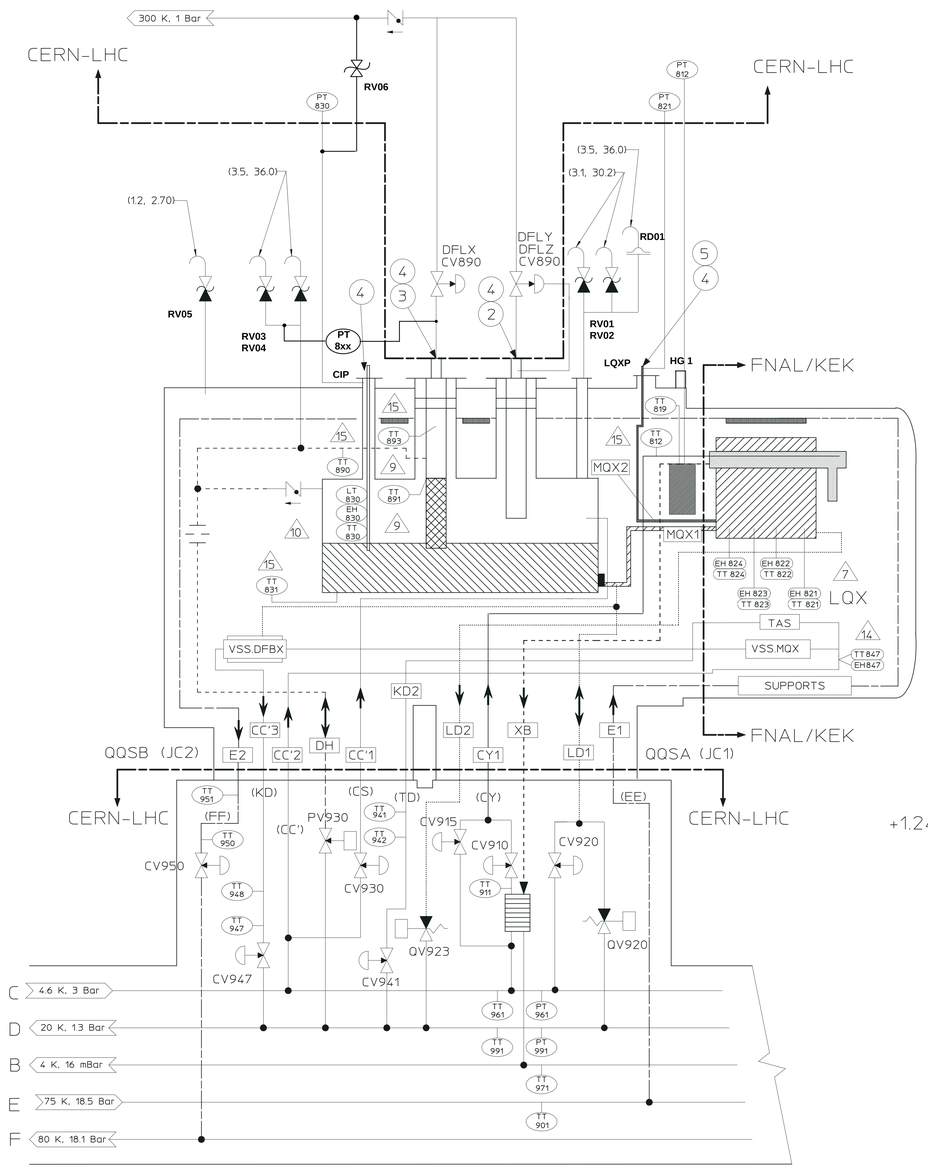
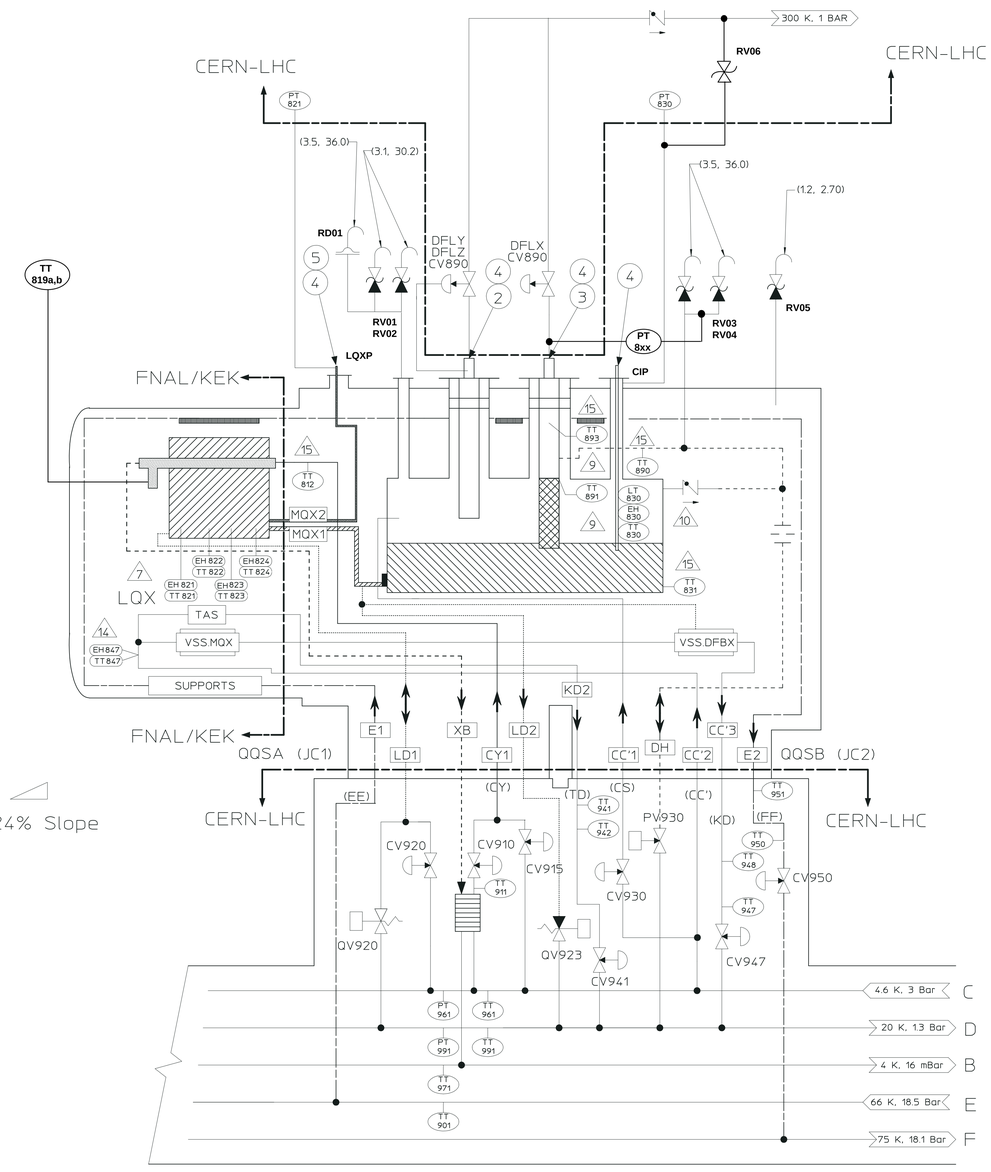
IP1 Left – DFBXA



IP1 Right – DFBXB



+1.24% Slope

25H4086

Shield Cooling
HTS Cooling
Cooldown, Quench
4.5 K Cooling
1.9 K Supply
1.9 K Return
XYn Piping Designation
7 *SEE NOTE _* Designation
Interface
CERN-LHC

1.9 K, 16 mBar
1.9 K, 1 Bar
4.5 K, 1.3 Bar
Shield
HTS

1 Conduction Cooled
2 Vapor Cooled
3 MQX, MBX Leads
4 Electrical Signals
5 Q.P. HEATERS
LT Level Sensor
EH Heater
TT Temp Sensor
PT Pressure Sensor
FT Flowmeter

Automatic Control Valve (Fail Closed)
Automatic Control Valve (Fail Open)
Automatic On-Off Valve (Fail Closed)
Relief Valve: Press. setting (bar, psig)
Rupture Disk Press. setting (bar, psig)
CERN Special Safety Relief Valve
Heat Exchanger
Collection Volume
Check Valve
Orifice

LEGEND

NOTES:
1. HEADER TEMPERATURES AND PRESSURES ARE APPROXIMATE NOMINAL CONDITIONS.
2. INTERFACE BOUNDARIES ARE INDICATED.
3. ALL SENSORS IN LQX NOT SHOWN.
4. QRL SENSORS INCLUDED FOR REFERENCE.
5. PIPING DESIGNATIONS PER LHC-Q-ES-0001.00 rev 1.0 SHOWN IN ( ) AS REQUIRED.
6. SAFETY RELIEF DEVICES PER LBNL ENG. NOTE M8054.
7. INSTRUMENTATION IS 2X REDUNDANT AT EACH LOCATION. WIRES CONNECT TO LQX FEEDTHROUGH VIA MQX2 TUBE.
8. RESERVED.
9. INSTRUMENTATION WIRES IN HTS LEAD FEEDTHROUGH. ONLY TT891 IS 2X REDUNDANT. 4 HTS LEADS PER BOX.
10. INSTRUMENTATION WIRES IN LHE DIAGNOSTIC FEEDTHROUGH 2X REDUNDANT.
11. UNLESS OTHERWISE NOTED, INSTRUMENTATION WIRES IN VACUUM SPACE.
12. VSS INTERCONNECTION HARDWARE PROVIDED BY CERN.
13. RELIEF DEVICE PRESSURE SETTINGS IN BAR (ABSOLUTE)
14. WIRES EXIT AT Q1.
15. SENSOR NOT REDUNDANT.

FORMERLY 24C3706-1

FOR CERN USE

REV	DWG	CHK	ZONE	DATE	CHANGES
B	jz		D1-8	8Aug05	Added LQX Temp Sensors, CERN press tap and bleed line, numbered LBL safety devices

PART NO.	DESCRIPTION

UNLESS OTHERWISE SPECIFIED
TOLERANCES
THREADS ARE CLASS 2
CHAMFER ENDS OF ALL SCREW THREADS 30°
CUT 1.5 PITCH THRD RELIEF WITH ROUND NOSE TOOL ON MACHINE CUT THREADS
BREAK EDGES .016 MAX. ON MACHINED WORK
REMOVE BURRS WELD SPLATTER & LOOSE SCALE
REFERENCES: ANSI Y14.5 & B46.1.

SHOP ORDERS
ACCT. NO. | SERIAL NO.
DATE ISSD. | DATE REQD. | NO. REQD.
DELIVER TO
SURFACE TREATMENT
IDENT. METH.
DWG Y. BY: KAJIYAMA DATE 21-OCT-02
CHK BY: JON ZBASNIK DATE 21-OCT-02

LAWRENCE BERKELEY LABORATORY
UNIVERSITY OF CALIFORNIA-BERKELEY
LARGE HADRON COLLIDER, IR FEEDBOX
CRYOGENICS
DFBX IP1 FLOW SCHEMATICS

PATENT CLEAR	DWG. TYPE SCHEMATIC	SHOWN ON	SCALE N/A	DO NOT SCALE PRINTS
MICROFILMED	DESIGN ACCT. NO Z5LCE6	CATEGORY CODE LH2003	DWG. NO. 25H4086	SIZE / REV B