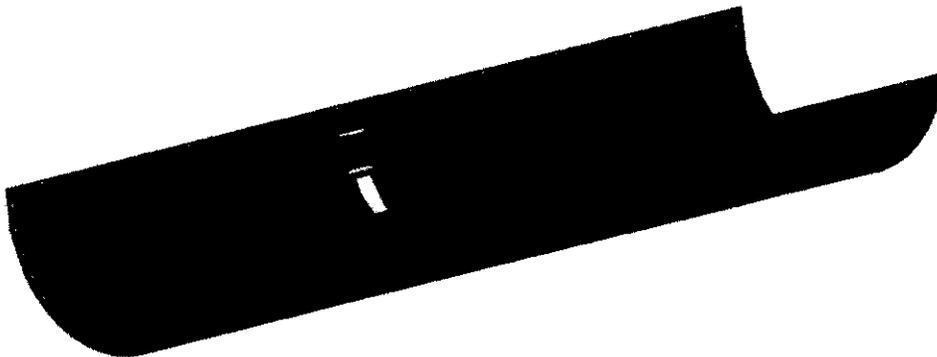
Technician(s)

7/18/02

Date

6.4 Lift the Cold Mass Assembly and place the Lower Half of the Q2P1 Thermal Shield Assembly (ME-390079) on the Cold Mass Assembly.

**Lower Shield Section
(ME-390082)**



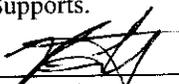


Technician(s)

7/17/02

Date

6.5 Attach the Shields to the Center connecting (MD-390081) Strip and to the Cold Mass Supports.

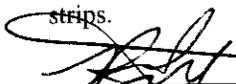


Technician(s)

7/18/02

Date

6.6 Position and secure the Thermal Shield MLI Inner Blankets (ME-390114), (1 ea.), and the Thermal Shield MLI Outer Blanket (ME-390113) (1 ea.) using the integral Velcro strips.

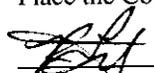


Technician(s)

7/18/02

Date

6.7 Place the Cold Mass Assembly on the Insertion Rail System.

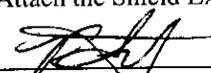


Technician(s)

7/18/02

Date

6.8 Attach the Shield Extrusions (MD-390080) to the Lower Shield Shells.

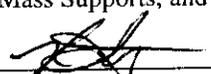


Technician(s)

7/18/02

Date

6.9 Install the Upper Shield Shells (ME-390082) to the Center Connecting Strip, the Cold Mass Supports, and the Shield Extrusions.



Technician(s)

7/19/02

Date

7.0 Cold Mass Insertion into the Vacuum Vessel

7.1 Install the Hoist Ring (Jergens part number 23465) or equivalent in the Cold Mass Support Assemblies (ME-390041/ME-390042).

[Signature]
Technician(s)

7/29/02
Date

7.2 Use the Crane to move the Vacuum Vessel to the edge of the Support Rail System and on line with the Cold Mass Assembly.

[Signature]
Technician(s)

7/29/02
Date

7.3 Shim the Vacuum Vessel as needed to make level with the Cold Mass Assembly.

[Signature]
Technician(s)

7/29/02
Date

7.4 Install the come along to pull the Cold Mass into the Vacuum Vessel.

[Signature]
Technician(s)

7/29/02
Date

7.5 Lift the IP End of the Cold Mass and begin pulling the Cold Mass into the Vacuum Vessel.

Note(s):

Ensure the Cold Mass remains level throughout the insertion Process. Continue to adjust the crane as the cold mass moves.

[Signature]
Technician(s)

7/29/02
Date

7.6 When the Cold Mass is fully inserted, install the Suspension System Adjusting Screws (MB-390039).

[Signature]
Technician(s)

7/30/02
Date

7.7 Adjust the Suspension System Adjusting Screw (MB-390039) as needed to center the Cold mass in the Vacuum Vessel.

[Signature]
Technician(s)

7/30/02
Date

7.8 Install the Conflat flanges with copper gaskets on the Vacuum Vessel as per the General Assembly (ME-390000).

[Signature]
Technician(s)

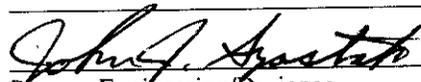
8/13/02
Date

DR No.
HGQ-0349

8.0 Production Complete

- 8.1 Process Engineering verify that the LHC Cryostat Assembly Traveler (5520-TR-333644) is accurate and complete. This shall include a review of all steps to ensure that all operations have been completed and signed off. Ensure that all Discrepancy Reports, Nonconformance Reports, Repair/Rework Forms, Deviation Index and dispositions have been reviewed by the Responsible Authority for conformance before being approved.

Comments:



Process Engineering/Designee

4/9/03
Date

Traveler Title:

(LHC) Cryostat Final Assembly Traveler

Specification No:

5520-TR-333644

Revision:

None

DR No:

HGQ-0349

Step No:

7.8

Drawing No:

390206

Routing Form No:

Serial No:

LQXB01

Rework ID:

0

Discrepancy Description:

During the electrical to the hypertronics, the hipot failed coil to ground at 2611 volts.

Originator:

Steve Gould

Date:

8/5/2002

Cause of Nonconformance:

Shorts are occuring within the hypertronics connector (pin-to-pin, as well as pin-to-frame). Also, there may be a heater-to coil short, or heater wire to voltage tap wire short within the Q2.

Responsible Authority:

Rodger Bossert

Date:

10/14/2002

Disposition:

Clean hypertronics connector and re-hipot. If the magnet still fails, remove hypertronics connector and hipot using wires only. This process has been completed, and is summarized on the attached excel spreadsheet. The result was a quench protection heater-to-coil failure, a 15 megaohm resistance between the Q2b circuit B heater and coils. The exact location of the short was not determined and the magnet was shipped to be tested with this short still there. The Q2b heater circuit B will be disconnected during testing.

Responsible Authority:

Rodger Bossert

Date:

10/24/2002

Corrective Action to Prevent Recurrence:

In the future, the 5000V hipot will be done before the hypertronics connectors are installed. Then, after installation of the hypertronics connectors, a 600V hipot will be done with the connectors encased in a helium enclosure. The module assembly traveler was changed to reflect this.

Responsible Authority:

Rodger Bossert

Date:

10/24/2002

Corrective Action/Disposition Verified By:

John Szostak

Date:

10/24/2002

Will Configuration be affected?: YES NO

Identified problem area:

- Material
- Manpower
- Method
- Machine
- Measurement

Reviewed By:

Jamie Blowers

Date:

8/14/2003

TD/ENGINEERING & FABRICATION

PARTS KIT REQUEST

IMPORTANT NOTES:

- 1) MAGNET NUMBER MUST BE FILLED IN.
- 2) ONLY ONE FORM PER MAGNET.
- 3) PARTS COORDINATOR OR DESIGNEE MUST SIGN THIS FORM.
- 4) MATERIAL CONTROL WILL ISSUE PARTS AND RECORD ROUTING NUMBER.
- 5) ANY QUANTITIES NOT AVAILABLE WILL HAVE COMMENTS RETURNED TO THE PARTS COORDINATOR FOR REVIEW.

Parts ordered through "Additional Parts Request" Forms.

MAGNET NUMBER: LQXB01

RELEASED BY: _____

PRODUCTION SIGNATURE: J. Szostak x2003

TODAYS DATE: 18-Jun-02

NEED DATE: _____

DELIVER TO: _____ ICB

BUDGET CODE: LCI

ISSUE VERIFICATION: _____

MATERIAL CONTROL SIGNATURE: _____

DATE ISSUED TO STOCKROOM: _____

THIS KIT LIST IS FOR ME-390310 Q2 COLD MASS ASSEMBLY (SUSPENSION)

PART NUMBER	REV	DESCRIPTION	REQUIRED QTY/ASSY	MATERIAL		CONTROL		PROD		SUPT.	
				QTY ISSUED	ROUTE FORM	DATE AVAIL	COMMENTS TO PRODUCTION MANAGER	VERIFY PART	VERIFY PART	VERIFY PART	VERIFY PART
390280	-	OUTBOARD SUSPENSION MTG. BRACKET	4 EA								
390281	-	MIDDLE SUSPENSION MTG. BRACKET	2 EA								
390041	-	FIXED SUPPORT ASSEMBLY	1 EA								
390042	-	SLIDING SUPPORT ASSEMBLY	2 EA								
390167	-	Q2 TIE BAR ASSEMBLY	4 EA								
390118	-	TIE BAR SHIM, 6.4mm	6 EA								
390119	-	TIE BAR SHIM, 2.4mm	6 EA								
390120	-	TIE BAR SHIM, 0.8mm	6 EA								
393020	-	M8 x 50mm SHCS, S.S.	18 EA								
393023	-	M8 HEX NUT, S.S.	18 EA								
393025	-	M8 FLASH WASHER, S.S.	18 EA								
393027	-	M8 LOCK WASHER, S.S.	18 EA								
393032	-	COLD MASS INSULATION INSTALLATION	1 EA								
390129	-	Q2 VACUUM VESSEL ASSEMBLY	1 EA								
390039	-	ADJUSTING SCREW	12 EA								
393021	-	M16-2 x 70 mm HEX SHCS, S.S.	12 EA								
390377	-	WASHER, 0.856" ID x 1.38" OD x 0.13" THK., S.S.	12 EA								

RETURN THIS COMPLETED PARTS KIT REQUEST WITH THE ISSUED PARTS TO THE PARTS COORDINATOR.

TRAVELER NO. TR-333644 KIT IS COMPLETE (PARTS COORDINATOR SIGNATURE): _____

STOCKROOM SIGNATURE AND DATE: _____

BADGE # _____

DATE: _____

TD/ENGINEERING & FABRICATION

PARTS KIT REQUEST

IMPORTANT NOTES:

- 1) MAGNET NUMBER MUST BE FILLED IN.
- 2) ONLY ONE FORM PER MAGNET.
- 3) PARTS COORDINATOR OR DESIGNEE MUST SIGN THIS FORM.
- 4) MATERIAL CONTROL WILL ISSUE PARTS AND RECORD ROUTING NUMBER.
- 5) ANY QUANTITIES NOT AVAILABLE WILL HAVE COMMENTS RETURNED TO THE PARTS COORDINATOR FOR REVIEW.

Parts ordered through "Additional Parts Request" Forms

JJD

MAGNET NUMBER: **LQXB01**

RELEASED BY: _____

PRODUCTION SIGNATURE: **J. Szostak** x2003

TODAYS DATE: **18-Jun-02**

NEED DATE: _____

DELIVER TO: _____ JCB

BUDGET CODE: LCI

ISSUE VERIFICATION: _____

MATERIAL CONTROL SIGNATURE: _____

DATE ISSUED TO STOCKROOM: _____

THIS KIT LIST IS FOR **Q2 INTERNAL PIPING ASSEMBLY**

PART NUMBER	REV	DESCRIPTION	REQUIRED QTY/ASSY	MATERIAL		CONTROL		PROD VERIFY PART	SUPT. VERIFY PART
				QTY FILLED OUT BY STOCK ROOM ISSUED	ROUTE FORM	DATE AVAIL	NOT AVAIL		
390258	-	Q2 PIPE SUPPORT ASSEMBLY	4	EA					
390146	-	Q2 COOL DOWN LINE TUBE	1	EA					
390033	-	COOL DOWN LINE END FLANGE	2	EA					
390147	-	Q2 PUMPING LINE TUBE	1	EA					
390032	-	PUMPING LINE END FLANGE	2	EA					
390145	B	Q2 OUTER SHELL TUBE	1	EA					
390028	-	CORRUGATED TUBE SUPPORT	8	EA					
390029	A	CORRUGATED TUBE RESTRICTOR	2	EA					
390394	-	Q2 CORRUGATED TUBE WELDMENT	1	EA					
390031	-	HEAT EXCHANGER OUTER SHELL END FLANGE	2	EA					
390111	-	HEAT EXCHANGER TO COLD MASS CONNECTOR	1	EA					
390149	-	PUMPING LINE PIPE STOP	2	EA					
390150	-	COOL DOWN LINE PIPE STOP	2	EA					
390305	-	COLD MASS MLI CENTER BLANKET	1	EA					
390307	-	PIPING MLI END BLANKET	2	EA					
390308	-	PIPING MLI MID BLANKET	2	EA					
390136	-	TIE BAR RETAINING CLAMP	8	EA					
3903017	-	M6 x .45mm HEX SHCS, S.S.	8	EA					
3903022	-	M6 HEX NUT, S.S.	8	EA					
3903024	-	M6 FLAT WASHER, S.S.	8	EA					
3903026	-	M6 LOCK WASHER, S.S.	8	EA					
390204	-	Q2 4.5K INTERCEPT LINE TUBE	4	EA					
390379	-	INTERCEPT LINE PIPE STOP	8	EA					

RETURN THIS COMPLETED PARTS KIT REQUEST WITH THE ISSUED PARTS TO THE PARTS COORDINATOR.

TRAVELER NO. **TR-333644** KIT IS COMPLETE (PARTS COORDINATOR SIGNATURE): _____

STOCKROOM SIGNATURE AND DATE: _____

BADGE # _____

DATE: _____

TD/ENGINEERING & FABRICATION

PARTS KIT REQUEST

IMPORTANT NOTES:

- 1) MAGNET NUMBER MUST BE FILLED IN.
- 2) ONLY ONE FORM PER MAGNET.
- 3) PARTS COORDINATOR OR DESIGNEE MUST SIGN THIS FORM.
- 4) MATERIAL CONTROL WILL ISSUE PARTS AND RECORD ROUTING NUMBER.
- 5) ANY QUANTITIES NOT AVAILABLE WILL HAVE COMMENTS RETURNED TO THE PARTS COORDINATOR FOR REVIEW.

Parts ordered through "Additional Parts Request" Forms 99A

MAGNET NUMBER: LQXB01

RELEASED BY: _____ | PRODUCTION SIGNATURE: J. Szostak x2003

TODAYS DATE: 18-JUN-02

NEED DATE: _____

DELIVER TO _____ ICB

BUDGET CODE: LCI

ISSUE VERIFICATION: _____

MATERIAL CONTROL SIGNATURE: _____

DATE ISSUED TO STOCKROOM: _____

THIS KIT LIST IS FOR Q2 THERMAL SHIELD ASSEMBLY

PART NUMBER	REV	DESCRIPTION	REQUIRED QTY/ASSY	MATERIAL		CONTROL		PROD VERIFY PART	SUPT. VERIFY PART
				QTY ISSUED	ROUTE FORM	DATE AVAIL	DATE AVAIL		
390162	-	END SECTION	4 EA						
390163	-	MID SECTION	4 EA						
390164	-	CENTER SECTION	2 EA						
390165	-	COOLING TUBE WELDMENT	1 EA						
390083	A	SUPPORT BAND	8 EA						
390086	-	RETAINER	16 EA						
390373	-	ALUMINUM SPACER	64 EA						
390078	-	RETAINING WASHER	360 EA						
393028	-	M5 x 16mm BUTTON HEAD CAP SCREW	360 EA						
390316	A	COOLING PIPE BRACKET	4 EA						
390317	-	COOLING PIPE CLAMP	8 EA						
393019	-	M8 x 45mm SHCS, S.S.	8 EA						
393018	-	M8 x 25mm SHCS, S.S.	8 EA						
393023	-	M8 HEX NUT, S.S.	16 EA						
393025	-	M8 FLAT WASHER, S.S.	16 EA						
393027	-	M8 LOCK WASHER, S.S.	16 EA						
390313	-	Q2 SHIELD MLI INNER BLANKET	1 EA						
390314	-	Q2 SHIELD MLI OUTER BLANKET	1 EA						

RETURN THIS COMPLETED PARTS KIT REQUEST WITH THE ISSUED PARTS TO THE PARTS COORDINATOR.

_____ : STOCKROOM SIGNATURE AND DATE

TRAVELER NO. TR-333644

KIT IS COMPLETE (PARTS COORDINATOR SIGNATURE): _____

BADGE # _____

DATE _____

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LHC Cryostat
 DATE REQUESTED 7/24/02
 BUDGET CODE LCI
 JOB TICKET # _____
 MACHINE SHOP REQ. # _____
 PURCHASE RELEASE # _____

REQUESTED BY T. Page
 DELIVER TO T. Page - ICB
 NEED BY DATE 7/25/02
 MMR # _____
 PO # _____
 OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE *Marcia Schmidt* ID# 4223 DATE 7/24/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
T9,2	MB 390028	-	8	Each	Corrugated Tube Supp	78144	
R9,S1,L4	MB 390029	A	2	Each	Corrugated Tube Rest.	77724	
ICB	ME 390394	-	1	Each	Corrugated Tube Assy	78456	

STOCKROOM SIGNATURE *[Signature]* ID# 12204 DATE 7/26/02

PARTS DELETED FROM DATABASE ID# _____ DATE _____

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY *[Signature]* ID# 4965 DATE 7/26/02

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY T. Page
 DATE REQUESTED 6/20/02 DELIVER TO J. Rife - ICB
 BUDGET CODE LCI NEED BY DATE 6/24/02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE Marsha Schmidt ID# 4223 DATE 6/20/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
P/N <u>NT</u>	<u>ME 390313</u>	<u>-</u>	<u>1</u>	<u>Each</u>	<u>Shield In MLI Blanket</u>	<u>77453</u>	
P/N <u>NT</u>	<u>ME 390314</u>	<u>-</u>	<u>1</u>	<u>Each</u>	<u>Shield Out MLI Blanket</u>	<u>77454</u>	
P/N <u>NT</u>	<u>ME 390305</u>	<u>-</u>	<u>1</u>	<u>Each</u>	<u>CM MLI Cent. Blanket</u>	<u>77450</u>	
P/N <u>NT</u>	<u>ME 390307</u>	<u>-</u>	<u>2</u>	<u>Each</u>	<u>MLI End Blanket</u>	<u>77451</u>	
P/N <u>NT</u>	<u>ME 390308</u>	<u>-</u>	<u>2</u>	<u>Each</u>	<u>MLI Mid Blanket</u>	<u>77452</u>	

STOCKROOM SIGNATURE [Signature] ID# 2307 DATE 6-20-02

PARTS DELETED FROM DATABASE [Signature] ID# 5158 DATE 6/21/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY [Signature] ID# 4895 DATE 6/20/02

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY M. Schmidt
 DATE REQUESTED 6/17/02 DELIVER TO J. Rife - ICB
 BUDGET CODE LCI NEED BY DATE 6/20/02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE *Marsha Schmidt* ID# 4223 DATE 6/17/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
<u>IB4</u>	<u>MA 393022</u>	<u>A</u>	<u>8</u>	<u>Each</u>	<u>M6 Hex Nut SS</u>	<u>78236</u>	

STOCKROOM SIGNATURE *Mike Z...* ID# 11939 DATE 6/25/02
 PARTS DELETED FROM DATABASE *John Schmidt* ID# 5758 DATE 7/1/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY *[Signature]* ID# 4825 DATE 7-1-02

PARTS delivered 7/1/02

ORIGINAL

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY T. Page

DATE REQUESTED 6/12/02 DELIVER TO J. Rife - ICB

BUDGET CODE LCI NEED BY DATE 6/14/02

JOB TICKET # _____ MMR # _____

MACHINE SHOP REQ. # _____ PO # _____

PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE *Maria Schmidt* ID# 4223 DATE 6/12/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
IB4	MD 390145	B	1	Each	Q2 Outer Shell Tube	77992	

STOCKROOM SIGNATURE *J. Rife* ID# 6020 DATE 6/13/02

PARTS DELETED FROM DATABASE *By K...* ID# 12701 DATE 9/10-02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY *[Signature]* ID# 4895 DATE 6/13/02

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY T. Page
 DATE REQUESTED 6/12/02 DELIVER TO J. Rife - ICB
 BUDGET CODE LCI NEED BY DATE 6/14/02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE Masha Fehmi ID# 9223 DATE 6/12/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
R8,S1,L2	MA 393028	-	360	Each	M5x16mm BH Cap Scr	76826	
IB4 BIN	MB 390316	A	4	Each	Cooling Pipe Brkt	77195	
IB4 BIN	MB 390317	-	8	Each	Cooling Pipe Clamp	77196	
R1,S3,L2	MA 393019	-	8	Each	M8x45mm SHCS SS	76748	
R1,S3,L2	MA 393018	-	8	Each	M8x25mm SHCS SS	76747	
IB4 BIN	MA 393023	-	16	Each	M8 Hex Nut SS	77848	
R1,S3,L2	MA 393025	-	16	Each	M8 Flat Washer SS	76745	
R1,S3,L2	MA 393027	-	16	Each	M8 Lock Washer SS	76744	

STOCKROOM SIGNATURE [Signature] ID# 11939 DATE 6/14/02

PARTS DELETED FROM DATABASE [Signature] ID# 5158 DATE 6/26/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY [Signature] ID# 4895 DATE 6/21/02

Rec'd paperwork 6/24/02

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY T. Page
 DATE REQUESTED 6/12/02 DELIVER TO J. Rife - ICB
 BUDGET CODE LCI NEED BY DATE 6/14/02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE *Masha Schmidt* ID# 4223 DATE 6/12/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
IB4 BIN	MB 390150	-	2	Each	Cool Down Stop	77134	
IB4 BIN	MB 390136	-	8	Each	Tie Bar Retain. Clamp	77132	
IB4 BIN	MA 393017	-	8	Each	M6x45mm Hex SHCS	77846	
IB4 BIN	MA 393022	A	8	Each	M6 Hex Nut SS		
IB4 BIN	MA 393024	-	8	Each	M6 Flat Washer SS	77849	
IB4 BIN	MA 393026	-	8	Each	M6 Lock Washer SS	77850	
MSB	MB 390204	-	4	Each	Q2 4.5k Line Tube	77065	
IB4 BIN	MA 390379	-	8	Each	Intercept Pipe Stop	77846	

STOCKROOM SIGNATURE *W. Z...* ID# 11939 DATE 6/14/02

PARTS DELETED FROM DATABASE *W. Schmidt* ID# 5158 DATE 6/20/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY *[Signature]* ID# 4895 DATE 6/14/02

Rec'd paperwork 6/24/02 PD

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY T. Page
 DATE REQUESTED 6/12/02 DELIVER TO J. Rife - ICB
 BUDGET CODE LCI NEED BY DATE 6/14/02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE Marsha Schmidt ID# 4223 DATE 6/12/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
PAN	ME 390162	-	4	Each	End Section	77226	
PAN	ME 390163	-	4	Each	Mid Section	77227	
PAN	ME 390164	-	2	Each	Center Section	77228	
MSB	MD 390165	-	2	Each	Cooling Tube Weldmt	77505	
PAN	MD 390083	A	8	Each	Support Bands	77146	
IB4 BIN	MA 390086	-	16	Each	Retainer	77131	
RI, S3, L2	MA 390373	-	64	Each	Aluminum Spacer	76874	
RS, S1, L2	MA 390378	-	360	Each	Retaining Washer	76875	

STOCKROOM SIGNATURE De Z... ID# 11939 DATE 6/14/02

PARTS DELETED FROM DATABASE Jan Schmidt ID# 5158 DATE 6/26/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY [Signature] ID# 4895 DATE 6/21/02

Rec'd paperwork 6/24/02
(A)

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY T. Page
 DATE REQUESTED 6/12/02 DELIVER TO J. Rife - ICB
 BUDGET CODE LCI NEEDED BY DATE 6/14/02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE *Marsha Schmidt* ID# 4223 DATE 6/12/02

PLEASE INDICATE REVISION REQUIRED

3/26/02

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
PN	MD 390258	A	4	Each	Q2 Pipe Support Assy	70618	
ICB	MB 390146	-	1	Each	Q2 Cool Down Tube	N/A	
IB4 BIN	MB 390033	B	2	Each	Cool Down End Flg	77208	
ICB	MB 390147	-	1	Each	Q2 Pumping Tube	N/A	
IB4 BIN	MB 390032	B	2	Each	Pumping Line Flg	77210	
IB4 BIN	MB 390031	B	2	Each	Outer Shell End Flg	77209	
R2, ST, 13	MC 390111	A	1	Each	Cold Mass Connector	77268	
IB4 BIN	MB 390149	-	2	Each	Pumping Pipe Stop	77133	

STOCKROOM SIGNATURE *Mike* ID# 11939 DATE 6/14/02

PARTS DELETED FROM DATABASE *Marsha Schmidt* ID# 5158 DATE 6/28/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY *J. Rife* ID# 4895 DATE 6/21/02

Rec'd paperwork

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY T. Page
 DATE REQUESTED 6/12/02 DELIVER TO J. Rife - ICB
 BUDGET CODE LCI NEED BY DATE 6/13/02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED
- DEFECTIVE ASSEMBLY
- INDIVIDUAL PARTS
- PARTS SCRAPPED
- MISSING FROM KIT ALREADY ISSUED
- CONSUMABLES
- A/R ITEMS
- PARTS LOST

ACQUISITIONER SIGNATURE M. Schmidt ID# 7223 DATE 6/12/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
IB 4	MB 390406	A	4	Each	Q2 Vac. Guide Rail	78139	
IB 4	MB 390408	A	2	Each	Q2 End Guide Rail	78141	

Per MS. 6/18/02
 STOCKROOM SIGNATURE del. by M. Schmidt + P. Olderr ID# 4223/11656 DATE 6/12/02
 PARTS DELETED FROM DATABASE Pan Schmidt ID# 5158 DATE 6/19/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TR. VELER

PARTS RECEIVED BY [Signature] ID# 4895 DATE _____

33 e/c by G.V. 6/18/02
 16 e/c by G.V. 6/18/02

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY J. Rife
 DATE REQUESTED 6/10/02 DELIVER TO J. Rife - ICB
 BUDGET CODE LCI NEED BY DATE 6/12/02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE Manda Schmidt ID# 422 DATE 6/10/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
JB 4 BIN	MA 393031	-	10	Each	Spring Pin	77819	
JB 4	MB 390406	A	4	Each	Center Guide Rail		
JB 4	MB 390408	A	2	Each	End Guide Rail		

STOCKROOM SIGNATURE William F. Hill ID# 13202 DATE 6/14/02

PARTS DELETED FROM DATABASE Pam Schmidt ID# 5758 DATE 6/17/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY [Signature] ID# 4895 DATE 6/14/02

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY J. Rife
 DATE REQUESTED 6/4/02 DELIVER TO J. Rife
 BUDGET CODE LCI NEED BY DATE 6/5/02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE Masha Schmidt ID# 4223 DATE 6/4/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
R8,S2,L1	MA 390047	B	2	Each	Support Pins	76914	
IB4-BIN	MA 390277		8	Each	Support Pins Bolts	76913	
IB4-BIN	MA 390275	A	4	Each	Support Pin Shim 1mm	76911	
IB4-BIN	MA 390276		4	Each	Support Pin Shim .5mm	76910	

STOCKROOM SIGNATURE [Signature] ID# 12704 DATE 06-05-02
 PARTS DELETED FROM DATABASE [Signature] ID# 5158 DATE 6/5/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY [Signature] ID# 4895 DATE 6/5/02

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY J. Rife
 DATE REQUESTED 6/4/02 DELIVER TO T. Page
 BUDGET CODE LCI NEED BY DATE 6/4/02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE *Marsha Johnson* ID# 4223 DATE 6/4/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
IB4-BIN	MB 390039	A	12	Each	Adjusting Screw	77152	
IB4-BIN	MA 393021		12	Each	HHCS M16x70.0mm SS	77340	
IB4-BIN	MA 3900377		12	Each	Special Flat Washer	77866	

STOCKROOM SIGNATURE *W. Zinn* ID# 11939 DATE 6/4/02

PARTS DELETED FROM DATABASE *P. Schmidt* ID# 5758 DATE 6/5/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY *T. Page* ID# 10048 DATE 6/4/02

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY M. Schmidt
 DATE REQUESTED 6/3/02 DELIVER TO T. Page - ICB
 BUDGET CODE LCI NEED BY DATE 6/3/02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE *M. Schmidt* ID# 4223 DATE 6/3/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
IB 4	MC 390167	-	4	Each	Q2 Tie Bar Assy	78085	

STOCKROOM SIGNATURE *Pam Schmidt* ID# 5158 DATE 6/3/02

PARTS DELETED FROM DATABASE *Pam Schmidt* ID# 5158 DATE 6/28/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY *T. Page* ID# 10048 DATE 6/3/02

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY Jim Rife
 DATE REQUESTED 5-29-02 DELIVER TO Jim Rife
 BUDGET CODE LQB NEED BY DATE 5-31-02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE Marsha Schmidt ID# 4223 DATE 5/30/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
RI S3 L2	MA-393025	0	18	Each	M8 Flat Washer		
RI S3 L2	MA-393027	0	18	Each	M8 Lock Washer		
R8 S2 L1	MB-390047	B	4	Each	Support Pins	76914	
IB4 BIN	MA-390277	0	16	Each	Support Pin Bolts	76913	
IB4 BIN	MA-390276	0	8	Each	Support Pin Shim .5MM	76487	
IB4 BIN	MA-390275	A	8	Each	Support Pin Shim 1MM	76486	
IB4 BIN	MA-390321	A	4	Each	Two Piece Clamp on Collar	76912	

STOCKROOM SIGNATURE [Signature] ID# 12698 DATE 5/31/02

PARTS DELETED FROM DATABASE [Signature] ID# 5158 DATE 6/3/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY [Signature] ID# 4895 DATE 5/31/02

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY Jim Rife
 DATE REQUESTED 5-29-02 DELIVER TO Jim Rife
 BUDGET CODE LQB NEED BY DATE 5-31-02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE *Mark Schmidt* ID# 923 DATE 5/30/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
R9 S1 L5	MD-390280	0	4	Each	Outboard Suspension Mtg Bracket	77277	
IB4 BIN	MD-390281	0	2	Each	Middle Suspension Mtg Bracket	77106	
IB4 BIN	MC-390167	0	4	Each	Q2 Tie Bar Assembly		
IB4 BIN	MB-390118	0	6	Each	Tie Bar Shim 6.4mm	77204	
IB4 BIN	MB-390119	0	6	Each	Tie Bar Shim 2.4mm	77203	
IB4 BIN	MB-390120	0	6	Each	Tie Bar Shim 0.8mm	77202	
IB4 BIN	MA-393020	0	18	Each	SHCS M8 x 50.0mm	77847	
IB4 BIN	MA-393023	0	18	Each	M8 Hex Nut	77848	

STOCKROOM SIGNATURE *[Signature]* ID# 12698 DATE 5/31/02

PARTS DELETED FROM DATABASE *[Signature]* ID# 5758 DATE 6/3/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY *[Signature]* ID# 4895 DATE 5/31/02

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY J. Rife
 DATE REQUESTED 5/9/02 DELIVER TO J. Rife - ICB
 BUDGET CODE LQB NEED BY DATE 5/20/02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE *Marka Schmidt* ID# 7223 DATE 5/28/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
IB4	MD 390197	B	1	Each	Q2 IP End Dome Weld.	77855	
IB4	MD 390253	A	1	Each	Q2 Non IP End Dome Weldment	77985	

STOCKROOM SIGNATURE *Jeff Ben* ID# 12698 DATE 5/28/02
 PARTS DELETED FROM DATABASE *Tom Schmidt* ID# 5158 DATE 5/29/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY *Steve Powell* ID# 4965 DATE 5/28/02

ADDITIONAL PARTS REQUEST

**ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY
WITH THE EXCEPTION OF PARTS KITS.**

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01REQUESTED BY J. RifeDATE REQUESTED 5/21/02DELIVER TO ICBBUDGET CODE LCINEED BY DATE 5/21/02

JOB TICKET # _____

MMR # _____

MACHINE SHOP REQ. # _____

PO # _____

PURCHASE RELEASE # _____

OTHER _____

PARTS STATUS (CHECK ONE) DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED INDIVIDUAL PARTS CONSUMABLES PARTS LOSTACQUISITIONER SIGNATURE Maria Schmidt ID# 4223 DATE 5/21/02**PLEASE INDICATE REVISION REQUIRED**

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
ICB	ME 390129	B	1	Each	Q2 Vacuum Vessel	77645	

STOCKROOM SIGNATURE Bonnie Rodriguez ID# 5664 DATE 5/22/02PARTS DELETED FROM DATABASE Ram Schmidt ID# 5158 DATE 5/23/02**A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER**PARTS RECEIVED BY Steve Gould ID# 4965 DATE 5/22/02

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS. 0102-ES-292302 Revision E

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY Jim Rife
 DATE REQUESTED 5-8-02 DELIVER TO Jim Rife
 BUDGET CODE LQB NEED BY DATE 5/13/02
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE *Manda Elquist* ID# 4223 DATE 5/10/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF#	SIR#
IB4	MD-390197	B	1	Each	IP End dome weldment		
IB4	MD-390253	A	1	Each	Non IP End dome weldment		
✓ IB4 BIN	MC-390294	0	4	Each	MCBX transportation restraint nut	76666	
✓ IB4 BIN	MC-390203	0	4	Each	MCBX corrector mounting spacer	75999	
✓ IB4 BIN	MA-393029	0	16	Each	1/4 -28 x 1" hex SHCS S.S.	77851	
✓ IB4BIN	MA-390248	0	4	Each	1/2 -20 x 3.5" silver plated screw	74623	
✓ R1 S&L2	MB-390228	0	4	Each	MCBX corrector mounting flat washer	75739	
IB4 BIN	MB-390230	A	4	Each	Transportation restraint adjusting screw	76664	

STOCKROOM SIGNATURE *[Signature]* ID# 12698 DATE 5/13/02

PARTS DELETED FROM DATABASE *[Signature]* ID# 5158 DATE 5/15/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY *[Signature]* ID# 4890 DATE 5/15/02

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01 REQUESTED BY Jim Rife
 DATE REQUESTED 5-8-02 DELIVER TO Jim Rife
 BUDGET CODE LQB NEED BY DATE _____
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE Maule Schmidt ID# 4223 DATE 5/10/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
IB4 BIN	MA-393030	0	8	Each	10-32 x.188 cup point set screw.S.S.	77839	
R10 12	MC-390300	B	2	Each	Beam tube flange	77028	

STOCKROOM SIGNATURE [Signature] ID# 12698 DATE 5/13/02
 PARTS DELETED FROM DATABASE [Signature] ID# 5158 DATE 5/15/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY [Signature] ID# 4835 DATE 5/13/02

ADDITIONAL PARTS REQUEST

ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY WITH THE EXCEPTION OF PARTS KITS.

THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM

MAGNET OR COIL # LQXB01
 DATE REQUESTED 5/7/02
 BUDGET CODE LCI
 JOB TICKET # _____
 MACHINE SHOP REQ. # _____
 PURCHASE RELEASE # _____

REQUESTED BY J. Rife
 DELIVER TO J. Rife - ICB
 NEED BY DATE 5/9/02
 MMR # _____
 PO # _____
 OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE *Monika Schmidt* ID# 4223 DATE 5/7/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
NT02407	ME 390043	B	3	Each	Support Ring Assy	76906	

STOCKROOM SIGNATURE *Mike Z...* ID# 11939 DATE 5/7/02

PARTS DELETED FROM DATABASE *Monika Schmidt* ID# 5158 DATE 5/7/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY *[Signature]* ID# 4895 DATE 5/7/02

ADDITIONAL PARTS REQUEST**ADDITIONAL PARTS REQUEST FORM SHALL BE USED TO ACCESS ALL ITEMS FROM INVENTORY
WITH THE EXCEPTION OF PARTS KITS.****THIS FORM MUST BE SIGNED BY AN ACQUISITIONER BEFORE BRINGING TO THE STOCKROOM**

MAGNET OR COIL # LQXB01 _____ REQUESTED BY J. Rife _____
 DATE REQUESTED 4/23/02 _____ DELIVER TO J. Rife _____
 BUDGET CODE LQB _____ NEED BY DATE 4/26/02 _____
 JOB TICKET # _____ MMR # _____
 MACHINE SHOP REQ. # _____ PO # _____
 PURCHASE RELEASE # _____ OTHER _____

PARTS STATUS (CHECK ONE)

- DEFECTIVE PARTS ISSUED PARTS SCRAPPED A/R ITEMS
 DEFECTIVE ASSEMBLY MISSING FROM KIT ALREADY ISSUED
 INDIVIDUAL PARTS CONSUMABLES PARTS LOST

ACQUISITIONER SIGNATURE *Marshe Schmidt* ID# 9225 DATE 4/24/02

PLEASE INDICATE REVISION REQUIRED

LOCATION	PART #	REV	QTY	UOM	DESCRIPTION	RF #	SIR #
<i>Pin's Not in TSIND as of 5/14/02</i>							
	MA 369890	-	148	Each	SHCS 6-32 x 1" Lg	777 2	
	MA 369891	-	16	Each	FHCS 6-32 x 0.5" Lg	777 3	
<i>IB 4</i>	MD 369867	-	+	Each	Q2 Bus Housing		

STOCKROOM SIGNATURE *Pam Schmidt* ID# 5158 DATE 4/29/02

PARTS DELETED FROM DATABASE *Pam Schmidt* ID# 515T DATE 6/5/02

A COPY OF THIS FORM IS TO BE INCLUDED IN WITH THE TRAVELER

PARTS RECEIVED BY *[Signature]* ID# 4895 DATE 4/23/02