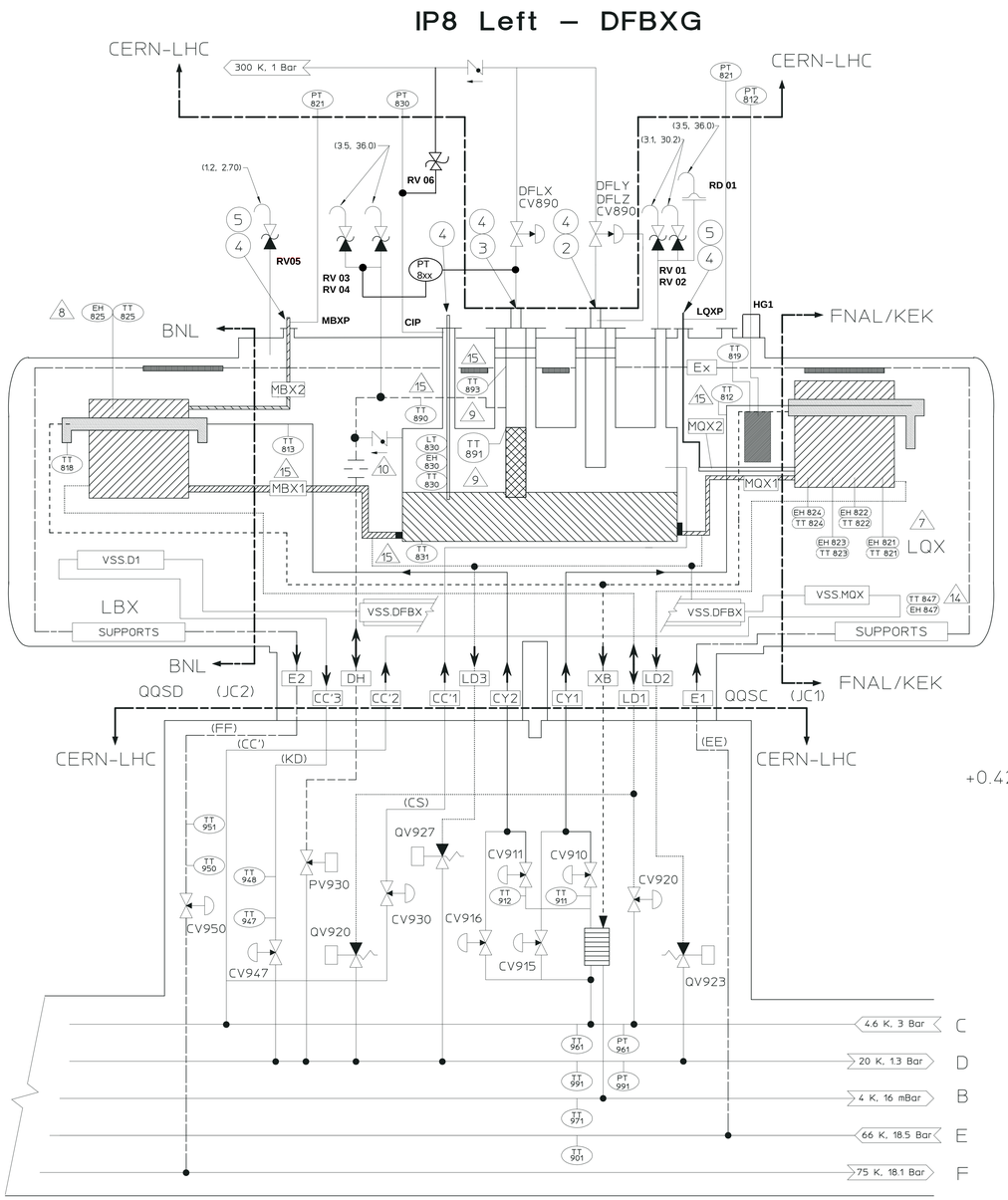

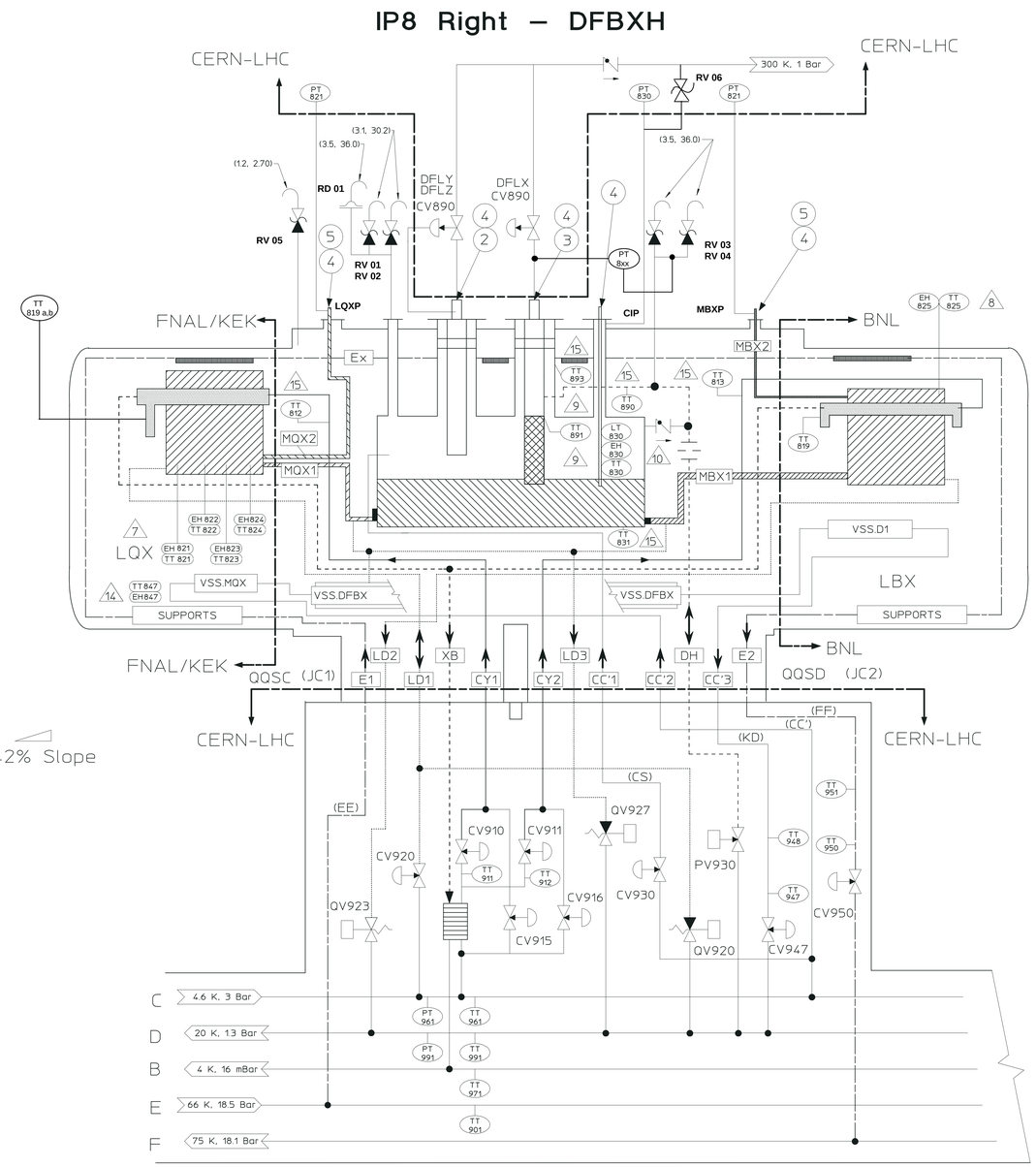

+0.42% Slope

25H4106

Shield Cooling
HTS Cooling
Cooldown, Quench
4.5 K Cooling
1.9 K Supply
1.9 K Return
Piping Designation
"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 AND LBX 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. INSTRUMENTATION IS 2X REDUNDANT AT EACH LOCATION. WIRES CONNECT TO LBX FEEDTHOUGH VIA MBX2 TUBE.
9. INSTRUMENTATION WIRES IN HTS LEAD FEEDTHROUGH. ONLY TT891 IS 2X REDUNDANT. 6 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.

REV	DWG	CHK	ZONE	DATE	CHANGES
B	jz		D(1-8)	2 Aug 05	Added LQX temp sensors, CERN pressure tap, CERN bleed line, numbered LBL safety devices

FORMERLY 24C3706-3

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 BY Y. KAJIYAMA DATE 25-OCT-02
CHK BY JON ZBASNIK DATE 25-OCT-02

LAWRENCE BERKELEY LABORATORY
UNIVERSITY OF CALIFORNIA-BERKELEY
LARGE HADRON COLLIDER, IR FEEDBOX
CRYOGENICS
DFBX IP8 FLOW SCHEMATICS

PATENT CLEAR	DWG. TYPE	SHOWN ON	SCALE	DO NOT SCALE PRINTS
	SCHEMATIC		N/A	
MICROFILMED	DESIGN ACCT. NO.	CATEGORY CODE	DWG. NO.	SIZE / REV.
	Z5LCE6	LH2003	25H4106	B

FOR CERN USE