JADE LOGBOOK II Euro 1336 - 2841

Ein Brunnen-Erzeugnis

JADE-LOGBOOK II

9.8.79 - 13.80

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT POSTRON x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG
EXP 6 1338	9.8.79	13^{22}	13^{37}	7.8	7.1											
1339	"	13^{28}	13^{58}	7.6	7.0	5.5×10^{-7}	1755	3970	456	41	415	1015	1011	3049	1548	1272
1340	"	14^{10}	14^{56}	6.7	6.2	3.4×10^{-7}	2338	4304	608	47	560	885	880	3169	1823	1156
1341	"	15^{04}	16^{19}	5.5	4.9		3774	5105	981	89	952	919	914	3903	1729	1053
1344	"	20^{40}	22^{32}	7.3	7.4		6270	14756	1631	154	1476	2753	2744	11799	5303	6084
1345	"	22^{32}	0^{25}	5.1	4.8		6274	9842	1633	57	1576	1689	1679	7920	4672	3135
1346	10.8.79	0^{27}	1.09	3.7	3.6	3×10^{-7}	2258	3185	587	17	570	480	477	2555	1645	940
1347	"	3.09	4.10	9.4	8.7	4×10^{-7}	3476	11423	904	101	803	2771	2760	9302	3761	4968
1348		4.15	5.00	7.4	6.9		2293	5505	596	34	562	1424	1419	crazy	2119	1869
1353		5.32					40	126								
1357	"	5.50	6.05	5.7	5.2		792	1644	206	22	184	322	320	1325	593	719
1358	"	6.08	7.03	5.4	5.0		2801	5052	710	61	648	966	961	?	2022	1197
1359	"	8^{28}	9^{10}	9.4	8.9	4.5×10^{-7}	2379	8172	606	123	483	1733	1725	6887	2329	4157
1360	"	9^{13}	9^{21}	8.1	7.6	"	874	2365	227	48	179	527	525	1972	755	1078
1361	"	9^{55}	10^{00}	7.1	6.7	"	140	386	36	3	33	86185	85	300	141	158
1362	"	10^{09}	10^{12}	6.8	6.3	"	559	1662	153	12	140	329	328	1409	553	899
1363	"	10^{23}	stopped immediately, because color-TV was off													
1364	"	10^{25}	10^{36}	6.4	5.8	"	157	329	39	2	37	28399	28	282	138	130
1365	"	13^{33}	13^{52}	8.3	8.4	3×10^{-7}	512	1468	133	32	100	304742	303	1152	459	650
1366	"	13^{59}	14^{19}	8.0	6.4	"	1383	4719	456	50	405	111498	1110	3924	1629	1848
1367	"	14^{24}	14^{29}	9.1	9.2	"	128	257	23	7	25	65223	64	182	103	81
1368	"	14^{31}	14^{41}	6.8	6.9	3.7×10^{-7}	594	2040	208	15	193	45339	413	1579	810	697
1369	"	14^{48}	16^{12}	6.6	6.6	"	4479	7765	1217	311	906	1823	1616	?	3051	2472
1370	"	17^{47}	18^{05}	9.8	8.8		1091	3253	283	87	196	537	748	2716	—	—
1371	"	18^{08}	18^{49}	8.8	8.0			7730	647	73	574	1774	1767	6395	2377	3659
1372	"	18^{53}	20^{07}	7.8	7.0		4348	10666	1131	89	1042	2468	2458	8746	3941	4380
1373	"	20^{08}	20^{56}	6.2	5.6	3.5×10^{-7}	2818	5010	671	384	633	1084	1082	4117	1995	2015
1374	"	22^{47}	23^{32}	—	—	—	2670	1280	—	—	—	—	—	—	—	—
1375	"	23^{43}	00^{19}	9.4	7.9		2009	6737	522	63	453	1416	1410	?	2040	3376
1376	11.8.79	00^{22}	01^{16}					8174								
1377	"	01^{22}		6.3	5.5		655	1602	170	10	160	340	338	1286	570	691
1378	"	03^{42}	04^{05}	1.5	1.4			5200								
1379	"	04^{03}	04^{19}	8.5	8.6		523	1804	137	13	124	483	482	1421	645	690

continued page 8

LG≥4 GeV	LUMI	<L> $10^{30}cm^{-2}sec^{-1}$	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	B.P.	BHABHA	MULTI HADRON	NMR	ENERGY
				195.57	IBM	20.40				
251	644	1.25	2.42	197.96	IBM	1.5	2159	19		
356	670	1.02	2.49	200.45	"	0.8	2229	11		
444	709	0.71	2.63	203.08	"	0.7	2399	4		
898	2038	1.18	7.43	210.51	"	1.0	6619	13		
811	1212	0.68	4.3	214.8	"	0.5	3901	7		
285	374	0.53	1.2	216.0	"	0.4	1024	3		
685	1371	1.44	5.0	221.0	"	1.1	4496	40		
391	787	1.28	2.9	223.9	"	0.8	2554	9		
101	193	0.71	0.56	224.4	"	0.8	635	7		
341	606	0.80	2.24	226.6	"	0.7	1997	6		
379	886	1.36	3.18	229.8	"	1.2	2857	34		
129	357	1.08	.91	230.7	"	1.0	811	5		
23	39	1.05	0.15	230.9		1.0	131	0		
89	125	0.73	0.43	231.3	"		388	3		
18	30	0.91	0.11	231.4	"		100	0		
84	198	1.49	0.176	232.1	"	1.0	645	8		
268	707	1.44	2.53	234.6	"		2301	20		
18	41	1.25	0.16	234.8	"		137	0		
134	291	1.38	1.08	235.8	"		964	8		
14	1096	0.85	4.02	239.8	"	"	3549	11		
147	—		1.31	241.1	"	1.2	1174	5		
411	850	1.32	3.12	244.2	"	1.0	2762	20		
629	1273	1.06	4.59	248.8	"	0.9	4095	18		
320	567	0.72	2.01	250.8	"		1793	2		
—	—	—	—	—	—	—	—	—		
322	703	1.26	2.54	254.3	"	1.2	2265	24		
		1.01	3.28	257.6						
109	166	0.90	0.6	258.2		1.0	529	2		
		1.60	2.2	260.4		1.2				
97	226	1.55	0.85	260.9		1.1	235	8		

SMZ x SPZ	SMZ x SPZ Accid.	
		H.V. for the tagging LG's were not on. Run aborted.
2159	19	beam orbit correction at most-west/left (Kstiffn.)
		← NORD 50 hangs (active address #6)
		← stopped due to NORD 50 Hang up.
2399	4	stopped due to IBM hang up.
6619	13	
3901	7	
1024	3	
4496	40	"N50 busy" hang up
2554	9	IBM hang up
		} Problems with IBM
635	7	N50 hang up
1997	6	4 IBM OBJEC Synchronisation Error / beam lost
2857	34	5% more dead time caused by IBM
811	5	stopped due to IBM trouble
131	0	stopped due to FSB-computer trouble (Hrehovcik called)
388	3	
100	0	
645	8	terminated by nord-50 problem
2301	20	terminated by "N1-busy"
137	0	same as above
964	8	same as above
3549	11	beam lost, deadtime through IBM failure
1174	5	Nord hangup
2762	20	—"— —"—
4095	18	μ-system GO, Volt on all μ-chambers.
1793	2	beam lost (water leak)
—	—	
2265	24	μ-cosmic
		trigger must strike also on cosmic i.e. -T- in T37
		Nord 10 hang up
529	2	beam lost due to water leak
		Nord hang up (see page 7)
235	8	beam lost (magnet failure)

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1GeV·LG
EXP 6																
1338	9.8.79	13^{22}	13^{38}	7.8	7.1											
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1340	"	14^{10}	14^{56}	6.7	6.2	3.4×10^{-9}	2338	4304	608	47	560	885	880	3169	1823	1156
1341	"	15^{04}	16^{19}	5.5	4.9		3774	5105	981	29	952	919	914	3903	1799	1053
1344	"	20^{40}	22^{32}	7.3	7.4		6270	14756	1631	154	1476	2753	2744	11799	5303	6084
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1353		5.32					40	126								
1357	"	5.50	6.05	5.7	5.2		792	1644	206	22	184	322	320	1325	593	719
1358	"	6.08	7.03	5.4	5.0		2801	5052	710	61	648	986	961	?	2022	1397
1359	"	8.28	9^{10}	9.4	8.9	4.5×10^{-9}	2329	8172	606	123	483	1733	1725	6887	2329	4157
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1368	"	14^{31}	14^{45}	4.8	4.9	3×10^{-9}	54	2040	208	15	193	45359	453	1579	810	697
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continued page 8

LG ≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	∫Ldt RUN	∫Ldt Exp	IBM / TAPE	B.P.	BHABHA SMB x SPZ	MULTI HADRON SMB x SPZ Accid.	NMR	ENERGY
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23	39	1.05	0.15	230.9		1.0	131	0		
89	125	0.73	0.43	231.3	"		388	3		
17	30	0.91	0.11	231.4	"		100	0		
84	198	1.49	0.76	232.1	"	1.0	645	8		
267	707	1.44	2.57	234.6	"		2301	20		
18	41	1.25	0.16	234.8	"		137	0		
134	291	1.38	1.08	235.8	"		964	8		
14	1096	0.85	4.02	239.8	"	"	3549	11		
147	—		1.31	241.1	"	1.2	1174	5		
411	850	1.32	3.12	244.2	"	1.1	2762	20		
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—	—	—	—	—	—	—	—	—		
322	703	1.26	2.54	254.3	"	1.2	2265	24		
		1.01	3.28	257.6						
109	166	0.90	0.6	258.2		1.0	529	2		
		1.60	2.2	260.4		1.2				
97	226	1.55	0.85	260.9		1.1	735	8		

H.V. for the tagging LG's were not on. Run aborted.
beam orbit correction at north-west/left (K.Steffen)
NORD 50 hangs (active address #6)
stopped due to NORD 50 hang up
stopped due to IBM hang up
" "N50 busy" hang up
IBM hang up
} Problems with IBM
N50 hang up
4 IBM OBJEC Synchronization Error / beam lost
5% more dead time caused by IBM
stopped due to IBM trouble
stopped due to FS8-computer trouble (Hubschraube called)
terminated by Nord-50 problem
terminated by "N50 - busy"
same as above
same as above
beam lost, deadtime through IBM failure
Nord hang up
—11— —4—
μ-system GO. Volt on all μ-chambers.
beam lost (water leak)
μ-cosmic
trigger unit switch was shift on cosmic i.e. -7 - for 1377
Nord 10 hang up
beam lost due to rate leak
Nord hang up (see page 7)
beam lost (magnet failure)

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF $\otimes$ ≥ 1GeV·LG

~13^{00} New Filling. single's rate (3TOF/TØacc) ~ 0.25 , BP ~ 0.2 ~ 0.4
Although the beam condition is bad, we started data taking after ~ 15 minutes.
PKR played with the beam orbit during the run 1339. The dead time went down from ~20% to 5÷6%. The event rate didn't change. B.P. ● volt. monitor measured less (-1.5 → -1.0).
chamber currents have much improved (~ 1.2μA at the worst point), compared with situation of yesterday (5μA). at I_{e^+}=7.1 mA, I_{e^-} = 6.6 mA

14^{10} I.D. ALARM We traced one of the reasons for spurious ID - NOTAUS: Switching on of the roof-fans! So, do not switch on/off while ID is on!

14^{50} IDALARM #23

14^{55} EVENT RATE. During the run 1340 the event rate was low (1.5 ~ 1.8 Hz) Vacuum was 3.4×10^{-9} Tor.

15^{05} Beampickup: The Yellow lamp went on. The ATTENUATOR was changed from 6dB to 4 dB.
— U. Barth + G. Hughes —

16^{00} ID drops 23.3

16^{10} IBM down expected to be back in 5 min

16^{13} stop run 1341

16^{20} start run 1342
IBM still down
IBM (Kohlhammer) says that our on line module is not executable call the author.

16^{55} Pluto want new filling.
EH1's off - collimators out

16^{58} IBM (online) - program - runs worthy again.

17^{00} Water back in Petra

20^{23} Start run 1344
Pattern with no response for μ - crate # 2 } forget → μ-system under test — back in tomorrow, hopefully
Take out pin
Meanwhile, use F8 — see note on control terminal 94.

21^{25} ID Alarm ID - Not aus Alarm no obvious reason found

22^{25} Data logger went crazy, spits out paper switch it off

22^{25} ID Alarm 23.3

22^{32} Stop run 1344

LG ≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	∫Lat RUN	∫Lat EXP	IBM TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

22^{32} Start 1345 normal FØ1 start, μ readout now OK.

22^{53} ID Alarm 'magnet trip' faulty alarm

22^{55} In an attempt to allow PKR to monitor luminosity with the tagging Pb-Glas the gates to the ↑ Pb-Glas data have been altered.
tagging

SMZ* SPZ was $(\Sigma E_{+Z} \cdot \text{AND.} \cdot \Sigma E_{-Z}) \cdot \text{AND.} \{$ (delayed TØ) $\cdot$ AND. (2280 Processor not busy) $\}$ ← equivalent to "gate"
(leading gated.

This has been modified to the following

$(\Sigma E_{+Z} \cdot \text{AND.} \cdot \Sigma E_{-Z}) \cdot \text{AND.} [\text{gate} \cdot \text{OR.} (\text{NORUN} \cdot \text{AND.} (\text{gate not present}))]$

This should allow luminosity counting when NORUN is in progress and when IB trips are giving a NO RUN condition but leaving the 2280 processor in an "enabled" state (within state protection against "gate fed twice" on the 2282's is necessary)

23^{25} spurious ID - alarm

23^{51} ID - Alarm spurious

0^{00} Drs Clarke and Roth Test on shift.

1^{30} new filling asked for by PLUTO

1^{40} PETRA water leak

3^{00} new filling OK. BP = 20, $\frac{3TOF}{T0} \approx 6.7\%$ with open collimators

4^{10} ! $5nb^{-1}/h$!

5^{00} IBM hung up PDA connected to IBM unit AA

7^{00} Beam lost due to transmitter failure

8^{00} Coords. Imson

8^{25} new filling

9^{20} Hochweller called because all experiments had problems with the IBM link when switching IBM last night from II to AA something went wrong

10^{00} IPL on IBM; 10 more minutes needed

10^{20} beam lost; water in mig (south)

11^{05} Magnetstrom wird eingeschaltet

11^{15} Petra wird eingeschaltet

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1GeV·LG

10/8/79

1245. All muon system HV supplies on at 5.5KV. P Murphy. But chambers & μ-crates not connected to read-out system ga.
The timer (on the left) counts always even if the computer is suspended because of 'ZBM-Busy'. It is not correct isn't it?
Run 1369 is suspended more than 10 minutes because of 'ZBM-Busy'.

16⁰⁰ Helm, Allison
16¹⁰ Beam lost. Vacuum problem & transmitter trip. Still waiting for vacuum repair man. Should not be long.
17⁰³ Filled at 6 GeV — then lost.
17⁴⁰ Stable beams (PETRA Display not working).
17⁴⁷ Run 1370 started.
17⁵⁹ ID tripped. Run interrupted. Restarted at 18⁰².

18⁴⁵ All 10 μ-crates in system, serving 270 chambers in 3 layers in 4 faces (+x, -x, +y, -y) all with volts. μ-SYSTEM GO! For remaining problems - see below. ga

18⁴⁴ NORD50 BUSY. (Not correlated with μ-system. μ-system has been in for ½ hour.)
20⁴⁴ ID tripped.
20⁵⁰ -u- beam lost. Water hose broken - being fixed. ½ hour - 2 hours.
20⁵⁶ Run ended.
22³⁰ RF from Linac is down.
22⁴⁹ Started μ-cosmic run.
23⁴⁰ ID tripped just after run start.

μ-system status. As stated above — μ-system GO. But:
a) 20/270 chambers disconnected for various reasons — most will be fixed in shutdown.
b) 2 "noisy" readout channels giving rise to SPURIOUS HITS — see hard copy on display terminal.
c) chambers not "plateau'd", ie. efficiency not measured but expected to be "good".
d) Most noise problems cured, but some crates seem noisier than others - see hard copy. ga.

LG≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	∫Lat RUN	∫Lat EXP	IBM TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

0⁰⁰ Kris and Felst to shift

1⁰⁵ JOAS Error 000054 (Oct) Subsys 000003 Task 1

4⁰⁰ disk/drum transfer error, Nord does not react on any command (not ESC) but still reads events keeps in displaying drawing event

08.00 Helm/Clarke

8,45 Last two runs had N50 problems, on doing 'EXIT' got following message :-
- PARITY ERROR - AT 061400
061400/000000061434 STOP 061434
LAST START ADDRESS: 061401
⋮
No message on line printer.

9¹⁵ Run 1386 and following ones: ERROR 44 SUBERROR 505. (ie problem on crate 5, branch 5)
Tried to go off-line, power off, DLB removed, changed Crate controler; still error 50 5. Phoned Eisler and then took crate 5 branch 5 out of readout.
Changed LAM grader. After taking DLB #42K out the system is working again.
10⁵⁰ We run with 1 DLB disconnected (run 1397). DLB will be replaced this afternoon.
11²⁶ beam lost. water tube broken (PETRA)

13.00 * Small, but steady, leak on one of the heatshield flowmeters (Designated 5, 3rd from left) also water beginning to appear a little "mucky" - needs to be checked occassionally. Leaking from lower seal.

16⁰⁰ Minowa, Cords
Petra announcement: no beam for the next 2 to 3 hours (vacuum problems)
16⁵⁰ " " : vacuum problem in LINAC II more severe than expected
→ maybe then will be no positron "this" shift
21¹⁵ " " : no positron until tomorrow morning!

12.8. 0⁰⁰ Felst, Drumm on shift * turned magnets off *
7⁰⁰ data-taper went crazy, turned off

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACCEPT POSTPULSE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF $\otimes$ ≥ 1 GeV·LG
1380	11.8.	4.56	4.58				17	101								
1381	"	5.00	6.11.	8.1	7.3.		4092	12718.	1064	103.	961.	3470.	3457	10760.	4592	5425
1382	"	6.13	7.32	7.3	6.6		4528	11090	1178	80	1098	2635	2624	9409	4040	5005
1383	"	7.34	7.37	—	—	—	—	212.	—	—	—	—	—	—	—	—
1384	"	7.45	8.32	5.3	4.8		2754	5156	717	33	684	1120	1115	4359	2190	2071
1385	"	8.36	8.39	—	—	—	—	199	—	—	—	—	—	—	—	—
1386	"	9.13	9.14	~~7.1~~	~~7.7~~	~~4.5~~	—	185	—	—	—	—	—	—	—	—
1393	"	9.59	10.23	7.9	7.7	45.10^{-9}	1445	4545	376	33	343	1109	1104	3736	1439	2124
1395	"	10.31	10.35	—	—	—	—	491	—	—	—	—	—	—	—	—
1397	"	10.53	11.26	6.8	6.4	-	1633	3740	424	25	399	879	875	2910	1347	1457
1398																
1399																
1400																
1401	17.8.	17.23					COSMIC RUN									
1402	"	18.08														
1403																
1404	"	18.37	19.14													
1405		19.15	19.31													
1406	18.8	19.56	23.27	cosmics		-	12690	3506								
1414	8.9.79	18.04	19.38	—	—	—	5669	16008	5.922	0.432	5.524	156.80				
1445	10.9.79	5.17	6.42	—	—	—	5082	516	6.783	0.786	6.033	472				
1446	"	6.46	8.20				—	225	—	—	—	—				
1447	"	8.34	9.24					344								
1448	"	9.24	14.51				19588	2408	20.625	1.053	19.706	2247				
1449	"	14.57	14.57				72	15								
1450	missing															
1451	"	15.08	15.11				196	26								
1452		15.12	15.37				1233	163								
1453		16.02	18.23				9328	1010								
1487	20.9.79	13.37	18.39					300								
1488		(9.59) 11.25	11.34					1066								

LG $\geq$ 4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int$Ldt RUN	$\int$Ldt Exp	IBM TAPE	B.P.	SHz×SPz	SHz×SPz ACCI	
				260.9					Nord 50 hung up
706	1204	1.0	4.30	265.2	IBM	1.0.	3871	40.	Nord 50 " "
644	1002	0.81	3.67	268.8	"	1.0	3279	10	NORD 50 " "
—	—	—	—	—		—	—	—	NORD 50 " " {on typing EVENT DISPLAY}
328	453	0.58	1.61	270.4	"		1429	2	NORD 50 hung up
—	—	—	0.05	—	—	—	—	—	beam lost
—	—	—	—	—	"	—	—	—	DL8's crate 5 branch 5 not in readout.
279	501	1.19	1.85	272.2	"	-	1650	15	DL8 0 42X taken out
—	—	—	—	—	"	—	—	—	
247	482	1,03	1.80	274.0	"	-	1587	2	Beam loss, water leak
									COSMIC RUNS, SYSTEM FAULT ↳ runs do not exist
									All histograms and Ps. Run stopped by accepted events reached and by NORD as expected & long after Run started - trigger in trigger cave not being inhibited
									μ-cosmic run
					IBM	—	—	—	IBM transfer, Cosmic Rays through Inner Detector, B=0, Nominal Voltages
					IBM				Cosmic Rays through Inner Detector, B=0, Nominal Voltages, TOFs 5-18 and 24-38 off
					IBM	ended by break down of syste			" " " "
					IBM				" " " "
					IBM				" " " "
					IBM				same conditions. Three very short Runs
					IBM				ended by IBM down. Cosmic as above
					IBM				" "
					IBM				Inner Detector Pedestal Pulser old gate length
					IBM				Cosmic Ray, B=0. New gas, New HT, New gate length !

Reduced azimuth eff.

continued on page 14

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG

10

08.00 Helm/Clarke

No beam.

* i) Main magnet & compensators switched off.

(ii) DL8 ϕ 42 x not in system

(iii) Trigger is set for μ-chamber cosmic test – H. Prosper should be back later. – has been changed back to main trigger

15.48 King + Hassard set cosmic muon run

16:00 Cords/Minowa on shift

Still no beam.

12.8.79

0⁰⁰ R. Felst, A. Wagner

We come and go: certainly no beams during this shift. Linac has severe vaccum problems.

13.8.79

8⁰⁰ R. Eichler no beam till Wednesday. Call at noon again for new prognosis.

9.50 A.A. Merlitt + J.N. Mills

Canac crate in rack 22 (T.f. Siemon, RHEL 02112)

emitted smoke & was switched off.

14.8.79 no beam till Wednesday evening. Take faulty module out of canac crate Rack 22

15.27 No beam, tonight.

21.11 One of the canac crates to the right of Forsbach's box gives an overload when Forsbach is switched to T1 & T2 (Good postpone, T2 Good accept. Goes away on T2 NO override ! JNM (ONLY ON low trigger rate!)

15.8.79

12.00 LINAC off till Friday

18.8.79 19.25 Prosper, King, Hassard set up cosmic run. All μchambers were turned off when we arrived. Events written to IBM. Exp 6, RUN 1406 TIME 19.55.55 DATE 18/08/79. μ-canac crates were out of step at run start ... put back into by removing reset temporarily. No missing xponse message! Unable to get display system to display.

23.27 stopped run #1406

19.8.79 MILLS, Rebuilt event display linkack now

11.50 Methane supply turned off

20.00 μtrigger disconnected

LG≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

11

8.9.79 Test of Inner Detector with Cosmic Rays

Field B = 0

Chamber Voltages : Nominal values as in July / August runs

Trigger : (2 TOF / Matrix (width = 6)) * Coll 2 TOF (width = 3) Rate : ~2.8 Hz

Delays

Latches	Delay	Width	
BP	761	702	Ecles
TOF	725	960	

cf. also Logbook I, p. 106, Run 733

Delay cable TOF → ADC-Start shortened

Test Program F08

Readout Pattern 70610B

Default Trigger Source No

Trigger Source 2

Trigger Action Override ϕ

Missing wires: 256 - 271 dead cell 17 Reg 1

744 - 751 bad DL8 (#93)

and 4 "singles" and 4 "weds" (in bits).

Run 1414 18.04 - 19.38 16008 events

10.9.79 Continuation of the Test of the Inner Detector with Cosmic Rays

Same conditions as above (on this page),

but TOF's # 5 thru #18 and # 26 thru # 39 taken out of the Discriminator / Latches

→ Selection of "horizontal" Cosmic Rays. Trigger rate ~0.096 Hz

Run 1445 started 5.17

stopped 6.42 No Events accepted any more, Reason?

Run 1446 started 6.46

stopped 8.20 Nothing does move. Scalers are on 0, Color TV black, Stop is possible, but nothing else

Reload N50

Run 1447 started 8.34 Stopped 9.24 to set flag for background program (BV)

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPROJ $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF ⊗ ≥ 1GeV·LG

12 10.9.79 cont'd

Run 1448 same conditions started at 9.24, stopped at 14.51

Runs 1449, 1450, 1451 Three very short runs. Problems with wrong indication on the Color TV, after Mr. Cords has increased the NO EVENT FOR .. SECONDS peep to 30 sec.

Run 1452 started at 15.11 ended 15.46. IBM down
Run 1453 started at 16.02
Twice I get the whole screen (Tektronix) full of
15 non increasing vme number 1014 659 727 . (Lamps on Nord 10 continously)
Cured by F1, F12 etc gymnastic
Run stopped at 18.23

End of Cosmic fiddles under "old" conditions

Romberg

16.9.79 Petra Luminosity measurements
07.00 Petra has vacuum leak – back on about 13.00
15.00 Petra Magnets on
18.00 1st Luminosity
Jade Magnets Compensators off – Expert to repair Magnet powersupply tomorrow (17.9.79)
20.00 Luminosity Logic is now running ungated – Reals + Accidentals
also temporarily the rates 13.55, 25.65, 35.75 and 45.85 are scaled to PKK
Energy is 5.985 GeV.
20.20 Lat present is ~ 8×10^{27} Jade 4.9×10^{27} Pluto ~ 6×10^{27} Mark J
rate is ~ 0.02 Hz. (SMZ*SPZ)
21.30 Nim Crate at top of Rack is found tripped off O/L would not reset. switched off.
Power Supply replaced but same fault.
23.30 PKR running E_{petra} = 5.990 ~ 1ma / bunch $L \sim 7 \times 10^{27}$ Jade sees ~ 1.2×10^{28}
Pluto monitor not functioning due to gating problems.
EHT control for tagging glass given to PKR

17.9.79
08.30 Refilling Petra.

LG ≥ 4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int$Lat RUN	$\int$Lat EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

18.9.79. 13.55. Herr Kessler – Methane is now added to the Argon gas for the Mu + tagging Chamber

FRIDAY, 21/9 RING OPEN FROM 7 – 12h
In this period I would like to make a Cosmic Ray Run with the Inner Detector Rimberg

RUN 1454 ~ 1485 IBM-XFER LG Xenon calibration

20.9.79

Run 1487 Inner Detector Pedestal Pulser. Old gate length. ~125nsec

21.9.79

Cosmic Ray Runs. New Gas, New voltages, V34 gate length 100ns (was 120ns till yesterday)
Trigger and Program as on page 11. Timings readjusted by H Knöbel

Run 1488	1066 events to IBM	Magnet aus!
Run 1489	~5961 " " "	all runs terminated by some NORD failure
Run 1490	~15000 " " "	
Run 1491	9797 " " "	

At the end of the last run B. Naroska changes the voltages of the TOF counters to equalize the pulse heights

Runs 1492, 1493 Pedestal Pulser Runs 1492 only branches 4+5
1493 all branches.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF $\otimes$ ≥ 1GeV·LG
14																
Run	Date	Start	Stop	I^+	I^-	Vac $\times 10^{-9}$	Time (sec)	NORD Evts. acc.	All Trigger $\times 10^6$	T0 Reject $\times 10^6$	T0 Accept $\times 10^6$	T1 accept + postpone $\times 10^3$	T2 reject $\times 10^3$	T2 accept	T2 collin.	T2 ≥ 2 TOF $\otimes$ ≥ 1GeV·LG
1489	21.9.79	11.55	~12 32					5961								
1490	"	12 39	14.15					~15000								
1491	"	14.15	15.13					9797								
1492	"	16.57	17.06					320								
1493	"	18.49	18.52					502/2								
			EXP #						7							
1497	22.9.79	23 03	23 30	3.8	3.6	2.5/5.5		1004	397	5.9	391	309	308	770	266	528
1498	"	23 32	0.44	3.0	3.0		4308	~2200	1120	14.6	1105	~~1750~~	563	1750	—	—
1499	23.9.79	0.54	1 29	2.0	2.0			935	385	29.0	356	6875	6874	501	223	~~276~~
1501	"	3.42	4.18	4.8	4.5			1564	482	11.9	470	166	165	1206	341	820
1502	"	5.05	5.28	5.7	5.8			1462	341	9.8	332	164	163	1164	262	897
1503	"	5.28	7.35	5.1	5.2			5633	1950	31	1919	662	657	4158	1268	2786
1504	"	7.37	7.57	3.9	3.1			617	266	3.0	263	55	54	430	~~138~~	278
1505	"	7.59														
1506	"	8.14	8.18	2.6	2.7			84	45	0.4	45	8	8	60	23	38
1507	"	8.21	8.35	2.5	2.6			414	196	2.2	194	42,8	42,4	289	111	276
1508	"	~~8.26~~ 8.37	9.25	2.3	2.4			1628	511	9.1	502	511	508.9	1407	1047	411
1509	"	9.26	9.49	2.0	2.1			991	337	5	332	307	300	867	705	764
							New	filling								
1511	23.9.79	12.15	12.39	5.7	6.0			2467	366	16.4	350	1407	1405	1997	1118	889
1512	"	12.40	14.14	3.7	3.8			7726	7431	49	7381	3618	3610	6488	3663	2976
1513	"	14.14	16.35	3.4	3.6			7923	2058	~~46~~	2009	2754	~~2746~~	6553	4533	2318
							New	Filling								
1515	"	19 00	19 30	~~4.8~~	4.8			1916	415	11.4	403	1518	1517	1545	1072	510
1516	"	19 30		3.8	3.9			569								
1517	"															
1518	"	19 45	20.08	3.5	3.6			1863	372	10.8	362	1028	1027	1563	863	755
							New	filling								
1519	"	21 05	21.20	6.7	6.7			3024	220	7.5.8	144	787	784	2017	578	1478
1521	"	21.24	23.10	6.0	5.9			13418	1494	92,3	1401	4706	4693	10353	4201	6533
1522	24.9.79	23 20	0.16	3.5	3.6			4334	835	25.5	810	1421	1417	3582	1917	1813
1523	"	0.16	0.34	~3	~3			1059	245	5.6	240	335	334	~~848~~	519	366
1524	"	0.16	1.06	2.7	2.7			1460	456	7.8	448	545	543	1281	984	313
15[illegible]	"	1.09		2.4	2.4			195	65	1.0	64	70	70	170	129	46

LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	$\int$Ldt RUN	$\int$Ldt Exp	IBM/TAPE	B.P.	SMZ×SPZ	SMZ×SPZ Acc	
LG≥4GeV	Lumi	<L> 10^{30} cm^{-2}sec^{-1}	$\int$Ldt Run	$\int$Ldt Exp	IBM TAPE	B.P.	SMZ×SPZ	SMZ×SPZ Acc	15
					IBM				Cosmic Rays through Inner Detector Run stopped by error (power off)
					IBM				"
					IBM				"
					IBM				Inner Detector Pedestal Pulser CAMAC Branches 6 and 7 off
					IBM				" " " " All CAMAC Branches on
138	92	0.29	0.44	0.44	IBM	1.1			ended by program hanging, $\int$exact machine energy = 15.250
348	~~[illegible]~~	0.18	0.77	1.21	IBM	1.0			NORD hang-up, no run sheet NMR reading = 2.6503
92	10	0.07	0.12	1.33	IBM	1.0			~~NORD~~ Petra wants new filling, defect in duktivity
159	177	0.48	0.91	1.24	IBM	~10 2			new filling, beam lost: RF fake $\int$ = 15.250 NMR = 2.65045
138	163	0.63	0.83	3.07	IBM	2.4 (2.3)			new filling $\int$ = 15.250 NMR = 2.6503
~~766~~	712	0.47	3.50	6.57	IBM	1.2			
81	50	0.23	0.24	6.81	IBM	1.0			
		0.19	0.08	6.89	~~IBM~~				
17	8				IBM				Stop because of NORD hang up
55	26				IBM				Stop because of NORD hang up
183	53				IBM	0.8			" " " " "
252	193	0.67	0.94	7.83	IBM	1.2			Stop because of NORD Hang up du. Ev. Dipl. NMR ~~Read~~ Reading 2.65035, Ener = 15.250 GeV
717	483	0.43	2.34	10.17	"	1.0			Stop because of NORD Hang up
790	316	0.19	1.51	11.68	"				
135	130	0.38	0.6	12.28	"				runs ended by Nord shutdown
175	86	0.29	0.42	12.7	"				
314	114	0.64	0.54	13.24	"				ended due to NORD hangup (Run 1520 stopped - same reason)
2168	640	0.55	3.13	16.37	"				stopped due to NORD hang up
595	182	0.28	0.91	17.28	"				"
170	42	0.22	0.21	17.49	"				"
126	38	~~0.19~~	0.28	17.77	"	0.8			
20	6	0.12	0.03	17.80					stopped due to new filling

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 ToF & ≥ 1 GeV LG

LG ≥ 4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int$Ldt RUN	$\int$Ldt Exp	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

21.9.79 **Start of the Run Period** September 21 to October 10, 1979

15^{20} PKR asks for Freigabe for injection

1530 Voltages of TOF counters adjusted according to off-line inefficiency.

15 45 Pfister here T. Kobayashi

20 30 Possible stable beam PKR to inform Beam was down soon.

22 [illegible] stable beam. PKR wants to know our luminosity value

23 35 Obtain $\mathcal{L}$ measurment! $\mathcal{L} = 0.85 \times 10^{30}$ 615 mA + 417 mA.

$\{\mathcal{L} = SMZ \cdot SPZ \times 5 \times 10^{27} \times (E(GeV))^2\}$

TØ und T1 - Setting: The Bunch Pickup has now a new Dial-Controlled attenuator. (It needs a fixed 10 dB attn. in Front of it). Delaybox is set to 43 nsec. If there are inconsistencies with green-yellow-red lamps, try to wag the cable connections. there may be bad ground contacts. T1-Delay has been set according to: TOC start versus DL8-start at Card outputs (T1 forced postpone, T2 reject) 315 nsec. The Dial setting is again different: 658. A monitor scope was installed which monitors TOC-Start vs. Fast Clear at Fanout Output. [illegible]she. The delay should be 240 nsec. (T1 is correlated with Fast Clear). Do not forget to watch it!

The anti in the ToF-Collinear-Postpone-Coincidence is now set to Not greater than #4, ≥ 5 = Not (Greater or Equal 5) (Suggestion of Naroska)

23^{00} error 56 happend every event. One TDC-start cable was found loose.

Gate Delays for BP } ADC
TOF } Latches newly set (by scope)
At
New Dial settings ADC-BP 530
ADC-TOF 580 } Delay
Latch-BP 790
Latch-TOF 770 — changed to 788 before Run 1508

Note that for latches the leading edge of Single inputs should come in the center (or slightly earlier) of the Gate Pulse

Not so — did not see stable enough beam! did not start to count on Trans Detects or Ph Sphere el. yet. 17

22.9.79

Graveyard Shift. Takeda and O'Neill

01^{40} G. Hughes also here tuning luminosity monitor. Herr krabiel believes trigger now ok. Background very high: 60% dead time from T1. Jet chamber off. Control room working on adjusting PLUTO collimators - tedious business for some reason. They will get to our collimators sometime. Meanwhile they are all the way out.

02^{39} Rates have been unacceptably high so far all shift: 35 - 60%. dead time from 1 GeV, 2 ToF and 4 GeV L.G. only, and not much improvement if end caps are switched off. Now PKR asks other experiments for Freigabe. Notice to my horror and dismay that we have had Freigabe switched in all along! Previous shift forgot to veto. Please be careful with this! No harm done. No injection has taken place.

02^{52} Camac error during magnet reading. Acknowledge and allow more errors as per instructions.

04^{12} Beams again. Now 50% dead time caused by 4 GeV + 2 ToF 1 GeV. However Σ beam pipe signal down to 2 v. Last fill 8-10 v. Takeda says nothing wrong with L.G. with End Cap only now:
Very Funny. with End Cap Hvs only on 1.2% dead time.
Takeda has found ringing analog mixer output of 1 48 channel unit (maybe 2). This is the reason for the high dead time.
3 ToF / To ~ 2½ %. Σ beam only 1 v.

05^{15}. Turn on Jet Chamber Hv after telephone conversation with H. Riesebieter. Takeda still looking for trouble in L.G. electronics.

05^{28} Takeda finds 4 bad 48 channel units. Needs ~1 hr. to repair. Turn off all Hvs incl jet. chamb.
↳ NaI channels were linked !! scheiße (Hardware was OK)

~07^{00} Get LG system repaired. Now cannot start because we got no T2 accepts. Call „Große Trigger Expertin B. Naroska." Sie kommt.

08^{00} Sie arbeitet noch. Diese Nacht hätte (ich (LBO)) ruhig schlafen können.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥2 ToF ⊗ ≥1GeV·LG

8[00] P. Steffen + H. Riesberg on shift.
B. Naroska works on the trigger. B. Eidler is called for computer problems.

9:30 T2-readout problem. Camac unit was in wrong slot
T2 is ok now

Two magnet trips at about 9[15], which cured itself, and at about 9[30], which was cured by people from MKK

10[10] Begin of beam steering, Mr. Fabi watches in the PKR
Currents only e^-: 2×0.7 mA, e^+: 2×0.7 mA
BP rate (indication was increased by factor 3 since August) 0.9 ÷ 1 Volt.

Check of the N50-Histograms: - 1 ToF counter noisy: -Z #15
- LGSUM: strange vpeak above 200

10[20] Beams lost.
Plans of PKR:
Orbit correction with e^- beam. The deviations were quite large till now.
e^+ beam will be available only later after installation of a new water pumps in Linac II

13[45] e^- beam 3 mA. Start with orbit corrections. — They do not need our BP-counter rate

16[00] hrs Kobayashi + 1 Duerdoth on shift.
orbit corrections finished, water pump installed — problems with P.S.A.
20[00] Positrons back again. They are trying to inject both beams.

22[20] Stable beam reported.

	B.P.	ΣToF/All trig
collimator out	2[V]	1.6 [%]
10 turns in	1.6[V]	1.2
13 " "	1.1	2.6

23[00] try to start taking data
23[30] program hangs. restart.
24[00] Observe that all gas flow to the Muon chambers and trigging chambers has stopped. Try to get help. - arranged to phone H Kessler at 8.30 in the morning.
01.30 Gas flowing again — it was a power failure to the compressor + this is now going again

24[h] HELMI, YANAGISAWA

LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	∫Ldt RUN	∫Ldt Exp	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

1[40] Trigger rate TAG(OR)·1track and TAG(OR)·LG>2GeV are quite low. Called G. Hughes to check timing.
4[30] Tagging + Lumi Trigger latch Delay reset. [OLD values Delay 925 width 960]
New Delay 858, Width 960 — Trigger latch
Latch delay for Scintillators/PbGlas 758 delay width 750

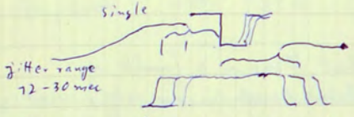
6[00] There are some events with trigger 1001B, which apparently show no track and therefore should not have the 1. bit on. That is not true. The event was accepted by T1 (1000). Inadvertion T1 postpone was set by 2 ToF w LG 1GeV B.N.

7[40] Run 1503 and 1504 were stopped because hang up during event display. Event display shown on scope accompanied by continuous acoustic signal. No further events were accepted.

8[00] Run 1505 some ADC modules of LG are noisy.
Ebt sometimes became negative ?!

8[50] Trigger Modification at Start of Run 7508. ToF-Collinearity ~~we~~ width has been zero thus far. (Only directly opposite counters admitted.) Width is changed to 3, i.e opposite ± 3, or if counter 1 has fired, it gives a coincidence with any of ~~1-25~~ 19-25.

~~ToF Gate~~ ToF Latch-Gate slightly delayed. Width is 63 nsec. ~~Latch~~ Gate-Delay-Dial setting now 788, Scope-picture: Trigger with ~~1~~ Single Input, ~~2~~ View Single Input + Gate
Same length of cables from Latch



This was to allow for slow particles into Trigger.

9[26] wire # 800-815 no hits, W34 2.3 -12V fuse burned
12[00] Duerdoth comes, says he will look after μ chamber HV-Power etc
12.37 Lead glass Σ-Pulse Pedestal was 20 mV. Thresholds of Tot. Ener. Trig ~~the more~~ have been adjusted.

16[00] Clarke ~~Steffen~~ on shift.
16[31] between run 1497 - 1513: W34 "4.1" and "11.2" on gain II, changed for next run. Emmerich
16[30] stop run, beam steering on request of Mark J for ≤ 15' before next filling.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTTRGVE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 ToF ⊗ ≥1GeV·LG

23/9 LG - Barrel ADC module for blocks ≈ 390 - 430 firing in 95% of all triggers with high pulse heights

From Run 1514 on: highest LG threshold changed to $E_{beam}/2$ (7.5 GeV)
Since it is not used by anybody else, I use it for event selection.
PD.

18⁴⁵ beam back again

Low currents (2mA/b) and low lumi ($0.4 \cdot 10^{30}$) and low rate (1 Hz)
PKR claiming that Pluto is happy with the filling
PLUTO says they switched on at 18 41 and had $L = 3 \cdot 10^{30}$
then up to 19⁰³ they accumulated 2 nb⁻¹ !
at 19¹⁰ they had $L = 0.7 \cdot 10^{30}$
we switched on at 18⁵⁷ and got up to 19⁰³ 0.3 nb⁻¹ !
at 19¹⁰ our $L = 0.4 \cdot 10^{30}$
Conclusion: the luminosity seems to drop in the first 1/4 hour by a factor 3
but the currents only by 20%
19⁵⁰ talking again with PLUTO : $\int L$ 3 nb⁻¹ L at 19⁵⁰ $0.7 \cdot 10^{30}$
WE $\int L$ 1.2 nb⁻¹ L " $0.4 \cdot 10^{30}$
TASSO ? L " $0.6 \cdot 10^{30}$
The Luminosity did (almost) not change between 19¹⁰ and 19⁵⁰
20⁰⁸ ~~beam dumped~~ ped. run/filling requested by Pluto
20⁴⁵ beam back again.
chamber alarm when trying to switch on chambers.
21.00 P. Hennont called in - sorted out problem - says that there is a fault on the EHT logic box, probably input discriminators ~~data~~ levels incorrect, reset manually on EHT unit.

22.20 Pluto $L = 11.2 \cdot 10^{29}$
we $L = 5.1 \cdot 10^{29}$

24.10 The Tagging trigger rates are very low relative to the data before the shutdown. This effect seems to be computer dependent. Further investigations tomorrow 24/9/79.
At present the indications are that the "Lumi" measurement does not suffer

LG≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

from the same problem. at 24.00 Jade Lumi = 2.9×10^{29} Tasso ≈ 4×10^{29} — GH

24.9.79
0⁰⁰ – 8⁰⁰ Yanagisawa & Yamada

1:10 During the run 1525, which is very short, the beam orbit was changed to ~~reduce~~ reduce background for PLUTO. no visible change to us.

2⁴⁰ ~~A~~ A trouble with the IBM link. Tried again.

Since the run 1522 the error 'JETC ILLEGAL ADC VALUE' happens very frequently.
#ob Error/accepted events ≈ 1 as seen in the ~~counter~~ scaler print out.

6⁰⁰ NORD hung up occurs too often: ~~it always happened when the~~
Please check first, if trigger box is not on stop. If yes, press "run" without restart of Nord.

8 00 Foster here / Eichler here.
9 15 Tasso called. They have up to now 16 nb⁻¹. We have 22.3 nb⁻¹.
12 42 Call from PKP : Filling is ready

12⁵⁴ ZDAS gone : RT ZDAS → ILLEGAL PARAMETER
13 26 Beam gone - switch off everything.
14 25 Stable beam. Start run 1537.

15.00 L. Comparison Jade $0.83\,10^{30}$ Tasso Pluto $1.1\,10^{30}$ (instantaneous)
$\Sigma \approx 22$ $\Sigma \approx \frac{46}{50}$ nb⁻¹

Very low trigger rate (≈ 1 Hz) at 0.9×10^{30} lumi. Check all triggers and find no error.
Pluto has collimators out. Tasso also observes a very low background rate.

16.00 NOZAKI & Bartel

Lemont authorized list of dead wires
57, 279, (276), 370, 414, 806, 889, 1106, 1371
cable wanted
DL8

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG	LG≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

22 RUN	DATE	Start	Stop	I^+	I^-	Vac ×10⁻⁹	Time	Nord Events acc.	All Trigger x 10⁶	T0 Reject x10⁶	T0 Accept x 10⁶	T1 Accept postpone x10³	T2 Reject x10³	T2 Accept	T2 Collin.	T2 ≥2 Tof ⊗ ≥1 GeV Lm
	24.9.79					New filling		(1^{15}	-2^{20})							
1526				7.0	6.8	24/55										
1527	"	2³⁹	2⁵⁴	6.8	6.8				240	18.6	222					
1528	"	2⁵⁵	3⁰⁶	6.0	6.0			1405	156	10.9	145	2620	2618	1146	599	580
1529	"	3:07	3²²	5.7	5.9			1725	216	14.7	201	3322	3320	1404	789	676
1530	"	3:23	4³⁰	5.3	5.4			6714	1036	49.5	987	12511	12505	5570	3292	2430
1531	"	34:31	443	3.9	4.0			876	169	7.0	162	1637	1636	747	501	260
1532	"	4:44	455	3.7	3.8			776	149	5.5	143	1328	1327	624	414	249
1533	"	4:55	537	3.5	3.5			2758	580	19.7	560	4635	4633	2373	1619	821
1534	"	541	558	2.7	2.6			968	245	6.4	238	1455	1454	828	557	292
1535	"	558	603	2.5	2.5			219	61	1.4	59	339	338	186	142	46
						New Filling			(6¹⁰							
1537	"	14.35		7.3	7.3											
1538	"															
1540	"	16.21	16.45	4.3	4.3			2596	359	19.7	339	2418	2416	1983	1006	1051
1541	"	16.47	17.54	3.9	3.8			4685	989	49.2	939	5214	5213	3854	2463	1475
						New Filling										
1543	"	19.57	20.35	7.2	6.9			4863	582	38.1	544	4780	4776	4024	1952	2124
						New Filling										
1545	"	21.53	23.17	7.1	7.5	24/57		10643	1192	797	1111	7157	7147	8631	3906	4769
						New Filling										
1547	25.9.79	1.44	2.57	6.5	6.5			7315	1111	50.1	1061	3917	3909	?	3063	2862
1549 – 1556	Testruns															
						New Filling!										
1558	25.9.	7.10	7.12	7.0	7.0			87	7.3	0.47	6.8	39.5	39.4	61	32	32
1559	"	7.12	9.19	"	"			871	87.9	5.3	82.6	459.4	458	666	341	359
						New Filling										
1561	25.9	8.51	8.59	6.9	6.8	24/55		1266	107	11.2	95.9	369	368	885	344	575
1562	25.9	9:01	11.02	6.9	6.8	24/55		9710	1896	69	1807	4190	4180	8279	4936	3488
1564									never empty bunches, other many events							
1567	25.9	11:49	13:29	3.1	3.1			6351	1646	39	1606	1763	1758	? (2434 40 158)	3513	1854
						New Filling										
1493/4	26.9	~~1.50~~														
1566	25.9	19.50	19.55	4.0	4.0		298	374	~~7.78~~	~~2.39~~	74.98	405	405	316	201	128

LG ≥4 GeV	Lumi	<L> 10^{30} cm⁻²sec⁻¹	∫Ldt Run	∫Ldt Exp	IBM/Tape	BP	SH2+SP2	SH2+SP2 Accid.
		—	—			1.9		
137	92	0.77	0.46	18.26	IBM			
155	108	0.76	0.63	18.89	"			
669	427	0.52	2.06	20.95	"			
28	51	0.39	0.25	21.2	"			
75	47	0.39	0.22	21.42	"			
261	131	0.28	0.63	22.05	"			
100	42	0.21	0.20	22.25	"			
24	9	0.17	0.04	22.29	"			
420	107	1.37	0.52	22.81	"			
495	218	0.27	1.03	23.84	"			
423	387	1.85	1.91	25.75			1681	2
1161	825	0.86	3.97	29.72			3414	4
679	625	0.72	3.06	32.78	IBM	1.8		
6	5	0.96	0.03	32.81		1.7		
68	72	1.04	0.35	33.16	"			
292	77	.45	.39	6.79 ~~35.55~~				
808	824	0.55	4	4.39				
938	230	0.18	1.18	5.53				
35	16	0.27	0.08	5.61	IBM			

23

Energy = 15.25 , NMR = 2.65030

could not start. Trouble with the IBM Link.

* Lum. mon. H.V was not on. cancel! 15 min. less!

Stopped due to NORD hang up

"

"

"

"

"

"

// too often!! cheeky!

junk

~~Restarted~~ 2 bunches NORD hang

IBM 809 -20 counts → RECOVER. STOP and re-Beam dump.

E_B = , NMR = EV Rate = 2.8 Hz

beam lost

I_{e^+} = 2.5 nA/bunch, I_{e^-} = 3.7 nA/bunch, 2 bunches E_B = 16.2 t

Beams lost

Color-TV not updated

" " " , Beams lost

ENERGY 15.26

NMR 2.65201 (90°)

NIO is completely stopped

Need large spin. No print out available.

← wrong runs & exp-no. 1493/4 & 6 : CANCEL TAPE

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ≥1GeV·LG

17 53 Stop run 1541 new filling requested

19 47 new filling

19.58 #1543, Run start

20.34 brauss tool Stops Run 1543
due to power failure

21.53 New Run # 1545 start
Ev Rate ~ 3.0 Hz.

There are about 100 noisy lead glass channels in the barrel we have to do something about it during the next shut down.

23.55 $I_{e^-} = 5.4\,\mu A$ $I_{e^+} = 5.1\,mA$ Event rate = 1.5 Hz $AL = 0.9 \times E30$
23[00] Many chamber trips

23 20 ~~Beam lost~~ $I_{e^-} = 3.2\,mA$, $I_{e^+} = 2.3\,mA$. That's what is left after a major beam loss.
Ask for new filling

25.9.79

1.40 New filling BP ~ 15
3TOF / 10^6 T_0 acc = 28 K
Adjust collimators, Leadgl threshold start run

2.57 Beams lost due to Sandwarmfall
3.30 Call from PKR: they now have problems with magnet currents.
4.30 ~~Test~~ Vacuum problems

5.30 Runs 1549 - 1556 are calibration runs for TPC's (30 sec. each)
6.05 Message from PKR: All faults have been cured. But the interlock at March 1 is broken. It needs the Petra computer to be set-up again. At this moment the computer went down and can't be restarted. Expert has been called.

LG≥4 GeV	LUMI	<L> $10^{30}\,cm^{-2}sec^{-1}$	∫Lat RUN	∫Lat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

7.25 Finally had beam again. It was lost after ~10 min.
During the few events we took the Color TV was not updated.
Therefore restart Nord.

8[00]. 25.9.79 I. Duerdoth & Lumi on shift

8:39 PKK say stable beam. BP ~ 17. 3TOP/10^6 T acc = 30 K
8:50 Run 1561 started. 15.26 GeV.
8:56 Hang up: – Run stop button on trigger box has come on, press RUN start button & off we go. – Yes H.K (Was it because I changed the attenuator while in run?)
JPAS ERROR 00047 (OCT) SUBERR 00303 (OCT) TASK 2
Run is stopped by the above error
8:59 Run 1562 started
Tektronix is under repairing. We can not watch the event displays.
9:? Tektronix begins working again.
10:30 JPAS ERROR 00056 (OCT) SUBERROR 000292 (OCT) TASK 2 occurs
yet the data gather can be continued.
10:55 JPAS ERROR 00047 (OCT) SUBERROR 00302 (OCT) TASK 2 occurs 1563 events
11:33 computer hangs up, power lamp of the computer N10 is broken. It is (confusing and should be repaired as soon as possible, only stopped, nothing worked.) *
we have nothing to do but to restart the system. When we restart the system and run JDAS, " run 1564 in last" is printed.
11.40 start run 1565
11:56 JDAS ERROR 00047 (OCT) SUBERROR 000302 (OCT) TASK 2

12:33 Pluto begins to steer the beam orbit. But we can not find any significant difference.
12:30 Observe no TAGS 7.25 eV in the trigg histogram.
12:49 thresholds of total energy are adjusted which have been higher than the proper values.
13:30 Beam lost.

14.25. Luminosity and Tagging Trigger.

1) The Sample Run Sheet from 1076 "Trigger Word" is not typical of data collected before the Shutdown. At run # 1230 the Lumi trigger rate was ÷5.
2) Runs of around 1347, 1344, ... give $\frac{\text{tags} * LG > 2\,GeV}{\text{Lumi Trigs}} \approx 2 - 5\,\%$

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG

While Run 1565 4%; 1562 4%; 1521 4% ntc — ie reasonable agreement

3) Runs ~ # 1340 give $\frac{\text{tag} \cdot 1\text{track}}{\text{Lumi}} \approx 0.5 - 1.5$ dependent on beam conditions

Runs 1565 --- 1521 Low this ratio at 0.3 – 0.6 in reasonable agreement

4) $(2_{\text{Tof}}\ \text{Collinear})/\text{Lumi}$ is compatible with previous runs. G. Hughes

14:46 There are some problems with computer. System disk may be broken and should be restored from the back up.

16:00 Swing shift Hedgecock, O'Neill
No beams, no Nord.

17:30 PKR calls. Beams available. Nord however is not.

19.45 NORD PROGRAMMES RELOADED. DATA TAKING COMMENCED.

21.50 Ratio of "BhaBha" signal from LG to Lumi Signal from tagging = 0.01213
This implies Constant for LG BhaBha rate = $\frac{6.6}{4.5} \times 10^{39}\ (\text{GeV}^2)^{-1}\ \text{cm}^2\ \text{sec}^{-1}$

21.59 Running again with new fill. 4 ma × 2 bunches / beam. Σ beam ~ 1.9 r, 3 TOF / T0 accept ~ 160 n / 3 hour = 5½ %. Decide to accept responsibility for burning up JET-chamber. 15% dead time. Triggering at 3.6 Hz at start of run.
Run 1568 just did not start for ununderstood reasons.
Runs 1569 and 1570 hang up after a few minutes. In the case of 1570 we repeatedly got "IBM busy" message and pauses of several tens of seconds. Then we finally just stopped without any IBM busy. These runs just stopped and new runs started. This works.
N.B. Run 1570 has fantastic T0 reject ratio, much higher than Run 1569 at beginning of fill. However there does not seem to have

LG≥4 GeV	LUMI	<L> $10^{30}\ \text{cm}^{-2}\text{sec}^{-1}$	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

been any beam loss. Stayed on max. atten. setting with green light still on. PETRA display shows no sudden beam loss.

Summary: I do not understand any aspect of any of the problems we have encountered, but we seem to be running.

~ 22.30 Checked L.G. thresholds. Ok.

00.00 RIESENBERG & CLARKE ON SHIFT.

26.9.79

0.20 Hedgecock and O'Neill have left with the advice to reduce calls for Nso Histograms and for event display to minimum to avoid NORD hang-ups.

0.25 SET-Petra to update beam currents and at the same time change of the attenuator (under proper operation of the buttons NO RUN, RUN). Result: All triggers are rejected.

0.27 Stop Run 1571

Next Run #1572 (indication on the Color TV is still 1571 ended) stops after 137 events! No run summary
Nothing is moving any more
Restart of NORD works at the second trial.

0.39 Run 1573 started

1.05 New filling required by Pluto

Collimators	Right inside	long way in	found when moving out
	Right outside	13 turns	
	Left inside	21.5 turns	
	Left outside	21.5 turns	

Histograms of Run 1573 more or less normal, with exception of noisy lead glass (Barrel 1 and 2)
Found that DVM was plugged into the Total Energy Lead Glass 1

2.10 New filling ready
Problems at starting NORD: Run 1574 without events.

2.21 Run 1575 started. ~ 3° readjustement of LG thresholds

4.50 Playing with event display caused the (expected) Run hang up: No events are accepted any more, Run could be stopped normally

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ≥1GeV·LG

28 ERRORS #56 in 320 and #44 in 205 are occuring from time to time

6^{30} Two times we lose a bit of beam with Alarm in chamber 18 Rng 1
$\Delta I^+ \approx 0.5\,mA$
$\Delta I^- \approx 1\,mA$

We are now down to $I^+ = 2.3\,mA$, $I^- = 1.5\,mA$, $L = 0.17 \times 10^{30}$
At the time been refilling is not possible since PETRA computer is down,

6^{49} Complete loss of e^-.
6^{55} RUN 1576 stopped.

Collimator Problem: Collimator was turned in correctly by 14 turns, D.C + H. Rdy watching.

when turning out we found

R	inside	14 turns
R	outside	14 turns
L	inside	22 turns
L	outside	21 turns

→ call for Mr. Saran

7^{30} PKR tries to get their computer working again. This will take some time,

Worried a little about lead glass histos, ~~see~~ output.

8.00 PKR are sending someone to look at collimator problem.
Morphy and Minowa on shift.
Beam is still off.
An expert is examining the collimator control.
Collimator is now repaired. Previously it was probably working correctly for winding in, but not for winding out.
Run 1577 - unsuccessful start
9.47 start run 1578. New energy 15.270 GeV.
9.53 Hangup while using events display. Stop run 1578.
Call Wagner at end of this spill. ✓
10.13 Beams lost

10.30 Last nights attempted correction to event display programs did not work since that particular 'bug' did not exist! Can only assume that the problem lies when releasing .YECOPY during ABORT-DISPLAY. Have now changed

LG≥4 GeV	LUMI	<L> $10^{30}\,cm^{-2}sec^{-1}$	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

29

programs so that ZRELT is not used. If it does now work then the bug is somewhere in the JDAS monitor. (H.E.M)

10.40 6V-powers to ID-preamps of segments 1 and 24 found interrupted due to „Nackel-Kontakt". This defect must have occured between runs 1533 and 1573. Now repaired (after run 1579). The problem caused invalid z-coordinates in segments 1 and 24 (and no dE/dx) for this period.
A Wagner
(see this defect in Multihadrons from run # 1557 to # 1579 P.d.)

11^{30} CORRECTION OF YPARA: [after Run 1579]
Tagging-system pedestals were ~~not~~ subtracted - which was not wanted - since beginning of run-period.

1200. We have been getting no signals from any muon chambers (since the start of running). Testing with a harvester chamber showed that there is a big difference between the circulating gas and gas from a cylinder of 90%Ar-10%CH_4. We call Mr. Kessler. He has increased the gas supply rate. He says that it had been set lower than before the shutdown. The O_2 content of the return gas was OK.

15^{20} There has been an elusive colour TV problem where the 'run started' msgs were not displayed even though the run had started. I believe this to have been due to a timing problem and hopefully I have cured it.
Colour TV luminosity factor changed from
+ RUN-SUMMARY

5×10^{27} to 5.4×10^{27}

as approved by Gareth Hughes (H.E.M)

16⁰⁰ DITTMANN, HELM
Beam-pipe counter #16 HV from 1.8 KV changed to 1.4 KV.
This brings background signal Σ beam-pipe counters from 10V to 1.4 V.

20^{30} 2 × 'Sonderausfall' ~~kam~~ ~~an~~ short after new filling. PKR calls somebody. will take longer.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPRONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 GeV·LG
1567	25.9	19.57	20.37	4.0	4.0		2399	2507	623.72	1817	605.55	2129	2,126.	2188	1483	742
1568																
1569	25.9	21.59	22.10	8.0	8.0		612	2226	159.22	19.83	139.39	1883	1881	1736	628	1154
1570	"	22.11	22.18	"	"		332	734	86.46	25.21	61.25	755.4	754.7	575	264	344
1571	"	22.19	0.27	3.9 stand prom	3.8	2.5/5.7	7626	13887	1984.2	99	1885	14887	14873	11642	6159	5651
1572	26.9	0.27	0.29	3.8	3.7			137	~~198~~							
1573	26.9.	0.39	1.05	3.7	3.6		1502	1906	390	12,1	378	1674	1672	1566	951	658
New	Filling															
1575	26.9.	2.21	4.54	7.7	7.6	L R 2.5/6 x10³	8992	19641	(-ve number) -1955	135	(-ve number) -2090	10952	10933	15888	7366	8849
1576	26.9	4.55	6.55	3.9	3.8	"		10286	1711	67.9	1643	3646	3636	7833	4328	3836
New	Filling															
1578	26.9	9.47	9.53 X	7.1	6.9		285	1254	74.4	13.1	61.4	479	477	716	259	482
1579	26.9	9.56	10.13	6.6	6.5		819	2363	213.5	16.9 ~~196.6~~	196.9 ~~16.9~~	1516	1514	1761	722	1129
1580 – 1587	Tests			TDC	calibrations											
1591	26.9.	16.34	16.36	6.7	6.8			551	31.8	7.1	24.7	171	170	277	95	211
1592	26.9.	16.41	18.15	4.4	4.3			~6000								
1593	"	18.22	18.54	4.4	4.3			1906	494	12.8	481	1584	1582	1670	1283	375
1594	"	18.56	19.02	3.9	3.9			325	87					270	218	58
1596	"	20.25	20.31	8.7	9.0		199	505	51	3.6	48.2	353	~~252~~ ~~185~~	435	275	~~158~~ 158
1597	"	21.36	21.39	8.8	8.6		117	326								
1598,99	junk															
1600	26.9.	22.10	22.26	7.8	7.2		836	1793	217	13.9	203	2385	2383	1588	954	593
1601	26.9.	22.57	23.38	8.1	8.1		2398	4918	623	38	585	7284	7279	4291	2656	1560
1602	27.9	2.35	4.31 5.57	7.8	7.8	2.4/6.9	6512	8688	1693	58.9	1634	8549	8540	7440	5250	1985
1603	"	6.37	9.57	7.3	6.8	"	10282	10633	-1619	68.9	-1688	9031	9020	9097	6517	2341
1604	"	9.55	10.29	3.4	3.1	"	3304	2451	860	33.1	827	1441	1439	2088	1677	413
1606 1607 1608	JUNK		TO	IBM												
											New Energy 15.280					
1605	"	15.53	16.01	7.3	05.40			327	55.8	4.5	~~54.3~~	359	359	263	211	69
1610	27.9.	16.41	16.48	7.2	6.5	–	–	453	59	3	56	462	465	377	~~259~~	101
1611	"	17.35	17.57	~~7.5~~	~~7.3~~	–		1686	230	14	215	2790	2788	1495	1031	428

LG≥4 GeV	LUMI	⟨L⟩ 10^{30} cm^{-2}sec^{-1}	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	B.P.	BHABHA	MULTIHADRON	BEAM ENERGY	N.M.R.	COMMENTS
166	160	~~0.30~~	0.73	6.34	IBM				15.26	2.65195	
											Non-existent or very short false start.
322	126	1.00	0.61	6.95	IBM	1.8			15.26	2.65209	RUN TERMINATED DURING EVENT DISPLAY READOUT.
49	57	0.86	0.29	7.24	IBM	1.6			15.26	2.65209	* Awful to reject: 30 δ_c! Run hangs up.
1039	879	0.56	4.29	11.53	"	1.2			"	"	Run hang up
											Nord hang up
212	90	0.28	0.43	11.96	"				"	"	
										~~2.65193~~	
2422	937	0.51	4.57	16.53	"	1.7			15.260	2.65199	stops due to Run hang-ups
2029	230	0.16	1.08	17.61	"				15.260	"	
									15.270		New Energy EB = 15.270
491	40	0.66	0.19	0.19	IBM	1.6			15.270		Nord hangup
459	99	0.58	0.48	0.67	"	1.6			"		Beams lost
198	15	0.66	0.08	0.75	IBM	1.4			15.270	2.65373	new filling ~~NEW~~
		0.60	3.00	3.75	"				"	"	Run-Summary lost
102	138	0.38	0.72	4.47	"				"	4	
17	21	0.33	0.11	4.58	"				"	"	702 beam lost
18	35	~~1.02~~	0.17	4.75	"				"	2.65379	Sensors are fall
		1.02	0.12	4.87	"				"	2.65378	sensors are fall
											new filling
54	146	0.91	0.76	5.63	IBM	1.6			"	2.653 80 ~~88~~	sensors are fall
179	393	0.86	2.06	7.69	IBM	1.7			15.270		new filling, beam lost
432	780	0.63	4.08	11.77	"	1.5			"	2.65380	New filling. Positron beam lost.
602	933	0.47	4.83	16.60	"	1,2			"	~~2.65379~~ 2.65379	JETC cell 13/20 signal
168	148	0.24	0.78	17.38	"				"		after this run 13 hops could on this cell replaced by again
8	26	0.64	0.14	0.14	IBM	1.2			15.280	—	16.01 beam lost new filling
13	34	~~0.76~~	0.11	0.33	IBM	1.4			15.280	—	16.45 beam lost · ~~no run summary~~ / new filling
50	128	0.77	0.68	1.01	IBM	1.6			15.280	—	new filling, 17.55 beams lost.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACCEPT POSTPRPE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF & ≥ 1GeV·LG

ERRORS ~~56 in 320~~
~~14 in 205~~
occuring from time to time

26/9/79

21^{00} The BHABHA selection in N50 seems to work (SELECT-EVNT-TYP in EVENT-DISPLAY)
Sum of runs 1561 – 1579 from run-summary print-out

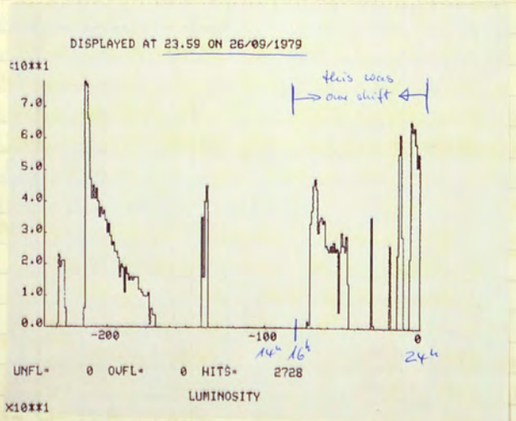
$N_{BHABHA} = \frac{232}{\cancel{232}}$, $\int \mathcal{L}_{TAGG}\frac{5.4}{5} = 19.7\ nb^{-1}$

TOTSUKA's FORMULA: $\mathcal{L} = N_{BHABHA} \cdot 0.0789 \cdot \left(\frac{E_b}{15}\right)^2 = N_{BHABHA} \cdot 3.5 \times 10^{-4}\ E_b^2 \quad (nb^{-1})$

(HUGHES's FORMULA on page 26 is slightly different)

I get $\mathcal{L} = 18.9\ nb^{-1}$ which is in too good agreement with the $19.7\ nb^{-1}$ from the Lumi monitor.

23^{00} Collimator #7 needs much more than 14 turns to be driven out when moved in with 14 turns as the other collimators. (20–80)



LG ≥ 4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int$Ldt RUN	$\int$Ldt EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMIC	ENERGY

00^{00} 27/9/79 Allison, Nozaki

00^{30} PETRA still having RF trouble, but it is "nicht so schlimm"!

01^{46} RF trouble was "schlimm" after all, but now it has been fixed. They are filling now.

2.30 Beam finally reaches 15.270 GeV.
02^{38} Run 1602 started but IBM BUSY! In a minute run starts.
0345 I_{e^-}=5.7. I_{e^-}=5.7. AL=0.72·10^{30} e^+ 2 bunches. e^+ 3 bunches
After playing event display with selection of event type "HADRON", event display ~~does not~~ work and prints the same message onto the typewriter. But histogram of all are OK.

The histograms show ~~nothing~~ that all detectors work normaly.
0412 I_{e^+}=5.1 I_{e^-}=5.1 B-P. Attenuator ~~has been~~ changed 3 times since run start.

04^{31} Beam lost. Only the positron beam was lost. PKR did not know why.

05.50 PKR There is trouble coming to the transmitter & RF. But in ten minutes they will ~~try~~ start to ~~inject~~ solenoid and inject beam again

06^{20} Beams back
5-1 ID can not be started. The alarm lamp is always on.
Wagner are coming to check. We forgot to VETO injection. (Ugh!).

6^{37} Run 1603 ~~started~~ (IBM busy). lost 2 mins

6^{55} Noticed diff in TRIGGER 2 histogram & JETC wire map.

JETC wire map ⇒ cell # 31 is dead. (all 16 wires)
$>^{09}$ Corresponding V34 box 7.2 (cell 7 ring 2) has light out. Rang Wagner again & he asks us to wait for Hiesberg.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG

8[20] Bartl & Minowa on shift.

call Saran to inspect collimators
inspect a couple of histograms look ok

Saran investigated collimator trouble:

i. Driving the collimator in by 14 turns is ok.
Position is reached to within ±.5 mm

ii. Problems occur only when moving collimators out.
Probably the friction on the transmission is too big for the motor to work against the atmospheric pressure (a bellow has to be driven out)
If the collimator is not out after ~ 30-40 turns, switch 'STRON' 'AUS' and then 'EIN' again.

iii. Tomorrow we will get TV monitors to observe collimator positions.

9[20] H. Riesberg spots the dead cell to be caused by a faulty V34 bat

9[31] Stop Run 1603 to replace V34

9[33] Start Run 1604 V34 replaced, but forgotten to plug back the T_2-trigger cable
10[25] Stop Run 1604 ask for new filling this was done after Run 1604

11[10] Magnet trip
A water hose in the power house came off.
The water in the Cu-circuit has to be replaced.
R. Marshall, Hedgcock, Billat take care of the problem
fortunately no beams for ~ 1h.

11[55] Magnet back on again

12[30] at Run start the voltages of LG/BP main power supplies and also 84 TOF powersupplies are checked. RAE.

LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

15:30 Upstream NIM-crate in rack 9 (tagging) exchanged.
Old one had got spikes on the -12 V line. HW.

15[50] Injection finished stable beams
Energy changed to 1528 without asking us!
complain with Pluto + Kohl (who is just here)

15[53] Start Run 1603
15[57] chamber trip after major beam loss

16[00] FELST, HELM

16[03] beams lost for unknown reason
16[45] " " " "
17[46] ID tripped.
17[53] ID " , 17[55] beams lost.
19[13] ID " beams lost.
23[02] ID " " "

24.00 HEDEGGOCK & VON KROGH ON SHIFT. 28.9.79.
23.56 } I.D. TRIPPED. SECOND TIME WAS DUE TO BEAM BEING LOST. FOR UNKNOWN REASON.
00.11 }
00 56 NEW FILLING COMPLETE.
01.37. COLLIMATOR 7 RAUSSEN — WE CANNOT GET THIS UNIT TO RUN TO THE OUT POSITION. CALLED PWR. THE WILL INVESTIGATE
04:05 Petra people can't fix the collimator. They are going in and will try to move the coll out mechanically.
For the last ~3 hours they can't fill, possibly because of our collimator
4:39 Petra people have moved the coll Rechts aussen (67) out by hand.
The collimator can be moved in by motor, but not out.

6[28] Beams again
Problems with collimators 3 La, 4 L; } do not move away from end switch position
7 Ra not touched (see above)
8 R; 12 turns in
→ high Background BP rate = 2.5 Volts, chamber currents not so bad (<0.6 μA)

6[52] All histograms empty, Nord 50 is not running (lamps 1 and 2 on)
Reload Nord 10 and Nord 50

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF ≥ 1 GeV·LG
1612	27.9.	18.40	18.42	7.7	7.9		93	214	24	1.2	22.9	102	102	155	110	70
1613	"	18.45	19.13	7.2	7.5	25/6.0	1497	2540	389	~~17~~	372	1489	1486	2168	1359	758
1614	"	19.44	21.30	8.3	8.5	–	6217	10399	1616	68	1548	4807	4797	9039	5522	3333
1615	"	2158	22.09	8.7	8.7	–	565	1461	147	10.7	137	593	592	1258	673	574
1616	"	22.40	23.02	7.7	7.7	–	1200	2364	312	16	296	1702	1700	2001	1282	753
1617	"	23.56	00.11	8.2	7.9		710	1721	185	13.6	171	2.154	2.154	1978	911	579
1618	28.9.	0058	01.26	8.2	8.2		1638	3586	426	30.5	395.7	4.714	4710	2917	1905	946
1619	"	01.30	01.37	7.1	4.0		225	332	57	3.8	53.9	0.28	284	269	194	95
~~1620~~	~~LOST~~	~~WITHOUT~~	~~ANY~~	~~EVENTS~~	~~BEING~~	~~TAKEN.~~	~~OPERATOR~~	~~ERROR (CRH)~~								
1620	"	06.36	6.53	7.5	7.3		977	1823	254.0	13.15	240.9		849	1404		
1621	28.9	7.02	7.39	6.5	6.3	23/54	1584	2533	412.5	23.58	388.9	1.012	1009.8	1928	1359	534
1622	28.9.	8.13	10.08	6.8	6.2	24/55	6449	7945	1679.7	56.82	1622.8	2.982	2974.4	6742	4604	2150
1623	"	10.12	10.14	3.6	2.5	"	0	35								
1625	"	16.14	16.57	7.8	7.8	22/59		4640	459	39	619	3.5	3740	3718	2466	1118
1626	"	16.59	18.44	6.60	6.60	"	6041	9750	1593	52	1520	5.8	5818	2684 4205	4968	1541
								New energy								
1627	"	19:19	19:22	8.5	8.5	"	154	144	39	1.0	38	0.1	125	109	69	38
1628	28.9	19.22	19.53	8.3	8.3		1847	4106	480	31.5	449	3.465	3461	3411	2133	1148
1629	28.9	21.~~36~~ 37	22:25	7.4	7.4	25/58	2436	4911	264	34	329	5	5033	4140	2692	1385
1630	28.9	22:29	22:39	6.0	6.1	"	3.67 ~~644~~	837	148	5.4	143	0.8	839	688	486	201
~~1631~~	~~23.40~~	23.40	1.30				6170	9810	1605.5	75.4	1530.1	$12.526^{\cdot 10^6}$	~~8340~~ 12517	8330	5597	2598
1632	29.9	1.35	3.44	4.6	4.3		7430	6999	1933.2	48.95	1884.3	$6.87^{\cdot 10^6}$	6867	6050	4626	1425
1633	29.9.	4.18	5.19	8.2	7.8	26/54	2919	5527	759.5	41.48	718.0	5.463	5457.5	4673	3014	1544
1635	29.9.	6.11	8.10	7.6	4.4	25/56	6880	9816	1815.6	71.3	1744.3	8.802	8792.5	8233	5691	2375
1636	"	8.10	8.52	3.8	5.8		2426	2429	631.1	14.7	616.4	1.785	1783	2030	1564	500
1637	"	8.53	7.40	3.7	3.7	22/56	2780	2542	723.5	15.3	708.2	1.634	1.632	2076	1703	379
								New energy								
1639	–	10.01	11.45	7.5	7.7	26/66	2154	3752	560.2	24.3	536.0	1.005	1.992	3112	2204	811
1640	–	16.29	18.06	7.5	7.8		5668	9875	1474.8	162.9	1372	4478	4468	8741	4862	3820
1641	29.9	18.07	19.37	4.5	4.9		4486	6943	1168.8	43.6	1124	2461	~~2455~~	6321	3197	3260
1642		19.59	20.27	7.6	7.5	5/67	1697	4795	420	40	427	1224	1219	4344	1534	2877
1643		20.33	22:15	4.6	4.6			~1014					Print	out ~~run~~	~~none~~	3020
1644		22:16	23:30	4.6	4.6		4229	6645	1100.	42	1057	1468	1461	5744	2697	3278
1645	30.9.	0.08	0:32	7.9	8.2		1380	5668	392	121.	238.	818	812	4666	1014	3384

LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2} s^{-1}	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	GeV E_{BEAM}	NMR	COMMENT
6	15	0.88	0.08	~~0.76~~	IBM	1.4	15.280	2.65559	new filling, Exact display hang up
101	235	0.82	1.22	1.88	"	1.3	"	"	beams lost
400	913	0.76	4.72	6.70	"	1.5	"	2.65554	new filling, beams lost
46	118	1.09	0.62	7.32	"	1.5	"	2.65550	new filling, beams lost
90	215	0.96	1.16	8.48	"	1.5	"	2.65550	new filling, beams lost
54	142	1.04	0.74	9.22	"	1.5	"	2.65549	new filling, BEAMS LOST.
331	805	0.97	1.59	10.81	IBM	1.6	"	2.65547	NEW FILLING. SME BEAM LOST, BUT E^+ ONLY.
20	13	0.33	0.07	10.88	"	1.6	"	2.65547	BEAM LOST TOTALLY.
185	(181)		~0.8	11.68	IBM	2.5	15.280	2.65554	without NORD 50
369	212	~~.57~~ .70	1.11	12.79	"	1.8	15280	"	
530	677	.55	3.52	16.31	"	1.7	15.280	2.65543	New filling
									beams lost at beginning of run
522	392	1.18	1.97	18.28		2.1	15.280	2.65554	~~After~~ 200 lumi counters broken
459	143	0.59	3.58	21.86	"	1.4	"	"	
									digit broken
15	35	1.25	0.17	0.17	"	1.7	15.290	2.65$\frac{8}{5}$22	← 2.65729
196	394	1.19	2.20	2.39	IBM	1.6	"	2.65729	beams lost (Sendeausfall)
278	468	0.91	2.66	5.05	"	1.5	"	"	NORD 50 hang up } TOF CNTR 6 broken
56	78	0.92	0.41	5.46	"	1.5	"	"	beams lost
596	831	0.72	4.44	9.90	IBM	1.2	15.290	2.657~~22~~	~~19~~ last 2 digits oscillate between 19 and 25
498	477	0.35	2.59	12.49	IBM	1.2	15290	2.657	
294	545	1.00	2.92	15.41	IBM	1.5	15.290	2.65720	New filling
590	995	0.78	5.48	20.89	IBM	1.4	15.290	2.65720	New filling
176	187	0.43	1.05	21.94	IBM	1.2	"	"	
286	152	0,30	0,83	22.77	"	1.0	"	"	
									New filling
206	372	0,97	2.08	2.08	IBM	1.7	15.300	2.65885	Beams lost
402	656	0.65	3.69	5,77	"	1.5	15.300	2.65905	
302	314	0.40	1.78	7,55	IBM		15 300	2.65905	
132	282	0.98	1.58	9,13	IBM	1.7	15300	2.65905	New filling Filling time 20 min only! Record
event			~1.6	10,73	"	1.2	15300	2.65905	Scaler Printout of Run 1693 showed all zeros. Other Printouts
577	319	0.43	1.80	12,53	"	1.0	15300	2.65905	
371	202	0.24	1.16	13.69	"	1.7	15300	2.65899	New filling Nord hang up

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT post TRUE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1 GeV·LG

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~ 7^{10} Collimators 3 La and 4 L_i^i working again and moved 12 turns inwards.

7^{29} Beam losses e^+ 5.5 → 3.6 , e^- 5.5 → 1.3 Chamber Anode current alarm (there were two alarms before)

7^{35} LG threshold adjusted

~~7^{39}~~ ~~Stoppt~~ RUN 1621 for new filling

8^{00} D. Cords , H. Riesberg on shift.

8^{10} New filling ready , but PKR says that beams are instable

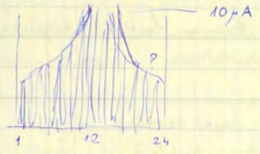
8^{13} Start R 1622

Chamber current : Normally < 0.4 μA , but short bursts with ~ 10 μA observed.

9^{00} Histograms checked and LG thresholds readjusted

9^{36} - 9^{40} Three times ID switched off by over current in cell 19 Ring 1. Once I could see the profile on the scope. (Switch off threshold 50 μA)

Approximately :



Current drop e^+ 4,3 → 4,1
e^- 4,8 → 2.8

9^{45} New reference histograms plotted : Run 1622

10^{13} Beams lost completely

11^{00} New Colour TV program installed with re-arranged error messages.
Also new version of YECOPY in an attempt to pin down the dreaded error!
Temporary use of Monitor numbers

MON 4	0	YECOPY not in use
	1	" in ZGET
	2	" after ZGET & before exit
MON 3	Longest LOUT encountered by YECOPY	
MON 2	Current event length	

H.E.-17

11.20 One fan in rack 9 (tagging) was switched off : may have caused ~ 20 dead LG-channels in forward detector. Please make sure that all fans are switched on ! H.W.

12^{00} A. Wagner replacing H. Riesberg

13^{00} no beams : first LINAC problems, now transmitter SL problem

15^{25} Sender Süd/Links wieder ausgefallen.

LG ≥ 4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	∫Ldt RUN	∫Ldt EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

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If you want to adjust the attenuator for the TDC's, use key F2 = PAUSE/CONTINUE in the main context on the command console and not the stop/start keys at the trigger box.
D.C.

16:09 Navarska and Zmuri on shift
LG-thresholds are re-adjusted.

16:32 One counter for luminosity does not work. Navarska and Weickert are trying to repair it.

Run 1625 Lumi counters didn't work ~~xxxxx~~ on , famout broken.

→ all the collimators are moved in by 12 turns at the beginning of the run.

accidental luminosity counter counts a bit although the other counter shows zero hits. New Weickert will come.

18:27 There occured inner detector alarms.

18.39 another ID alarm, half the beams lost, now we have 2.4 mA

There is another (!) strange fault in the event display - If the leadglass hit option is set to Numbers instead of log. histograms, then for SIDE and TOP views the LG hits are not displayed in the lower half of the picture! I suspect this will have to wait until Larry O'Neil returns. (11.E.17)

19.53 beams lost due to Sendeausfall

20.29 message of 4 magnet fluctuation

21.30 beams again

~~23~~ 24 "No event and ~~NO50~~ NORD so is busy" is printed.
memory out of range 6295 X
ZOAT 4 restarted following the instructions

22.39 beams lost "Sendeausfall"

22.45 During most of run 1629 ToF counter 6 was broken. This we noticed when at the next runstart HV-error message came. (Maybe it should be checked more often!) Apparently this channel 6 has died. So I put the cable on channel 21 of the 3rd unit.
That means now always an error message will appear

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT post TPOWE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG

23 : 27 new filling

23.40 Changed the faulty powersupply of TOF counter 6

24^{00} H. Prosper and H. Rieseberg on shift.

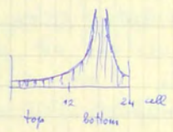
29.9.79

0^{48} Two chamber alarms (18 Ring 1) with losses in both beams of about $\Delta I = 0.7$ mA

1.^{00} In agreement with PKR we move the two bottom collimators in by 30 turns
Links unten Channel 2
Rechts unten Channel 6
If I remember right the distance from the beam in the out-position is 118 mm, and there are 1.25 mm/turn Check with Mr. Sauer!
Therefore we should be now at 80 mm from the beam. BP-rate stays at 1.1 to 1.3 Volts

This we do to find out, if our chamber can be screened against future beam losses. In the last 24 hours the beam struck the bottom part of our chambers at least 12 times.

Observed chamber current profil on the scope



Beam current jumps on the TV



1.^{30} Run 1631 stops by itself without apparent reason. Regular event display was on

1.^{35} Run 1632 started.

3.^{38} Again Beam in Chamber 18 Ring 1. Big beam loss

3.^{43} End of Run 1632 for refilling

4.^{10} New filling ready - this was fast

4.^{18} Run 1633 started. Vertical collimators stay out.

4.^{55} Chamber alarm.
NMR According to PKR (Mr. Gödecke) the value for this filling and the 2 fillings before is 2.65720

5.^{08} Big loss of beams with chamber alarm

5.^{19} Stop Run 1633 for new filling (after 2 other beam losses in our chamber!)

LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

29.9.79

6.^{05} New filling ready

6.^{10} Run 1635 started (1634 got stuck after 2 events)

6.^{35} No event display. Cured by switching off the selection and switching on again.

8.^{00} Olsson, Wagner on shift

9.^{40} Freycend IDAS writes 44:303 Tagging system. We don't see any reason for errors
Call Wriedt. exchange crate controller: doesn't help error traced to P66 FlipFlop generator, No!
developing into real problem Mr. Kobayashi now called, will come

10.^{30} Pluto wants RF, new energy 15.300 GeV

11.^{05} RF ready and no more readout errors in Tagg

11.^{42} beams lost. Two transmitters went down

13.^{20} Still no beams, experts called to trace error in HF system, will take time (1hr?)

13.^{30} Event display modified to include PD: new event classifications (HEH)

15.^{20} PHK: Still no error found in HF system, trial and error

16.^{20} Beam is there Krehbiel - Gritz

16.^{30}-17.^{30} total energy trigger check by display seems OK.

17.^{40} Lead glass hit map OK

17.^{5} No sign of [illegible] for the "cosmic ray" events

18.^{29} I called Petra because BP rate is now what 2 x higher than a few days ago. They say Pluto has the same complaints, also beam is ~~tilt~~ slightly unstable at the beginning of a filling but they can't say why; all parameter & values are the same, but they will do their best.

20.30 Run 1642 ~~stopped~~ hang up. No events for ... Listed action sequence 1-3 was successful
Mon 1/4 | σ | 4049|0|0| Printouts in the Run Folder. After # F1 N50DAT had to be started again.

21.^{00} Holzwolle - Events (Beam chunks) seem to dominate the background instead of cosmics.

22.^{20} After run 1643 print out says zero event on color TV everything was running O.K.

30-9-79

0.^{00} Eichler, Wriedt

0.^{08} New filling, start run.

0.^{34} Run hang up. Print DAS-STAT etc and start new run. It happened during histogramming
After pressing F1 key N50-program exits. Load ~~run~~ again. Histogramms are not filled!
stop run again and EXIT IDAS. Start new run 1647. Everything works.
Adjust LG-threshold.

Common / RUNFAN O.K.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT post TPOWE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG

42

30:57

2.17 Run Pascy up. Started new run

4:25 Pluto asks for new filling and new energy. Pluto has 23 nb^{-1}, we have 21.2 nb^{-1} at this energy. change HV-checking program. It runs now every 30 minutes instead of only once at run start!

4:50 stable beams

30:7 8:00 Peterson & Inori on shift

after the pause and continue operation for the adjustment of attenuator, (error message) ~~HV~~ is printed error 44 task 1 and error 56 task 1, ~~HV~~ HEM pmp it not important

7:50 the thresholds for LG are re-adjusted.

10.00 Using LIST-EVENT i have observed several events with rubbish at the start i.e. "3968" written for several words. This would certainly cause the ZSEND - GETEVØ problems we have had. When I tried the event display it worked a few times then hung in ZGET. Is it all the same problem? - Could it be IBM interface?
Example left on Terminal 35 for D.C & P.Di.
(H.EM)

10:09 total hangs. "No event" is printed when using event display. Run stopped and restarted

(Beam current is 4 mA, event rate ≈ 2 Hz)

12:45. EVENT rate seems somewhat low and thresholds of LG are re-adjust. then it comes about 1.2 ~ 1.3 Hz.

13:19 We found at the end of 1654 run that some wires in the inner detector do not seem active which were at least in 1650 run active. ~~[illegible]~~
This may be the reason why the event rate seems somewhat low.
Fortunately Mr. Rissenberg comes to us. V34 5Rig3 repaired

14:40 thresholds for LG are re-adjusted

14:49 " YVOLTS: LG/BP Supply 21 HV=1.4911 should be = 1.4950" is printed. We can not fix the cause and so wait next high voltage scan. There is no error message in the next high voltage scan.

V34 troubles: During Run 1655 the power supply for the V34 # 5.3, 5.4, 6.3, 6.4 had to be exchanged. Therefore the wires # 896 + 959 are missing for some time. In Run 1656 all V34 are working again

15:42 We found ~~the temperature monitor of the magnet was~~ switched off. It should be powered ~~in~~ it?

LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMC	ENERGY

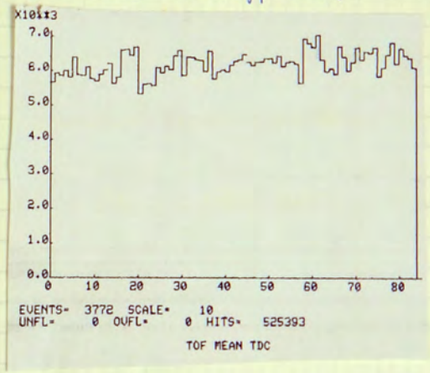
43

16:00 Harrison Prosper & Makoto Minowa on shift.

16:45 During Run 1656: 6Volt line # 2.1 to VV23 of Inner Detector repaired. It has had a bad contact. Wires affected: will be filled in later. Rossberg

18:05 Beam dumped

19.00 From the beginning of Run 1659 the following modification was made for the TOF-TDC's:
After each start pulse there is a STOP fed into the COMMON-STOP 120 nsec late (the range of the TDC is 100 nsec)
This has the effect that the pile up which was observed in many TDC channels disappears.



It also means that we have new TDC constants unfortunately.
Please watch this histogram carefully.

(Do you mean this one in particular ... or what?!!)

21:56 The lead glass counter (barrel part) appear somewhat noisy. Hitmap for barrel is more 'spiky' than usual.

22:10 new run started (1661). lead glass counters now OK!

22:27 Beam dumped

New Energy: We got 29 nb^{-1} but PLUTO only 23.5 nb^{-1} (?)

~23.00 PKR says they have troubles with the LINAC. They say it may take them ~ 5 hours to find the problem (and hopefully solve it). However, they also admit that they're not sure!!

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1GeV·LG	LG≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	BHABHA	MULTIHADRON	NMR	ENERGY
44																											45
1646	30-9-79	0:35	0:41					867	86	30	56									0.25	13.94	IBM	1.5			15300	2.65890	
1647	30.979	0:45	2:17	6.7	7.0		5449	7606	1409	55	1354	2733	2725	6006	4061	1879	817	720	0.75	4.06	18.00	IBM				15300	2.65890	Prod hang up
1648	30.979	2:19	4:27	4.7	4.9	2/5	7586	7531	1973	46	1928	2106	2099	6181	4500	1686	803	574	0.42	3.20	21.2	-"-	1.1			15300	2.65890	normal stop. Beam dumped.
															New	energy											
1649	"	4:55	6:22	8	8		5197	9829	1352 and fun in trigger box	67	1285	3226	3216	7729	4325	3342	1177	905	0.97	5.06	5.06	-"-	1.6			15310	2.66059	
1650	"	6:23	8:44	5.5	5.5		8400	9456	2186	55	2130	2677	2668	7254	5069	2686	1019	704	0.46	3.87	5.95	-"-						normal stop!!! Beam dumped
1651	"	9:59	9:55	8.1	9.1	2.5/6.0	296	1469	76	25	51	204	202	451	243	228	852	49	0.95	0.28	9.13	"	18			15310	2.66065	New filling and hangs
1652	"	9:59	10:11	9.7	9.8	"	1873	1873	208	12	195	680	678	1426	781	709	198	153	1.05	0.87	10.10	"	"			"		and hangs
1653	"	10:12	12:00	5.5	5.4	"	6395	9787	1658	60	1599	4023	4013	7807	4879	2843	1160	827	0.74	4.70	14.80	"	1.8			"	2.66060	Normal stop after 10,000 events !!!!
1654	"	12:00	13:19	4.5	4.7	"	4621	5741	1201	35	1166	2018	2013	4420	2891	1592	953	743	0.42	1.92	16.92		1.3			"	2.66060	Normal stop for new filling !!!
1655	"	14:36	14:51	6.4	6.4	2.5/6.0	862	1943	223	15	208	1027	1025	1529	926	934	292	114	0.23	0.68	17.35	IBM	1.6			"		normal stop, because of instabilities of the gun
1656	"	14:52	16:53	6.0	6.0		6856	9819	1783	61	1722	6233	6223	7820	5219	2570	1368	628	0.51	3.52	20.87	IBM				15310		
1657	"	16:55	17:59	3.8	3.9		3776	4157	982.7	25	957.7	2201	2197	3339	2411	937	650	177	0.26	0.98	21.85	IBM						
1658	"	junk																										junk
1659	"	18:33		7.6	7.4		5115	9826	1331	66	1265	4184	4174	7757	4432	3229	1355	697	0.76	3.89	25 8.74	IBM	2.0			15310	2.66060	New filling (normal stop) TDC-change see page 43
1660	"	19:59	22:04	5.1	5.1		7898	9823	19246	1361	1863	3746	3736	7988	5067	2964	1323	517	0.29	2.92	2866	IBM	1.1			15310	2.66060	(normal stop).
1661	"	22:06	22:28	3.4	3.4		1245	1379	324	77	316	446	445	1132	749	413	195	58	0.26	0.32	28.98	IBM						
															NEW	ENERGY											
1662	1.10.79	1:01	1:36	7.3	7.0	2.8/5.6	2165	4348	563	31	532	2735	2730	3746	1942	1797	239	337	0.87	1.88	1.88	IBM	1.6	10	1	15320	2.66235	JDAS error 56 (sub error 176); beams lost
1664	"	2:15	2:47	7.7	7.1	2.7/5.6	1412	2987	367	23	343	1135	1132	2569	1271	1276	148	216	0.86	1.21	3.09	IBM	1.5	7	0	"		run 1663 is dumping, beams lost
1665	"	3:19	3:25	8.1	7.0		322	804	83	7	76	298	298	699	320	384	40	60	1.04	0.33	3.42	IBM	1.6	4	1	"	2.66235	Beam dumped.
1666	"	5:56	6:17	5.1	4.8	2.7/5.0	1150	1464	299	9	291	476	475	1270	795	496	73	96	0.48	0.55	3.97	IBM	1.6	6	1	"		e^- beam lost
1667	1.10.79	12.56	12 56	6.2	6.2		3066	4511	798	68	730	2196	2191	3893	2465	1392	223	330	0.61	1.86	5.23	IBM	-	15	0			Beam loss
1669	1.10.79	15.15	15.26	7.4	7.4		605	1621	158	19.7	138	819	817	1453	752	655	79	84	0.74	0.64	6.27	IBM		8	—		2.6625	Run stopped beam very unstable
1670	1.10.79	15.56		8.0	7.0		not written to IBM computer exports						made test														
1671	"	16.50	16.12	7.9	6.9		652	1380	169.8	10.6	159	639	687	1110	652	439	155	108	0.92	0.60	6.87	IBM	1.7	5	0	15320	2.66250	RUN STOPPED BEAMS LOST.
1672							test run for Mills / Dittmann																					
1673	"	16.52		7.1	6.6		1748	3112 455	455.3	21.7	433+	1359	1356	2690	1604	1027	179	236	0.75	1.31	8.18	IBM	1.6	11	1	"	"	
1674	"	18.01	18,20	7.2	7.2		1057	2171	275,1	15.3	259.7	1025	1023	1950	1084	885	97	74	.38	.40	8,58	IBM	1.7	3	0	15320	"	Beams lost
1675	IBM	link	did it	work																								
1676	"	21.42	22.07	7.5	7.4		1399	2572	364	18.6	345	1251	1248	2129	1147	700	216	213	.85	1.19	9.77	IBM	1.9	11	1	15320	"	stopped run because of "No event" message
1677	"	22.09	23.52	6.3	6.3		6086	9824	1584.6	77.7	1507	4750	4741	8453	5157	2928	647	700	.964	3.91	13.68	"	1.7	31	1	"	"	normal stop reached 10 000 ev.
1678	"	23.53		3.3	3.3		to be continued to the next table															IBM	1.2			"	"	

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 ToF $\otimes$ ≥ 1GeV·LG

1.10.79

0^{20} Cords & Kobayashi on shift
4^{00} The PETRA team can no longer inject into PETRA; reasons are unknown.
5^{50} Beams back again
7^{20} horizontal kicker failed; PETRA crew has to enter the tunnel
11^{10} Collimator 7 and 8 do not move. Wait till machine people finish repairing the controle box. The controle box for the collimator is now fixed. Sometime in this afternoon, they will test the computer controle of the collimators. We have to switch off the high voltage during the test

12.45 Inner Detector Alarm
12.54 " " "
13.48 message & continue.
13:57 collimator is now controled by PKR.
13:58 Beam lost, transmitter failed.
15:00 Tagging chambers switched on. F.E. 1350V, signal wire switch position 0 D.Pandoulas LANCASTER run number 1669 next 709
15.15 Run 1669 started
16.00 HEDGECOCK & VON KROCH ON SHIFT.

EVENT DISPLAY DAILY NEWS
I have put a check into YECORY to reject events with corrupt headers - A message + first 10 words is listed on the console. I have proved (over several short runs) that corrupt events are seen by YECORY when the IBM link is on and **NOT** when IBM link is OFF!
H.E.M

18.30-19.00 Petra has trouble filling
21.39 Filling OK, but IBM link doesn't work (trouble with disks)
21.42 Link OK

Oct. 2nd 0^{00} Bartel & Imori on shift

0:23 They ask for new filling
1:00 start Run 1673
Problems with event display: We want to display next event every time an event is displayed an error message

LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

appears on the spot printer: YECOPY - corrupt Header
Events look dirty, very short lifetime PKR does not know the reason
event rate ~ 4.5 Hz / ~10% dead time
adjust level glass thresholds

Event rate is 4 Hz (I⁺=I⁻≥6.0 mA). Currents of Inner detector displayed on the monitor are partly large and fluctuating rather rapidly. dead time ≈ 15%

In Run 1680 after 3526 events are being read, HON2, HON3, HON4 and HON5 stay 0. To know for histogramm during the run all ok.

3^{30} The counting room is awfully cold. We are shivering in spite of warm coats.
We watch the equipment from outside
This is no counting room — this is a fridge
5^{25} Stop run 1681
5^{25} Start run 1682
6^{17} start run 1683
8^{02} End of the most successful shift with 14 nb^{-1}
Conclusion: 'Experts' have to be on shift
Stephens, Totsuka
8^{00}
9^{20} new filling now Tees has 26 nb^{-1}, Pluto 16 nb^{-1} at W≈ 320 GeV.
10^{55} ID tripped. Run continued.
11.00 request from all other users to do machine physics to improve the luminosity. Since PLUTO insist and they are main user we reluctantly agree to this. The other are still discussing this matter
11.08 Run 1686 started
11.38 " " ended for machine physics. Estimated time 1.5 shifts.

15 10 A new version of YPARA (=LG pedestal run) has been loaded. All LG-channels which have a pedestal >500 for more than 3 times out of 10 are declared as bad channels (pedestal set = -500).
Please check if events looks o.k. in on-line display! If not, call R. Eichler

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 ToF ⊗ ≥1GeV·LG

18.15 Runs 1687 – 1707 ⇒ Pulser runs for ID-calibration / written to IBM
for details see ID-logbook AW

22.30 PLUTO CALLED AND ASKED IF WE WERE READY TO CHANGE TO NEW ENERGY.
PETRA FILLING WAS STATED TO BE IMMINENT.

22.50 ATTEMPTED TO START RUN. AFTER 13 PEDESTAL EVENTS HAD BEEN TAPED.
NO MORE EVENTS WERE LEAD AND SCREEN RETURNED JDAS ERROR
000094(OCT) SUB ERROR 0. (OCT) TASK 1
Felt Wittmack on shift

13-10-79 24ª 2^{30} trouble with CAMAC, Gods comes, Filling started with $2.6\ 10^{30}$ leaked 3 L and ended with 8×10^{29} (but nothing for us)

3.30 The whole trouble was caused by the tagging chamber Camac module
on which people were working last night. This costed us 20 nb⁻¹. It is taken out after the read out now

3.30 no positrons available for new filling

4.40 Beam lost just when it was at the nominal beam energy.
transmitter broke down.

5.30 Again, just when we turned on high voltages!

6:00 "

6:30 Finally starting to take data

8.00 Pearce, Naroska on shift

8.30 The usual hang-up occurs. No events for ≳ 90 sec. (Ev. selection was running on hadrons only)

9.00 PKR will change energy, Petra display down ← {apparently we could have asked to continue with the old energy as we didn't have 20 nb yet (W. Bartel)

9.40 We have a high deadtime because of "IBM BUSY", Called IBM (W. Bartel)

9.55 called IBM again, they promise to do something

10.27 IBM was down, switch to MAG TAPE

11.00 Probably there will be no Petra display the whole day.
Tasso says they still don't get enough events to the IBM.

LG≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

12.40 New fill. Luminosity available.
hum. counter hit - rate power supply big replaced.
Run without the
12.45 Nord hang up. Forced to restart NORD as keyboard inhibited.
12.49 start new run (1720)
13.00 Petra found positrons misaligned so wish to dump and re-fill. Stop run.
The positrons were in an adjacent bucket to the right one. Would be interesting whether we have any events to see it.
15.15 We are still waiting for beam. 2 good fillings were lost.
In between they had a transmitter problem.

16.20 RTFIL in Nord died - did a YHENT to cure it. Died when running RT-LOADER at END-LOAD st just like yesterday lunchtime. H.E.M.
Prosper / Eichler on shift

16:40 PKR announces beam ready. BP-current is 4 Volts. We don't turn on ID. Call PKR. They lost some beam
16:45 BP-current 1.8 Volts. Switch on ID and start run.

YECOPY modified to write corrupt header message to terminal 37 if it is free
H.E.M.

20.20 ID-trip. Petra looses constantly beam within short time Call PKR. They will dump the beam

Repair tagging chamber Camac module (fuse was blown) and put it back into standard readout. If tagging chamber fails again, the error message will be: (DAS) error 44 suberror Ø followed by error 44 suberror 313.

21.18 New filling ready
21.25 - 21.35 3 times ID-trip due to beam loss.
22.35 Nord hang up. Run DAS-ST + RTC. When typed 'stop': page fault for non demand in 3#323 = YIBM. Exit ZDAS and restart.

Orito calls. offline analysis gives no increase in R at 15.30 Gev!!

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT post TPOLE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF $\otimes$ ≥ 1 GeV·LG	LG ≥ 4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int L dt$ RUN	$\int L dt$ EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY	
50 RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (SEC)	NORD EVTS. ACC	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT + POST TPOLE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF ≥ 1 GeV·LG	LG ≥ 4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int L dt$ RUN	$\int L dt$ EXP	IBM TAPE	BP	NO OF BHABHA (ON LINE)	NO OF MULTI HADRON (ON LINE)	BEAM ENERGY (MeV)	NMR	51
1678	2.oct	23:53	0:27	3.5	3.4		1791	2383	466	16	449	1149	1148	2143	1320	807	185	66	0.71	0.32	14.06	IBM	1.2	4	0	15820	2.66250	
1679	2.oct	1:00	1:47	7.5	7.8	3/4.1	2568	9522	668	44	593	3196	3186	9061	2602	6279	385	360	0.79	2.02	14.08	IBM	2.0	6	4	"	"	normal stop by 10.000 counts
1680	2.oct	1:48	3:22	5.4	5.5		5755	9015	1497	61	1436	3818	3809	8040	4355	3540	567	413	0.80	2.32	18.40	IBM		29	3	"	"	
1681	"	3:49	5:28	7.8	7.9	2.3/5.0	5915	9816	1539	65.1	1474	4375	4365	8371	5201	3038	490	431	0.83	5.24	23.69	"	1.8	5	12	15320	2.66250	
1682	"	5:23	5:30	4.2	4.7		1132	1225	294	7	286	498	496	1049	729	330	68	110	0.58	0.41	27.24	"	1.2	8	0	"	"	normal stop for new filling
1683	"	6:19	8:17	9.1	9.8		6865	9825	1786	61	1725	4216	4207	8434	5486	2826	524	854	0.64	4.76	29.00	"	2.0	12	11	"		shift. Stephans + Tatarka
1684	"	8.17	8:13	4.0	4.0		145	157	38	0.9	37	56	56	137	85	53	9	11	0.44	0.06	29.06	"		1	0	"		normal stop 10.000 stop for new fill → Tasso has 26nb^{-1}, Pluto only 16nb^{-1}
											new filling																	
1685	"	9.16	11.08	7.4	7.4		6498	9821	1690	164	1526	4446	4437	8374	5194	3066	563	873	0.76	4.92	33.98	"	2.0	12	4	"	2.66240	normal end 10.000
1686	"	11.11	11.38	4.5	4.6		1607	1741	418	31	387	821	820	1504	1023	364	119	127	0.45	0.73	34.71	"		7	1	"		Run ended so that machine physics can start
1687 – 1707 ID-pulser runs																												
1708																												
1709																												
1711	3.OKt.	6^{28}	7^{50}	7.7	7.6	2/5	4719	~~9815~~ ~~10002~~	1228	60	1167	3156	3147	7437	4753	2668	556	1604	1.81	9.02	9.02	IBM	1.0	4	3	15330	2.66425	new energy Tagging chamber crate not read by ZGAS
1712	"	7^{49}	8.25	5.4	5.4		2061	3375	536	19.1	517	964	960	2479	1690	829	203	565	1.55	3.19	12.21	"	1.0	39	1	"	2.66435	Nord hang-up
1713	"	8.27	8.49	4.7	4.6		1272	1877	331	10.6	320	502	500	1378	912	474	127	303	1.35	1.72	13.93	"	1.0	22	0	"		
1714	3.10.79	9.02	10.14	4.7	4.6		4224	4811	1098	107.8	991	1700	1195	3670	2617	1102	334	614	.81	3.41	3.41	"	"	21	3	15340	2.66585	Same filling, new energy
1715	"	10.33	10.21	"	"		384	479	100	58	42	43.9	43.8	136	117	31	13	21	.31	.12	3.53	"	"	2	0	"		stopped because of TOF problem
1716	"	10.27	10.29	"	"		102	110	26.5	0.58	25.9	25.7	25.6	80	54	27	11	11	.54 ~~.65~~	.05	3.58	FM1038	"	2	1	"		
1718	"	10^{29}	11^{08}	-	-		2252	~~2252~~ ~~2305~~		9.5	450	416	516	1821		508	159	187	~~.65~~ ~~.57~~	1.47	5.05	"		12	1	15340		
1719	"	12^{40}						~~182~~ ~~185~~					No rd hang up				abandon		run							15340		Terminal ports broken – crate being replaced Best to forget these runs!!
1720	"	12^{49}					322	~~511~~																		"		
1721	"	16^{47}	19^{24}	7.0	7.1		5750	3701	1496	94.5	1401.8	2610	2601	6746	4326	2428	505	1154	1.15	6.61	11.66	IBM	1.0	72	5	15340	2.66600	stopped to test new monitoring
1722	"	2^{28}	20^{23}	4.85	4.85		6665	7463	1735	48.6	1686	2094	2087	5898	4290	1635	512	738	0.64	4.23	15.89	"	1.0	36	2	15340	-"-	beam lost
1723	"	21^{21}	22^{25}	8	8		3927	6693	1021	49.9	971.5	2582	2575	—	3416	1657	398	1003	1.44	5.65	21.54	"	2.0-1.7	61	1	"	"	Tagging chamber back in readout. Nord hang-up
1724	"	22^{38}	23^{22}	4.6	0.6	2.0/5.2	2718	3444	707	45	662	1148	1145	2722	1781	926	288	374	0.78	2.13	23.67	"	2.0-1.0	19	3	"	"	new filling, regated
1725	4.10.79	0^{26}	1.57	7.2	7.2	2.2/5.2	5068	9823	1324	7730	1251	4144	4134	8078	4918	3087	603	1101	1.22	6.18	6.18	"	1.7	77	0	15350	2.66705	NEW ENERGY normal end
1726	4.10.79	1.57	3.53	4.7	4.8	"	6842	9256	1780	56.5	1723	3701	3692	7576	5057	2570	616	1054	0.88	6.01	12.19	"	1.3	84	3	"	"	End for refill Pluto request
1727	"	4.27	4.45	8	7.8		998	3526	260	34	226	1373	1369	2904	1319	554	240	352	1.44	1.44	14.18	"	2.0	5	1	"	2.66758	NORD HANG UP.
1728		4.46	5.50	7	6.8	1.8	3612	9818	940	~~8672~~	867	4012	4002	8024	4145	3848	619	1146	1.77	6.41	20.59	"	2.0	62	5	"	"	
1729	"	5.52	7.27	5.2	4.8		5399	8403	1383	80	1323	3354	3348	6833	4268	2569	581	985	1.14	5.55	26.14	"	1.5	55	6	"	"	
1730	"	10.10	—	8.0	8.0																					15360	2.66933	Power switch for TOF found bad Switched off by Ladd-code
1731	"	10.17		8.0	8.0																					"	"	
1732	10.10 "	10.45	12.55	8.0	8.0	2.3/5.5	7684	9790	2001	166.1	1836	3459	3450	7291	5126	2045	819	1658	1.22	9.40	9.40	IBM	1.7	120	2	"	"	in addition one TOF paddle down Schwerdtner fixed it

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT post TPOWE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG

23^{05} ID-trip + beam loss
23^{15} — " —
23^{32} Pluto asks for new filling. Type 'stop' → page fault for non demand in TIBM. Reload JDAS.

04-10-79
00. Stoplam / Petersen on shift

358 I D trip
5.45 I.D. trip
8.00 VON KROGH on shift + Haidt

10,15 JDas Error 000056(Dec) Suberror 000277(DCT) Task 1
this error kept repeating
called Eidelt.
he found two things 1) power switch for TOF fan out crate had been switched off
2) one TOF powersupply was off

10,45 problems solved, we are taking data.

12 44 ID alarm beam loss
13 52 10.000 events read, start new run with the same filling
JDAS error 44 SUBERROR 205 TASK 1
" 56 " 320 "

15.00-16.00 μ Plinth chamber voltages fluctuating during investigative work. John Massard. (also 23.30 - 00.30 S.1079)

Shift Tatsuka.
16:39 ID tripped.
16:49 Beam lost Sensoraussfall sparking in the tube ~20 min to repair

18.00 System looping - took ages to E-D for a Floppy. When all logged out CPU was still busy. (ZDAS not running). Restarted Nord and it seems ok (HEM)

20.00 Default Nord 50 program is now N50DAR
22.20 one of the NIM crate which gives scaler gate & inhibit tripped. (HEM)
<4. NIM crate from above] in Rack 97

LG≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

22:30 The 3. HV PS for TOF shows the crazy HV value (9999 V at the channel 23)
5-10-79: 00^{00} Howard, Alan on shift.
00^{44} reset crate 5 of μ system following "no response"
00^{47} partial beam loss → ID trip
00^{49} " "
00^{55} " "
01^{45} pluto request refill in 15 minutes. With event rate ≈ 0.7 Hz we agree readily.
lumi crate discovered to be off several times Dittmann organized exchange of powersupply 300 W instead of 200
02^{00} first run 1745
02^{38} start run 1746. In 8 minutes we have 1 nb⁻¹. We should have had a refill much earlier.
02^{50} ID trip. From Histograms noted that a V34 out (W. Hall Rosebery in the morning)
02^{52} restart
3^{15} H. Lynch from TMSO called. They have very loud background condition. Informed him that it's fun here.
3^{50} PbG thresholds checked: slightly high readings.
4^{15} Pluto waved for new fill. We're at < 1 Hz. So again chores etc. LINAC problems, no e⁻
5^{30} Magnet temperature printer has run out of paper!
6^{00} LINAC has serious problems, a bunch out module detailed experts called. No beam before 07⁰⁰!
7^{32} run 1748 in progress finally. event rate @ 2.5 Hz gives ≈ 1 nb⁻¹ per 10 minutes.
Obs! T2 accept rate on run summary sometimes crazy, although scalers on Colour TV ok
See R 1743, 46
8^{00} Haidt & Haidt on shift
Stop run, Start new one
S. Trentadue (Pluto) asks for energy increase with the same filling
10^{20} Run stopped (72 pedestal errors 44, suberrors 10, tasks)
reload programs for Lamac-readings
11^{15} Pluto asks for new filling
Start run 1753
13^{55} Stop run 1753, Mr. Cords wants to change something
14^{02} Start new Run
14.54 IBM down (event number in 1745) after a few minutes ok
16.00 — WARNING, TOTSUKA on shift —
16.50 being in the event-display mode and pushing the F2 button caused HOR2 and HOR3 to jump from 0 to a high number (1357, 3042 resp.)
19.15 new filling with new energy 15.290
19.16 ID tripped
19.20 Lumi = 1 constant, checked HV: ok

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPRUNE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1 GeV·LG
54																
1733	4/10/79	12.56	13.57	3.4	2.8		3462	2675	902	33.1	869	614	612	2220	1824	388
										new filling						
1734	4.10.79	16.23	16.44	7.7	7.6		440	859	114	21	93	261	260	627	406	248
										new filling						
1735	"	18.13	18.53	7.3	7.3		2136	4528	556	57	499	1348	1344	3455	1810	1608
1736	"	18.57	19.03	6.1	3.3		259	621	67	23	45	208	207	511	167	343
										new filling						
1737								— pinte —								
1738	"	19.59	20:19	8.0	8.0		1162	2495	302	16	286	652	650	1913	1011	930
1739	"	20:23	21:09	"	"		2703	3827	304	12	292	579	1373	3229	1820	1516
										new filling		new energy				
1740	"	22:05	22:21	8.0	8.0		921	1995	9	.5	9	26	645	1799	825	1062
1741	"	22:23	23:18	"	"		3249	6286	834	73	761	1888	1904	4719	2458	2272
1742	"	23:20	23:22	"	"					very short run						
1743	"	23:23	00 37	"	"		4198	6271	1092	38	1054	1881	1875	*2684.10⁶	2799	1945
1744	05.10.79	00 39	01 15	4,3	4.3	2.2/5	1577	1747	269	7.9	261	372	541	1393	994	416
1745	"	01 16	02 00	"	"	"	2791	9068	312	6.6	306	367	660	1679	1276	435
	"									New fill						
1746	"	02 38	04 17	7.2	7.2	"	5376	7913	1398	52.5	1346	3161	3154	*2684.10⁵	3831	2035
1747	5/10/79	07 32		7.4	7.8	2.4/5.4										
1748		7 33					6132	9275	1596	106	1489	3087	3077	crazy	4476	2393
1749		9 24	9 32	4.6	4.9		488	577	127	3.3	123	173	172	448	331	119
1750	5/10/79	9 35	10 26	4.6	4.9		3072	3284	799	19	780	941	938	2508	1999	692
1752		10 40	11 12				1778	1705	462	17	445	462	460	1371	1019	356
1753	E/10/79	12.44	10 57	8.0	7.9		4251	8629	1106	67	1039	2925	2916	crazy	3773	2877
1754	"	14.02	16.30	5.25	5.20		8771	9818	2013	112	2125	2907	2897	7698	5513	2203
1755	"	16.33	17.37	3.2	3.2	2.2	3783	3635	984	21	963	947	944	2986	2247	767
												new filling				
1756	"	19.15	19.40	9.0	9.0		1650	3846	351	35	316	1406	1403	3489	2140	1360
1757	"	19.40	21.13	8.0	8.0	2.2	5052	9803	1314	66	1249	3459	3449	crazy	5354	2518
1758	"	21.13	23.16	4.8	4.8		7137	9819	1857	64	1793	3221	3211	crazy	5715	2421
1759	"	23.16	23.33	3.2	3.2		1345	1375	350	76	342	484	483	1154	908	242

RUN	L6>4 GeV	LUMI	<L> 10^{30} cm⁻² sec⁻¹	Slatt RUN	Slatt EXP	IBM / TAPE	B.P. x10⁻¹	No. Bhabhas on line	No. of Multi Had on line	Beam Energy	NMR	ENERGY
												55
1733	181	272	.45	1.55	10.95	IBM		10	0	15.360	2.66958	Pedro reseeds new filling 16:00 shift Totuka
1734	42	136	1.64	0.72	11.67	"	15	10	1	15.360		IBM is pretty busy. ID tripped. beam lost
1735	355	695	1.86	3.98	15,65	"	15	34	2	"		ID tripped
1736	65	31	0.65	0.17	15,82	"		2	0	"		beams lost partially
1737												
1738	186	389	1.93	2.24	18.06	"	20	29	1	"		normal end
1739	11660 crazy	262	0.59	1.59	29/65 A65	"	15	28	1	"		ID tripped.
1740	184	14	—	—	—	"	25	22	0	15.370	2.67115	new energy ours the NIM crate tripped no useful data do not use. !!!!
1741	427	1120	1.98	6.43	6.43	"		42	4	"		
1742												IBM very busy. run stopped.
1743												
1744	479	969	1.32	5.32	11.95	EIC89 TAPE				"	"	ID tripped. Stopped on request
1745	123	188	0.75	1.18	12.13	IBM				"		" " again! and again!
	171	175	0,48	1.09	13.22	"				"		" "
1746	518	1258	1.32	7.1	20.32	IBM	18	3	19	15.370	2.67115	ID trip frequent!
1747												
1748							18			"	2.67123	ID trip 7:50
1749	590	1774	1.53	9.77	30.05	"		8	31			coil 4.2 (ID) - amplifier not working (since run 1742)
	37	94	1.09	.53	30.58	"		2	—	15370 15380		← change of E during run!
1750	221	540	1.00	3.06	3.06	"		4	1	15.380	2.67283	problem with stack
1752	115	226	.72	1.28	4.34	"		10	—			
1753	554	1355	1.77	7.54	11.88	"		3	2	15.380	2.67285	
1754	680	1453	0.92	8.10	19.98	IBM		79	1	"		
1755	261	396	0.59	2.22	22.20	"	12	16	1	"	2.67280	
1756										15.370	2.67455	new energy
1757	173	172	1.11	1.49	1.49	IBM	19	—	—	"	"	Some rubbish due to beams not colliding
1758	592	1366	1.53	7.73	9.22	"	16	84	10	"	"	ID tripped several times
1759	647	1160	0.91	6.50	15.72	"	12	50	7	"		
	79	143	0.59	0.80	16.52	"	14	7	1	"		

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPRAE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 GeV-LG

5.10.79

18^{30} Tasso phoned saying that they have no luminosity either → they phone PKR
19^{35} now luminosity
19^{40} start new run
P. Dittmann claims that Event-Selection by NSO now works
20^{13} ID tripped 3 times in Run 1757 due to overcurrent
21^{00} " again " " "
21^{15} " " in Run 1758 " "
23^{40} run stopped for new filling

PKR forgot to steer beams together on WWP

6.10.79

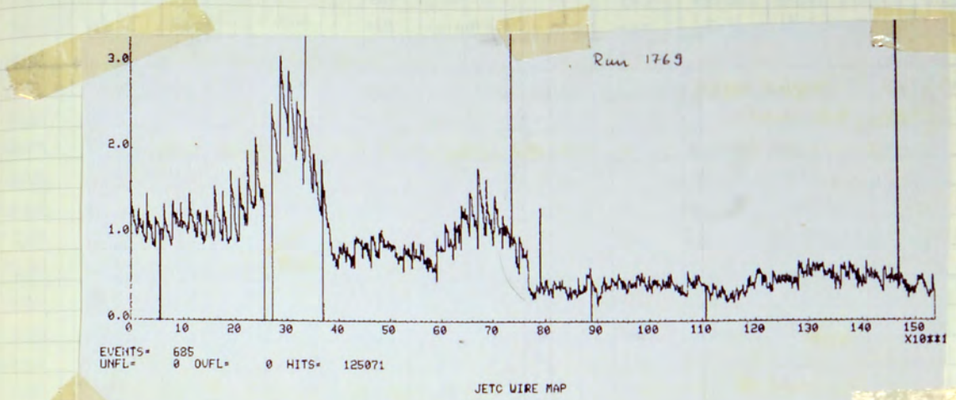
Wriedt, Warming on shift
0^{20} new filling E = 15.39 continued
1^{00} IBM cannot take Daten ab : "IBM busy", IBM has problems, all experiments are without link,
1^{30} LG thresholds readjusted
2^{10} IBM down for a few seconds (×80) after 15 min up again
2^{20} ID tripped
2^{25} no events accepted, run NSO stopped
2^{49} ID tripped
3^{32} ID " , run stopped (new filling expected)

4^{00} Wriedt/Eichler on shift
4^{20} PKR calls: Troubles with synchrotron. No beam for 1-2 hours
5^{14} New Energy, Run NSO started
5^{20} ID tripped
5^{24} no data transferred to IBM, Run stopped. Error 22 false interrupt level 10, ident code = 56 (not correct!) then IBM busy. After ≈ 2 min. IBM busy goes away, but DAS hangs. Print DAS-ST + RTC and start new run.
6^{26} Magnet tripped due to waterflow. Call K-people
6^{58} magnet back on
8^{00} beam lost
8^{50} IBM down
9^{30} Decide to write to tape because IBM still down for at least (next) 15 minutes.
9^{45} ID-trip
9^{51} ID-trip
9^{59} ID-trip
10^{00} -v-

beam loss

LG ≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	Stat RUN	Stat EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

10^{30} Nord hang up. During tape-writing, no corrupted headers found.



same distribution seen in BP-hit map but not in TOF-hit map

11^{00} Background in lower half of detector 2-3 times bigger. Also observed many single electrons in detector outside beampipe but parallel to beam. (Mostly in lower half of detector)
Call PKR. They will investigate the problem.
Observe, that most of the background goes into the (-z) endcap lg.
11^{50}-12^{10} beamscraper moved in by PKR 60mm. Run without ID and observe BP-hit map effect goes away
Yamagishi, Felst in shift
12^{30} new filling showed terrible background TOF ≈ 30%
improved by factor 10 by moving the collision vertical collimators next again

16^{00} Dittmann/Pearce
16^{15} Inner detector trip

JETC: cell 35 (11 in ring 2) V24 repaired by H.R. (run 1774)

7.10. Run 1775 ended due to NSO
0^{00} WATANABE & HAIDT on shift
0^{35} ID trip

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1GeV·LG	LG≥4 GeV	LUMI	⟨L⟩ 10^{30} cm⁻²sec⁻¹	∫Ldt RUN	∫Ldt EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

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Run	Date	Start	Stop	I^+	I^-	Vac	Time sec	Nord Events accepted	All Trigger x 10⁶	TØ reject x 10⁶	TØ accept x 10⁶	T1 acc.+postp. x10³	T2 reject x 10³	T2 accept	T2 collinear	T2 ≥2TOF & ≥1GeVLG
1760	6-10-79	0.21	1.01	8.0	8.0	23/5.2	2382	5789	620	39	581	2030	2624	4539	2817	1775
1761	"	1.15	2:25	5.5	5.5		3910	6925	1018	72	946	2331	2324	crazy	3464	2106
1762	"	2.26	3:34	4.5	4.5		3586	6407	985	39	946	1864	1357	5251	3153	2211
													new	fitting	— new	energy
R63	6-10-79	5:14	5:23	8.4	8.4		323	1225	84	12	72	274	273	928	423	541
R64	"	5:26	6:26	8.4	8.4		3529	7835	918	53	865	2544	2537	6135	3527	2667
R65	"	6:52	8:02	4.0	4.0		3716	6747	967	41	926	1840	183	5286	2977	2396
1766	"	8:46	9:00	7.8	7.9		981	3359	255	~~220~~ 30	225	908	905	2548	1152	1434
1767	"	9:29	10:25				3052	6480	794	43	752	1891	1885	4862	2716	2219
1768	"	10:30	10:49	4.	4.		1245	2314	324	15	309	652	649	1713	1024	757
1769	"	10:53	11:41	3.5	3.5		3032	5085	789	30	759	1472	1468	3804	2292	1587
1770	"	12:38	12:42	3.7	3.7		244	815	63	6	58	235	234	598	303	292
1771	"	12:49	13:38	2.0	2.0		3077	4200	800	26	774	1132	1127	3274	2235	1003
1772	"	14:42	15:44	7.8	7.9		3860	9822	1004	89	914	2933	2924	7322	3822	3504
1773	"	15:48	17:29	6.0	6.0		5853	9825	1471	61	1410	2635	2625	7489	4218	3411
1774	"	17:38	18:07				2068	2830	537	17	521	707	704	2245	1394	897
1775	"	19:05	19:30	7.8	7.8			3697								
1777	"	19:38	19:40				244	480	62	3	59	170	170	347	222	114
1778	"	19:43	21:23				6212	9548	1616	58	1557	3193	3183	6886	4744	2127
											NEW		ENERGY			
1779	"	22:30	23:54	8.2	8.2		3382	9852	874	75	799	3232	3222	?	3765	3379
1780	7/10/79	1:45	0:22	8.2	8.2		4481	3827	1166	64	1102	3165	3156	7223	4036	3234
1781	7/10/79	0:22	1:15				1666	3815	434	24	410	1161	1158	2790	1469	1378
1782	"	01:14	01:51				2154	5352	561	40	520	1650	1645	3903	1902	2106
1783	"	01:53	02:18				1384	3008	360	19	342	879	876	2207	1152	1132
											NEW		ENERGY			
1784	7/10/79	03:09	03:28	8.1	7.7	24/5.5	1368	5862	356	75	280	1507	1501	4446	1589	2874
1785	"	03:30	04:17				2809	9825	731	72	659	2894	2884	7355	3028	4343
1786	"	04:18	04:34				924	2768	240	18	221	830	827	2053	875	1195
1787	"	04:35	05:18				2519	7110	655	47	608	2093	2086	5264	2337	3000
1789	"	06:06	06:47	7.6	7.6	24/5.4	2420	9823	630	106	523	2752	2742	7267	2601	4737
1790	Ignore: no events															
1791	"	06:48	07:04				932	3038	243	20	223	929	926	2229	1024	1246
1792	"	07:06	08:07				3603	9826	938	65	873	2971	2961	7164	3311	3916

59

LG≥4 GeV	LUMI	⟨L⟩ 10^{30} cm⁻²sec⁻¹	∫Ldt Run	∫Ldt Exp	IBM / TAPE	BP Rate-meter x10⁻¹	Bhabhas on line	Multi Hadrons on line	E_{beam} GeV	NMR	
357	869	2.07	4.93	21.45	IBM	16	41	4	15.390	2.67453	IBM tripped
420	989	1.45	5.66	27.11	"	16	61	2	"	"	no more events accepted
446	709	1.04	3.92	31.03	"	17	45 / 284	0 / 84	"	"	run stopped after 15-trip, refilling announced
117	130	2.26	0.73	0.73	IBM	16	12	1	15.400	2.67643	Nord hang up due to false interrupt (see pg 56)
491	1089	1.73	6.12	6.85	"		85	6	"	"	stopped after magnet trip
704	760	1.12	4.18	11.03	"	15	26	5	"	"	beam lost
384	376	2.11	2.11	13.13	"	19	16	0	15.400	2.67631	IBM down for more than 10 minutes
810	789	1.44	4.39	17.52	TAPE FM100	15	47	5	"	"	Nord hang up.
318	228	1.02	1.27	18.79	IBM	10	15	0	"	"	Nord hang up (coincidence with corrupt header)
807	477	0.89	2.69	21,48	IBM	9	18 / 2	2 / 19	"	"	refill requested.
112	93	2.18	0.53	22.53	IBM	17	6	0	15.410	2.67807	50% of the beam lost after 10 min
565	424	0.78	2.41	2.44	"	6	17	0	"	"	
1345	1126	1.61	6.23	9.17	"	16	72	5	"	2.67803	
1369	957	0.96	5.41	14.58	"	12	60	3	"	"	
367	221	0.60	1.25	15.83	"		12	1	"	"	JETC roll 35 repaired now
		1.81	2.72	18.55	IBM	18			15.410	2.67804	This run is also listed in Type 123888 Run-Summary list NSO hang up, JD-typ
69	63	1.42	0.36	18.91	"		5	0	"	"	
1415	1220	1.12	6.97	25.28	"		69 / 241	7 / 16	"	"	
1539	1164	1.85	6.54	6.57	IBM	18	82	13	15.420	2.67880	
1522	1061	1.35	6.06	12.63	IBM	15	66	2	"	"	
722	296	1.01	1.69	14.32	"	15	20	0	"	"	
1108	328	0.85	1.83	16.15	"	"	16	1	"	"	NORD HANG UP
579	166	0.65	0.90	17.05	"	"	10 / 44	2 / 17	"	"	NORD HANG UP
986	399	1.64	2.25	2.25	IBM	21	32	1	15.430	2.68150	NORD HANG UP
1641	813	1.65	4.65	6.89	"		46	0	"	"	normal end
465	231	1.44	1.83	8.22	"	18	13	0	"	"	NORD HANG UP
1338	499	1.12	2.82	11.04	"		34	2	"	"	refill requested
1774	747	1.77	4.27	15.31	"	21	47	1	"	"	No run 1788
											Ignore: no events, plot died
524	247	1.55	1.44	16.75	"	1	10	1	"	"	Nord 50 hang up
1802	849	1.35	4.87	21.62	"	16	41 / 223	1 / 6	"	"	

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1 GeV·LG

00[45] Stop run 1781 to allow P. DITTMANN to change the program (spinning lead glass)
02[18] Nord hang up. Also, Pluto wants new filling and New Energy.
03[04] New Energy New filling. RUN 1784
The histograms indicate something different happening, comparing with earlier runs.
Different background condition? or inefficiency of some counters or what?
8[00] Wroclaw, Yamaguchi
8[20] new LG-thresholds
8[34] Run 1793 terminated, PKR wants to dump the beams for the last current because of vacuum problems during Run 1793 problems with Nord-50 histograms: there were no histograms of previous runs available
9[25] New filling ready
Background problems (see 6.10., 11[00]). PKR tells us that the beamscraper cures this problem only for lower currents but doesn't work for higher ones. They know about the background problem but do not know how to solve it. We try to live with it.
10[24] Run stopped, PLUTO will have increased the energy by 10 MeV
12[08] TST a, PKR wants to dump for new filling, MARK J wants access for 15 minutes to fix some leaks
13[00] PETRA is switched on again
13[47] New filling ready
14[24] Run stopped, NORD hang-up
16[00] Ulmo, Hanoi on shift
17[10] new filling requested by Pluto
18[15] new filling available, but very bad: TP rate more ~ 4 V, TOF/T_dacc ~ 20 %
complaints from all 4 exp.!
18[30] no change up to now, even with ~ ½ I_{start} = 7 mA/beam
18[25] decision: study reason for the bad filling + refill.
by moving 4 collimators in the NE-hall, our background became reasonable
20[15] new filling ready + ok
reason: 10-20 getter pumps were not working
22[47] NSO busy. Reload program: no success ⇒ restart NORD10, reload NSODAR: success
at the same time: problems at PETRA with the getter pumps ⇒ bad beam conditions
and ~ 5 Hz event rate (45% dead time). PKR says they are working on
8.10.73 0[00] Yvonne and Ingrid on shift
0[10] Pluto wants a new filling in < 10 minutes

LG ≥ 4 GeV	LUMI	<L> 10^{30} cm⁻² sec⁻¹	∫Lat RUN	∫Lat EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

1[00] New filling ready with old energy value.
The beam seems dirty (event rate ≒ 4 Hz total deadtime ≒ 21 % instantaneous dead time ≒ 19.5 %)
1[46] LG lead glass is readjusted.
2[09] inner detector alarm occurs (small part of beam lost, according to PKR)
2[55] LG lead glass threshold is readjusted
3[00] energy increased by 10 MeV
≈ 5[30] new filling ready (Pluto request)
5[30] inner detector alarm (anode current); probably again partial beam loss
6:34 Run 1812 is misleading because inner detector alarm occurs in pedestal runs and terminated
7:05 PKR asks for end of period.
COSMIC - TEST with B = 4.5 kG
7:10 Maranka changes trigger to cosmic trigger
Rate ≈ 1 Hz
The spot display does not work together with writing to IBM (display active) and all terminals are blocked

system changes for cosmic ray runs:

1. Delays changed:

ADC:	BP	5.5 →	3.7
	TOF	5.8 →	1.48
LATCHES:	BP	7.8 →	7.82
	TOF	7.87 →	7.35

2. change cabling of Beam pipe counters
3. TDC-start: replace cable by delay-box
4. Trigger:
[BP • TOF (matrix width 23)] * [collinearity matrix, width 5] rate ≈ 2.5 - 3 Hz

11[40] End of COSMIC run
- triggers + others modifications remain unchanged for further cosmic runs.
- Solenoid + compensation magnets switched off.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT post TRUE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1 GeV·LG
62																
1793	7/10	9 12	8 32	4.3	4.3		1175	3929	305	206	99	958	954	2848	685	2215
1794	7.10.	9 23	10 12	7.8	7.8		2884	9825	753	100	653	2114	2905	7057	2944	4119
1795	7.10.	10 12	10 31	4	4		1028	2882	267	23	244	883	880	2223	997	1258
1796		ignore	Junky	data!												
1797	7.10	10 33	12 08	5.4	5.5		5253	9479	1368	81	1287	2941	2962	~ 7082	3853	3319
1798	7.10.	13 48	14 24	7.8	7.9		2306	6514	600	47	553	1321	1315	crazy	2367	2470
1799	7.10.	14 29	15 51				5036	9827	1310	64	1246	2852	2942	7654	4059	3643
1800	7.10.	15 58	17 05	5.0	5.0		4326	6183	1125	37	1087	1803	1797	5142	2968	2249
1801	7.10.	20.16	20.40	8.0	8.0		1589	4380	413	32	381	1556	1551	3496	1663	1864
1802	7.10	20.47	22.07	7.0	7.0		4887	8946	1271	60	1211	3723	3715	7016	4021	3018
1803	7.10	22.10	23.27	5.0	5.0		4757	8065	1237	50	1187	2857	2849	6324	3507	2892
1804	7.10	23.31	23.45	3.8	3.8		989	2152	257	17	239	693	691	1601	750	905
1807	7.10.	23.52	0.16	3.8	3.8		1363	3012	355	41	314	921	919	2321	954	1437
1808	8.10.	1.05	1.51	8.0	8.0	2.5/2.3	2692	9826	1199	100	599	2513	2503	7310	2563	4895
1809	8.10	1.52	2.52	6.6	6.6		3709	7935	886	49	836	2639	2627	5593	2868	2762
1810	8.10	3.12	4.29	5.0	5.0		4494	9974	1168	46	1121	2453	2445	falsch	3217	2509
1811	8.10	4.33	6.29	6.0	6.0		3157	7223	822	72	750	2365	2356	7264	2744	4414
1813	8.10	6.33	9.06	6.1	6.3		1767	4397	511	28	482	1126	1122	3253	1589	1709
1814	8.10							200								
1815								≈ 150								
1816								119								
1817	8.10	7.50						1047								
1818								472								
1819								993								
1820								?								
1821								~ 50								
1822	8.10	10.44						80223								
1846	~~8.10~~ 14.10	18.40		6.8	6.8			~~6987~~ 6965								
1865	"	0.18														

LG ≥ 4 GeV	LUMI	<L> 10^{30} cm⁻² sec⁻¹	∫Ldt RUN	∫Ldt EXP	IBM / TAPE	B.P.	Rhodes on line	Multi hadron on line	E beam GeV	NMR	
63											
944	74	0.37	0.44	22.06	IBM		2	0	15.430	2.68150	PVR wants to dump
1216	928	1.82	5.26	27.32	4	17	65	1	15.430	2.6815	
502	252	1.38	1.92	28.74	"		16	0	"	"	energy increased
							306	7			
1554	844	0.91	4.74	4.74	IBM		40	1	15.440	2.6839	beam to be dumped
890	789	1.93	4.44	9.23	IBM	13	44	1	15.440	2.68335	NORD hang-up
956	1204	1.26	6.85	16.08	"		66	1	"	"	
384	656	0.85	3.69	19.77	"		37	2	"	"	
288	580	2.11	3.35	23.12	"	18	39	1	15.440	2.68328	
							221	6			
564	1346	1.56	7.63	7.63	"	15	70	2	15.450	2.6849	ENERGY INCREASED. ~ cut 2100 call 14.3 ok again
818	913	1.02	5.14	12.77	"		57	3	15.450	"	
378	150	0.87	0.86	13.63	"	15-25	8	0	15.450	"	MSD bias
635	55	0.25	0.34	13.97	"	15	3	0	15.450	"	beam to be changed
1537	943	1.96	5.23	19.20	"	18	64	1	15.450	2.68505	
1176	956	1.59	5.40	24.64	"	15	46	2	"		
1143	849	1.09	4.81	4.81	"		33	2	15.460	2.68665	energy 10 MeV higher with same filling (no change)
1143	1019	1.74	6.12	6.12	"	20	52	3	"	2.68610	new filling after request
628	511	1.49	2.93	2.93	"		21	1	"	"	
											COSMICS with B-field (no change) (no field displayed)
											" " "
											" " "
											" " "
											" " "
											" " "
											" " "
											" " "
											" " "
											" " "
											NEW RUNNING PERIOD - SAME ENERGY
									15.460	2.68749	Many small runs due to CAMAC problems but all o.k.
			~~3.85~~ 4.04	17.90	IBM		72	3			

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 GeV·LG

Delay settings before switching to cosmics:

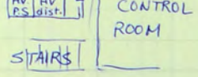
ADC's	BP	5.3
	TOF	5.8
LATCH	BP	7.9
	TOF	7.9

Width not changed

TO SWITCH FROM COSMICS TO BEAM-BEAM TRIGGER:
(EXPERT IS KREHBIEL, RIESEBERG HAS BEEN TAUGHT AND HAS NOTES)
1) TRIGGER NIM CRATE HAS TO BE REWIRED
2) COPLANARITY CABLE TRANSFERRED TO T1-POSTPONE CARD
   OUTPUT OF T1-POSTPONE CONNECTED
   WIDTH SWITCHES OF T1 ACCEPT ADJUSTED
   } EUROCRATE 1
3) DELAY SETTINGS ADJUSTED TO VALUES WRITTEN ABOVE
4) CABLE DELAY HAS TO BE INSERTED INTO TDC-START FOR THE TOF COUNTERS INSTEAD OF DELAY BOX. 2 CABLES HAVE TO BE PUT BACK INTO DELAY BOX (32 nsec)

New system to turn on/off H.V. power supplies for lead glass counters

A NIM module has been installed at a rack on the balcony to remotely turn on/off the 12 High Voltage Power Supplies for lead glass counters. This is to be used until Mr Krehbiel comes up with more general system.
① The switches on the power supplies are left 'ON' all the time.
② To turn on/off, the switch on the NIM module is to be turned on/off. LED comes on/off.
③ Make sure that 12 power supplies are all on/off.
   If not, we have to go back to the old system.
④ The switch for BP & TOF counters is still to be flipped as before



To go back to the old system,
① Turn off the switches on the power supplies.
② Disconnect the lemo cables from the back of power supplies. The cables go into 'REMOTE ON/OFF'.

14.10.1979. Y. Watanabe.

LG ≥4 GeV	LUMI	<L> 10^{30} cm²sec⁻¹	∫Ldt RUN	∫Ldt EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

14/10/79 17⁰⁰ Stable beams, Krehbiel checks trigger
PKR does not know how to move our collimators
Starting problems with computer, CAMAC, everything

18⁴⁰ We finally start taking data
Get very often DMA TIMOUT (ERROR 44, SUB 0): found one TDC-Start for BP-TDC loosely connected. ~~Problem seems to be gone now~~ ← CAM-STAT says it stops in B-2 C-3

Inspecting histograms I find: crazy trigger bits on
T2 inputs in rwig 3 missing (4)

Call Eichler concerning the DMA TIMOUT problem. He says, this is a known problem with the TASSO-DMA (we have now the DMA from TASSO, since our is broken)
Crate-Controller changed in B-2, C-3 ⇒ still old trouble
But now ...

Für Helm & Riege + Raffinierten Pfeifer in T2: In Karte (Rückseite) M 83 kamen keine Pulse, V34 war o.k. Durchwahlen der Karte machte auch kein Unterschied: Kontrollleitung M 7 im Spektra-Strip ist unterbrochen (im Kabel!) Bildschirmstörung Pin 17 geerdet. Kabel muß ersetzt werden.

~~Later~~ Latch Strobe Signal for total Energy Leadglass was set to begin earlier. ~~Now it~~
(Possible Cause of Missing events) New Dial settings
for ToF-Gate (Latch) made wider
(New) ~~Set~~ Dial Setting of all Gates

															15.10.79 / 16.10
Delay	5,30	580	00	765	~~6 866~~	~~540~~	790	794	–	860	–	975	→	910	→ 902
Width	868	875	970	750			702	862	–	960	–	840	→	960	
	BP	TOF	LG	Tagg			BP	TOF		LUM		ETOT			
	ADC						Latch								

See page 84 for tagging tables

0³⁰ A2-Crate Controller in LG crate was exchanged, before rem. Now changed back. This seems to cure the problem?

→ MUON CHAMBER histograms shifted by 1 chamber

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 GeV·LG

15.10.79 0^4 B. King & A. Wagner

0^{25} PKR reduces currents to measure Luminosity. (to be followed by refill + new energy)

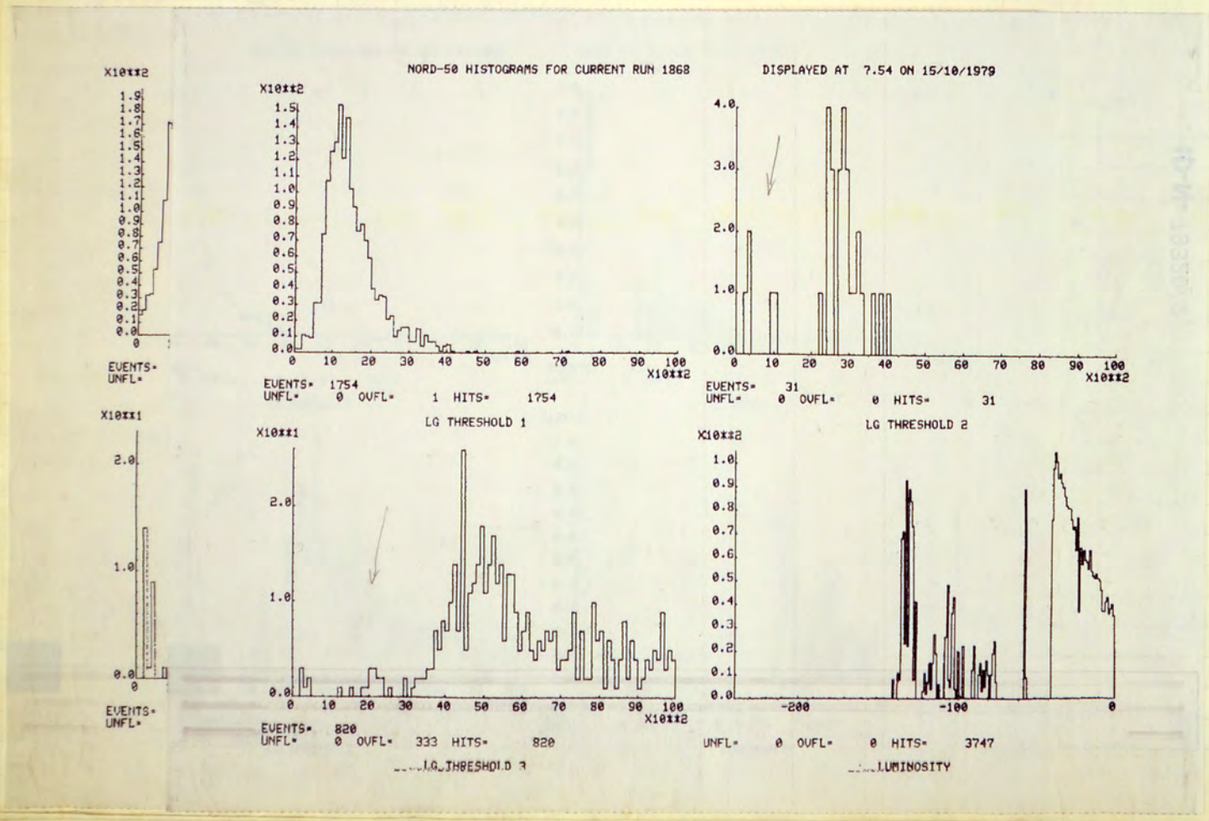
2^{05} beams again

2^{15} beams lost

3.50 beams on again. PKR still has problems with Collimator movements. It seems that the analog display is correct, but not the digital display

8^{00} Tasso requests a new filling

(Note): There is a problem with the leadglas threshold (compare Runs 1867, 1868) During neither of those runs the DVM was connected.



LG≥4 GeV	LUMI	<L> 10^{30} cm²sec⁻¹	∫Lat RUN	∫Lat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

15.10.79 Eichler & Minowa

10^{55} PKR calls stable beams but with wrong energy!

12^{30} change threshold for TOF-discriminator to 100 mV (before 200 mV)

check with controlroom collimator setting. PKR moves collimator from 22 mm by ±2 mm → beam lost. decide to move collimator manually again!

15.10.79 16^{00} Prosper + Drumm

16^{00} We were told and will do so: collimators will be moved by hand 12 turns.

17^{50} We have very good beam conditions, very clean: BP: ≈ 1.7

event rate: ≈ 1.6 Hz (≈ 2.6 Hz at start of Run)

int. deadtime: ≈ 3.7 %

inst. lumin.: ≈ $1.95 \cdot 10^{30}$

18^{19} JOBS ERROR 000044 (OCT) SUBERROR 000701 (OCT) TASK 1. (This error message appeared for no obvious reason)

20^{38} Tasso asked for a new filling. A few minutes later PKR said they need ≈ 15 mins ± 5 mins in order to attend to some machine problems.

NOTE: Watanabe states: the problem of the missing Bhabha × 2-photon events is almost as far as he can tell from recent offline analyses of bhabha's etc.

22^{00} New filling and new energy (15.48 GeV)

23^{00} The collimator problem will be probably looked at tomorrow on afternoon shift by PKR-people.

23^{40} Nord hang up (no more events taken) We took status-information and restarted the Nord. Works OK now

16.10.79 0.00 G. Hughes + A. Wagner

2.42 Tasso asks for NF / End run

3.45 beams again, but ≈ End of run 1880 w/o luminosity (El. static plates = on)

5.30 readjustment of LG thresholds to 100 mV

7.28 Tasso asks for NF.

during HIST-check we find that during past of run 1881 half the BP counters were missing (Crate power trip)

16.10.79. Haidt and Totsuka

940 (Run 1883) DL8 #60 (wires # 480-487) is broken (was still good at 7.3 GeV) I disconnect the start pulse, so that its neighbour #61 (wires 488-495) is not affected. Continued with Run 1884. Working

11:15 DL8 was replaced again.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG

15.10.79 0^h B. King & A. Wagner

0^{25} PKR reduces currents to measure Luminosity. (to be followed by refill + new energy)

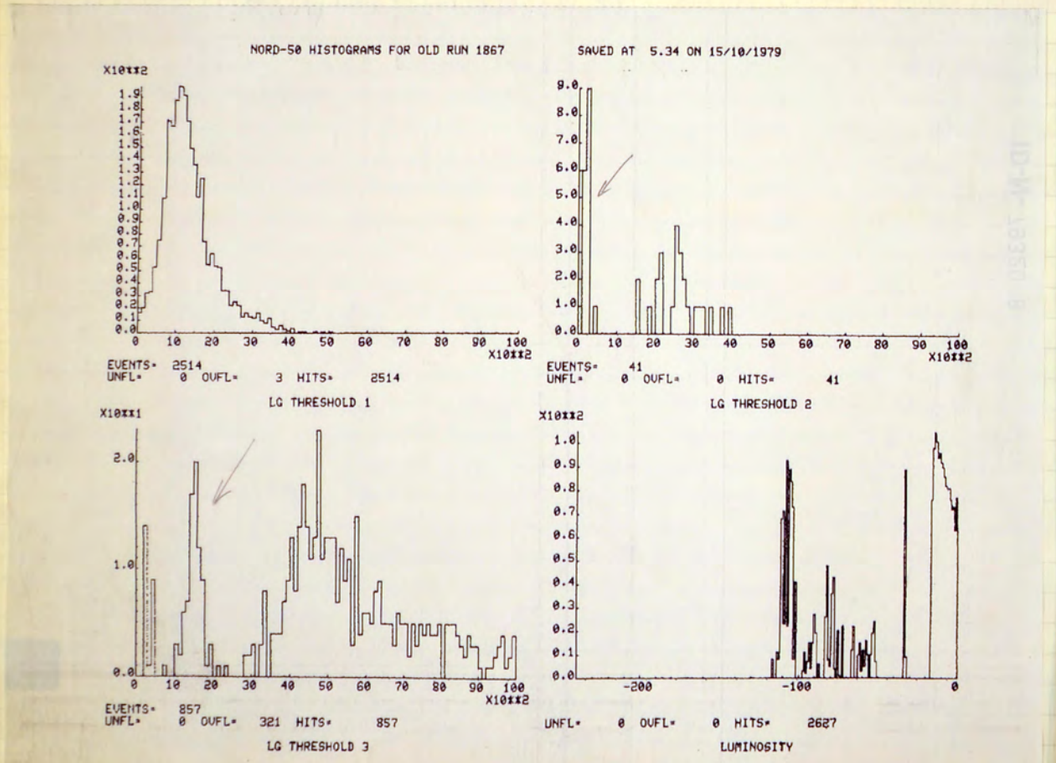
2^{05} beams again

2^{15} beams lost

3.50 beams on again. PKR still has problems with Collimator movements. It seems that the analog display is correct, but not the digital display

8^{00} Tasso requests a new filling

(Note): There is a problem with the leadglas threshold (compare Runs 1867, 1868) During neither of those runs the DVM was connected.



LG ≥4 GeV	LUMI	<L> 10^{30} cm²sec⁻¹	∫Lat RUN	∫Lat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

15.10.79 Eichler & Minowa

10^{55} PKR calls stable beams but with wrong energy!

12^{30} change threshold for TOF-discriminator to 100 mV (before 200 mV)

check with controlroom collimator setting. PKR moves collimator from 22 mm by ±2 mm → beam lost. decide to move collimator manually again!

15.10.79 16^{00} Prosper + Drumm

16^{00} We were told and will do so: collimators will be moved by hand 12 turns.

17^{50} We have very good beam conditions, very clean: BP: ≈ 1.7

≈ 1.6 Hz (≈ 2.6 Hz at start of Run)

≈ 3.7 %

≈ $1.95 \cdot 10^{30}$

) TASK 1. (This error message appeared for no obvious reason)

minute later PKR said they need ≈ 15 mins ± 5 mins

ping Bhabha × 2-photon events is ahead as far of bhabhas etc.

now on ∅ afternoon shift by PKR-people. information and restarted the Mod. Works OK now

w/o luminosity (El. static plates = on)

past of ring (run 1881 half the BP counter

the start pulse, so that its neighbour # 61 (wires 488-495)

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 GeV·LG
68						$\times 10^{-9}$										
1866	15.10.79	2.09	2.15	8.6	8.6		294	806	76	5.6	71	615	614	565	306	320
1867	15.10.79	3.52	5.33	7.0	7.0	$2\cdot10^{-9}$	6114	9810	1590	67.5	1522.4	9356	9346	7448	4808	2682
1868	- " -	5.36	7.52	4.8	5.0		8100	8739	2108	55.1	2053	7401	7393	6772	4938	1910
1869	- " -	10.58	12.26	8.0	8.0		5250	9813	1367	109.	1259	15246	15236	7593	4719	2893
1870	- " -	12.35	13.08	2.0	2.0		1747	2479	454	20.8	434	6100	6098	1853	1108	751
1871	- " -	13.08	13.10	2.0	2.0		0	20	0	0	0	0	0	0	6	3
1872	- " -	14.05	14.23	8.0	8.0		909	1927	237	12.9	224	933	931	1387	663	743
1873	- " -	14.23	15.03				2269	3726	591	247	566	1925	1921	2700	1411	1258
1874	- " -	17.24	18.56	8.2	8.2		5448	9830	1419	74.2	1345	4664	4654	7272	3530	3604
~~1875~~																
1875	16.10.	19.15	20.39	5.3	5.4		6205	4979	1297	50.0	1247	1999	1993	4675	2741	1883
1876	"	22.01	23.58	8.0	8.0	2.4	5670	9824	1475	67	1408	4859	4849	7234	3544	3572
1877	"	23.38	23.40	6.1	6.1		73	145	19	0.7	18	46.4	46.3	87	45	62
1878	"	23.46	1.57	6.1	6.1		7806	9829	2031	63.1	1967	3366	3356	7460	4193	3181
1879	16.10.	1.57	2.42	4.4	4.4	22/64	2586	2540	671	13.8	658	693	690	1939	1276	660
1880	"	3.45	5.18	8.8	8.8		5516	9831	1434.7	66.7	1366	6209	6200	7273	3515	3839
1881	"	5.18	7.28	6.2	6.4		7505	8448	1952	51.4	1900	4272	4263	6191	4065	2018
1882	16.10.	9.08	9.27	8.8	8.6		975	1747	254	20.4	234	1446	1444	1232	647	541
1883	"	9.28	9.55	"	"		1505	1723	392	30.2	362	1790	1788	2053	982	1026
1884	"	9.56	10.36	"	"		2379	3933	619	46.1	573	2296	2292	2936	1503	1400
1885	"	10.39	11.00	"	"		1220	1510	318	64.0	254	911	909	1105	585	502
1886	"	11.16	13.29	4.8	4.8		7986	9818	2078	102	1976	4541	4532	7395	4179	3229
1887	"	13.30	13.50	"	"		1184	1412	308	11.6	297	485	483	1096	643	463
1888	"	15.48	16.58	8.0	8.0			~8000	all numbers lost.							
1889	"	17.57	18.15	5.6	5.6		1031	1006	268	16.5	252	495	494	795	~~479~~ 576	258
1890	"	18.18	19.44	5.6	5.6		5075	5880	1321	118.6	1202	1748	1742	4470	2412	2149
1891	16.10.79	21.28	23.17	8.0	8.0		6491	9824	1688	131.8	1557	4433	4423	7437	3599	3372
1892	16.10.79	23.20	00.89	5.2	5.2	28/-	5931	6932	1542	91.5	1451	2001	1993	5379	3035	2370
1893	17.10.	2.36	2.33	8.0	8.0		164	389	42	4.9	37.9	167	167	274	97	178
1894	17.10	2.33	3.57	8.0	8.0		4927	8887	1282	119.3	1163	4017	4009	6731	2800	3918
1895	17.10	3.57	5.55	6.5	6.5	30	7064	8434	1838	110.7	1727	3175	3167	6467	3608	2855
1896	"	6.38	7.28	8.4	8.4		2953	7216	768	102	665	2672	2664	5046	1707	3332
1897	17.10	7.27	7.46	6.76	6.99		1117	2063	291	27.4	2636	780	778	1529	637	902

LG≥4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int L\,dt$ RUN	$\int L\,dt$ EXP	IBM / TAPE	BP	BHABA ON LINE	MULTI-HADRONS ON LINE	E_{beam} GeV	NMR	Remarks
69											
84	91	1.69	0.5	0.5	IBM		11	1	15.470	2.68925	
863	1461	1.37	8.38	8.88	IBM	1.5	137	7	15.470.	2.68920	
823	1118	0.79	6.38	15.26	IBM	1.2	109	7	15.470		
819	1374	1.51	7.93		IBM	2.0	121	7	15.50	2.6945	wrong energy file used in Petra controlroom !! Energy wrong in mini heads !!!
228	358	1.19	2.08	10.01	IBM	1.6	33	1	15.50		Krushold changed on TOF-discriminator
0	0	0	0	10.01	IBM		0	1	15.5		Beam lost.
155	332	2.05	1.86		IBM	1.6	37	1	15.47	2.68933	New beam, ~~New~~ energy changed. ~~Hard~~ DDAS hangs
318	672	1.68	3.82	20.94	IBM	1.6	60	0	15.47	-"-	beam lost
871	1656	1.73	9.44	30.38	IBM	1.8	156	4	15.47	2.68930	New beam (Normal shp)
											Krohbiel et al. Tests + checks of electronics
579	982	1.12	5.59	35.97	IBM	1.5	96	4	"	"	beam dumped
818	1689	1.71	9.71	9.71	IBM	1.8	136	4	15.48	2.69107	New filling + New energy - normal end of run
9	20	1.60	0.12	9.83	IBM	1.7	2	0	"	"	~~Hard~~ DDAS hang up
1008	1400	1.03	8.01	17.84	IBM	1.6	128	2	"	"	
269	345	0.76	1.97	19.81	IBM	1.4	41	0	"	"	
1002	1555	1.62	8.72	28.53	IBM	1.8	133	3	"	2.69100	
794	1494	1.11	8.55	37.28	IBM	-	137	5	"	"	Knall of BP counters during ramping
											new filling Haidt. Totsuka.
135	371	2.18	2.13	2.18	IBM	1.8	34	0	15.49	2.69270	DDAS ~~Hard~~ hangs up
247	420	1.63	2.45	4.63	"		32	0	"	"	
380	622	1.48	3.52	8.15	"		50	2	"	"	Riesebers and Hatmann want to change one of the DL8 } CHANGED.
159	246	1.14	1.39	9.54	"		30	1	"	"	" " " "
1030	1422	1.00	8.02	17.56	"	1.6	136	3	"	"	
170	157	0.77	0.91	18.47	"		12	3	"	"	New filling
					IBM	1.8	294	3	15.49	2.69280	Ended by power failure in Nord West.
23	183	1.02	1.05	1.05	IBM		2	0	15.500	2.69435	Second half of LG Barrel 2 missing. Trigger rate ≈ 1/2
695	740	0.83	4.21	14.22	IBM	1.3	64	3	"	"	New filling
909	1472	1.31	8.48	22.70	IBM	1.9	126	5	15.500	2.69445	LG timing changed back by ~10 ns, see page 70
658	904	0.87	5.19	27.89	IBM	1.4	75	4	15.500		
57	57	0.00	0.00	~~27.89~~	IBM	1.9			15.510	2.69648	← Energy wrong on tape (.016)
913	1226	1.43	7.07	~~34.96~~	IBM		109	5	"		
787	1179	0.95	6.74	13.81	IBM		96	4	"		
1318	854	1.62	4.93	18.74	IBM	2.0	87	0	"	2.6968	
252	285	1.48	1.65	20.39	IBM		21	1			
							315	10			

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF & ≥ 1 GeV·LG

16.10.79

11°°: The dead-time rate due to IBM busy suddenly went up to 50%. Investigations of the computer centre revealed that the DORIS experiment in the Bremsstrahlung pit (Breidenstein et al.) was running with a much pulser rate and accessing the disk. After calling them {Tel. 2458} they apologized for making this mistake and stopped, and the dead-time rate went back to 3-4%. I wonder how often they make this mistake. One should keep the telephone number in mind!
D.C.

16°° BHABHA definition in NSODAR changed: new from run 1888 on.

16°° R. Marshall and H. Rieseberg on shift

Problems with IBM-link: High dead time by interruptions of 2 seconds up to 1 min.

$I_+ \sim 3.3 \times 4$ mA

Total power failure at 16^{58}. Magnet, Nord and a few crates tripped. No power failure on the Rundsack

17.57 Start Run (# 1889) after power failure. Now we have a new energy 15,50 GeV/beam. By mistake one Lead-glass CAMAC-crate was still off: LG-counters # ~ 2000 to ~ 2600 } always stop run after JDAS error 50. Crate is only initialized at run start. Switching on during run does not help RAE

18.18 Run 1890 started

Mr. Mönkemeyer, R1, tries to reduce the dead time of the IBM-link

19.44 Stop for refilling.

20.58 Now filling ready. Collimators are again controlled by PKR!

Onto, Kobayashi and Boole Narozda are working on the LG-trigger and check the timing to find out why the Bhabha events have the LG $\geq$ 4 GeV bit missing

21.25 Run started (# 1891)

from this run on LG timing changed again.
The linear gate was moved back by ~ 10 nsec. The strobe has now a phase setting of 90°. This makes the timing less tight for the big Bhabha pulses.

LG $\geq$ 4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int$Lat RUN	$\int$Lat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

17.10.79

00°° Flower-Hassard on shift

1°° Tasso requests new filling + change in E

2.20 Run start ~2.2 Hz + small background from e^- 4+4 e^+e^+4

3.26 e^- 3.2 + 3.3

e^+ 3.1 + 3.1

5.52 luminosity = $0.7 \cdot 10^{30}$ cm^{-2}sec^{-1} so we ring Tasso to see what their intentions are. They agree to a refill.

6.20 From event-display I conclude, that 2 cables at the DL8-input are interchanged: Segment 10 cell 3 and 4 second hoop

From Run 1896 on ok

8°° Yamaguchi-san, Feist on shift

yet modelling 5 Hz trigger rate and 30% dead time, LG > 4 GeV is the dominating rate

PKR changed collimators of Mark I ⇒ asked them to bring these back to the old values ⇒ deadtime 8%

14.00 TASSO people called us and said other three groups have got 220 nb^{-1} at 15.52 GeV. So they ~~would~~ asked to ~~shift~~ beam energy higher. (15.534 GeV)

14.10 Trigging chamber voltage test: F.E. input signal was switch pulser input

14.35 GH: Accidentally opened entrance door at -2 muddle pit → ITC-a tripped off.

16.00 Matsumura, Pearce on shift.

16.20 We have luminosity again

16.25 start run 1906

We are having a lot of trouble with the IBM link. It is busy for ~5 seconds at a time but quite regularly. Dead time is $\gtrsim 25\%$ total at beginning of run. 10% int.

18.10 Run 1907 started — abort run

18.11 Run 1908 started

20.25 Tasso requested new filling

20.26 Run 1908 stopped

22.45 Run 1909 started

23.58 Run 1908 stopped

00.00 Ecker Hoyer

00.25. K.520 GeV Jones detects Bla bhas = 15.90 nb^{-1} 15.530 GeV Ratio 15.100

cf. K.510 Ratio = 14.97, 15.500 = 9.57, 15.490 = 15.91 counts/nb^{-1}

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC	ALL TRIGGER $\times 10^6$	TΦ REJECT $\times 10^6$	TΦ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG
72																
1898	17.10.74	7.48	8.02	6.8	6.6	2.10^{17}	759	1328	197	17.5	180	460	459	928	389	561
1899	"	8.02	8.05	6.8	6.6		64	172	16	1	15	37	37	83	59	70
1900	"	8.05	8.44				2248	3830	585	192	393	828	818	2629	896	1817
1901	"	8.45	10.14				5266	~~5585~~	1372	153	1211	1740	1734	4188	2477	1697
1902	"	11^{10}	12^{41}	9.0	8.8		5376	9844	1389	250	1148	5808	5799	7306	3236	3908
1903	"	12^{42}	14^{09}	6.3	6.8		5127	6908	1335	123	1212	~~5916~~ 2891	2884	5120	2690	2361
1904	"	14^{16}	14^{31}	5.3	5.0		~~833~~	~~711~~	217	58	159	275	274	553	345	228
1906	"	16.23	18.09	8.6	8.6	2.7/7.7	6125	9588	1595	249	1346	5307	5297	7128	3341	3732
1908	"	18^{15}	20.26	8.6	8.6		7792	8588	2929	71	1958	3085	3477	6532	3991	2522
1909	"	22.~~05~~	23^{59}	8.4	8.4		6444	9828	1677	133	1543	5236	5226	7418	3603	3768
1910	18/10/74	0^{00}	2^{01}	6	6		7101	7906	1849	104	1745	2616	2609	6217	3520	2715
1911	"	3^{21}	4^{34}	8.5	8.8		4336	7870	1136	105	1030	4295	4917	5735	2734	2859
1912	"	04^{46}	7^{03}	6.5	6.8	3/6	~~7973~~ 2975	9823	2075	122	1953	4259	4249	7347	4325	2959
1913	"	7^{02}	7^{19}				937	1070	244	59	238	328	327	831	517	320
1916	18.10.74	11^{21}	13.23	8.5	8.6	2/7	6615	9821	1720	85.6	1635	5672	5662	7368	3979	3242
1917	"	13.23	13.58	5.5	5.6		2067	2461	538	15,1	523	1125	1123	1865	1082	734
1918	"	14.~~00~~	14.05	-	-	-	268	284	69.8	1.9	67.9	133	133	218	138	71
1919	"	14^{13}	15.15	-	-	-	3685	3823	959	85.8	873	1564	1560	3012	1809	1165
1920	18.10.74	16.53	17.38	9.8	9.2		2664	5838	693	75.3	618	4283	4277	4497	1930	2468
1921	"	17.40	18.43	9.7	9.2		6585	⟷ 3695	961	120.7	840.9	3944	3937	5035	2285	2672
1922	"	18.45	19.08					~ 1850								
1923	"	19.10	19.11					51							26	17
1924	"	19.12	19.29	6.0	6.0		945	1185	246	139	232	636	635	912	519	363
1925	"	20.32	20.35	10.0	9.2	~1/7	107	342	28	2.9	25	198	197	228	99	161
1926	"	20.36	21.22	10.0	9.2		2706	5617	703	87.1	616	4092.7	4087	4309	1762	2466
1927	"	21.38														
1928	"	21.34	21.34	22.00			1563	3036	406	20.2	385.9	1892.7	1889.7	2400	1014	1370
1931	"	22.08	23.43	6.4	6.4		5514	8409	1435	53.7	1381	5760	5752	6514	3083	3414
1932	19.10.	8.40	8.55	6.3	6.1		506	1484	131	13.6	118	327	325	930	295	672
1933	"	8.55	11.15	6.3	6.1		8217	10950	2138	77.7	2059	3859	3849	8609	4377	4284
1934	"	12.40	13.~~25~~ 33	7.9	8.1		3216	10168	~836	94.9	741.9	4200	4190	7889	~2066	5885
1935	4	14.50	16^{02}	6,3	6.4		3840	11792	9~~8~~82	160.4	838,8	5475	5463	9265	2963	6998
1936	"	16^{02}	17^{31}	6,2	6.3	~1/65	~~4980~~	9827	1298	83	1215	4638	4628	7813	2785	4986
1937	"	1731	1823	4,90	5,0		3892	3966	734,8	309~~,2~~	704	1629	1625	3141	1416	1705
1938	"	1823	19^{28}	4.60	4.70		739	569	114	3.5	111	223	222	448	237	213

LG ≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	Slat Run	Slat Exp	IBM / Tape	BP	Bhabha on line	Multihadr on line	NMR	Energy	Remarks
						T					73
227	181	~~1.37~~ 1.35	1.03	1.03	IBM		12	1	24987	15.520	← Stop, because Trigger-box wanted it
14	18	1.63	0.10	1.~~17~~	"		2	0		"	← Run stopped suddenly, reduced TO attenuation afterwards OK ← Sharp collimator to fix in ≈ 30%
6920	341	0.86	1.83	3.06	"		34	1		"	
576	829	0.80	4.72	~~7~~.78	"		84	3		"	
839	1896	1.81	9.73	17.51	"		164	5	2,6890	15.520	Run 1903 ~~während Soll~~ stopped due to JOAS 55
619	1178	1.32	6.76	24.27	"		90	2		"	TASSO People called . they got ~~an~~ >2 $\times 10^{-1}$ at 15.520 GeV. Stop, because energy will be changed.
68	120	0.84	0.70	0.70	"		10	1	2.6996	15.530	New energy without falling. Stop as ~~Beam fell~~ at p 71
933	1493	1.41	8.62	9.32	"	1.9	130	2	2.6997	15530	Interlock was broken
789	1275	0.94	7.31	16.62	"		121	4	"	"	
859	1551	~~1.39~~ 1.38	8.93	8.93	IBM		151	6	2.7014	15540	
654	1047	0.85	6.02	14.95	"		70	6			
396	1319	1.~~75~~ 69	7.64	22.59	"	2.0	98	3	2.7013		new falling
911	1578	1.15	9.13	9.13	"	1.8	156	6	2.7022	15550	new energy
90 ~~138~~	139	0.85	0.79	9.92	"		11	1			
											1914 & 1915 stopped due to bad LG-start-ups
783	1661	1.45	9.62	19.58	"	1.8	116	7	2.70820	15550	##
224	383	1.08	2.24	21.82	"	-	34	0	-	15550	
22	45	1.02	0.27	22,09	IBM + Tape	"	3	0	-	15550	Test run IBM + NORD Mag Tape
332	491	0.77	2.84	25.11	IBM		43	4	--	15550	
434	897	1.94	5.17	5.17	IBM	2.0	84	1	2.70499	15.560	stopped due to Hang up (no reason)
609	892	1.41	5.21	10,38	"	1.8	82	7	"	"	Nord hangup (ZSEND)
			~ 2	~12.4					"	"	Nord hang up, Run-S lost (ZSEND)
							1	0	"	"	Nord hang up, no reason ??zsend??
											beams dumped
86	190	1.17	1.11	13.3	"	1.5	25	0	"	"	
~~38~~	33	1.76	.19	13.5	IBM	2.0	5	0	2.70495	15.560	Nord hang up
535	737	1.59	4.31	17,8	"		65	0	"	"	Nord 50 died ~~with~~
			0.5	18.3	"						Nord 50 has only rubbish (bits & rm's)
260	374	1.40	2.19	20.5	"	1.6	37	1	"	"	energy will be changed.
909	980	1.03	5.67	5.67	"		83	4	2.70655	15.570	beams dumped
916	101	1.14	.58	6.25	"		10	1		"	
1077	12~~.71~~	~~0.89~~	7.30	13.55	"		106	2		15.570	
1409	808	1.46	4.70	18.25	"		71	1	2.70673	"	beams dumped
1632	868	1.30	4.94	~~6.89~~	"	1.85	66	5	270667	15.580	
1069	928	1.08	5.37	10.36	"	1.85	95	2	270633	"	
411	411	0.85	2.39	12.75	"	1.70	29	2		"	
59	64	0.83	0.36	13.11	"	1.70	2	1		"	beams dumped

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG

18-10-79 During runs 1910 the timing of the prepulsesignal into test tdc was reset. ~~to~~
Noticed, that every event has 212 hits in muon system. Display shows very regular pattern. This must be the test program of the miproc. We disconnect the first lemo cable in daisy chain of muon camac modules. This will reduce the length of the muon bank.

02⁰¹ stop runs for new filling.
03²¹ Start Run 1911 – high trigger rate. Reset Pb-Glass Thresholds for 35 mV
04²⁴ " " " " " 30 mV
06³⁰ Lg-threshold changed to 25 mV
07²⁰ IBM-busy and then down. Tasso asks for new filling. Mark-J will enter the area for 30 min.

08.00 Cords / Clarke
8.50 beams were nearly up to desired energy and then lost; reasons unknown
9.00 PETRA TV monitor in back (
9.15 PETRA has difficulties with filling; reasons unknown; maybe problems on injection channels
9.30 Event display – MON2, 3 & 4 monitoring removed from YECORY. H.B.M.
10.30 difficulties with injection, still; no predictions
11.20 PETRA filled: E = 15.55 GeV, $e^- = (\ell_2 = 4.48) + (\ell_4 = 4.101) = 8.58$, $e^+ = (\ell_1 = 4.13) + (\ell_3 = 4.39) = 8.52$
NMR = 2.70330
14.00 LG thresholds checked – ok
15.15 Tasso want to stop and go to higher energy
15.20 Beam off
15.55 Event display slightly modified. YCLRTV modified – IBM BUSY detection is better. A "NO TRIGGERS" message added (17.15)
16.00 B. Nawroka & I. Duerdoth on shift.
16.35 Found Trigger on "Only 1" for TOF coincidence!
Set to "AND" again.
Checked functioning of all "AND"s
Remind P. Dittmann of check!
16.50 Stable 15.56 GeV NMR ~~2.70490~~ 2.70499 ℓ_2 4.63, ℓ_4 4.60, P1 4.56, P3 5.24
Lead glass threshold at 25 mV.
17.50 1920 stopped due to Hang up. 1921 e^+ 7.7, e^- 7.2
18.40 Nord hang-up, I.O. trip

LG≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	∫Lat RUN	∫Lat Exp	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

18.10.79
20.35 New beams e^+ 10 mA e^- 9.2 1556 GeV
21.10 LG thresholds adjusted to 20 mV
21.20 Nord 50 died without any error indication. Just no events!
LG threshold adjusted to ~~3~~ 15 mV
22.00 Tasso wants to change energy on the same beams.
23.05 Tasso info: Next filling for Petra to optimize (~2 hrs)
dump ~ 23.30⁴

19.10.79
0.0. Krebbiel, Yanagisawa
3.10 For a short time stable beams, 88 mA, but high background (7% ⇒3 TOF). Suddenly beams lost before we took a run.
6.00. still no beam. Oh, what a beautiful morning! Petra says "Sonderausfall." (klystron failure)
Expert is at work. He spotted the error, but could not yet mend it.

8.00 H. McCann + P. Steffen on shift.
not Filling Petra
8.20 Filling is finished e^-: 6.1 mA e^+: 6.3 mA 15.57 GeV
8.40 Run 1932 started
11.15 Beam dumps
12.40 start Run 1934 e^-: 8.1 e^+: 7.9 15.57 GeV
13.40 Beams dumped
16⁰⁰ Olsson, Tohoku on shift

17:30 Krebbiel's box ~~stopped~~ was stopped very ~~off~~ often due to spurious signal from "Inner Det Trig Signal"
17⁴⁵ Riesebeg in repair action

20.10.79
0.00 Minowa, Warming on shift 0⁰⁰ beam lost
1.57 new filling updating of the information on the PETRA-TV stopped
2.16 beam lost
3.02 New filling PKR reads currents from a scope
3.35 Tasso announced increase of energy during this filling
5.30 The Rutherford Datalogger got crazy: it is printing wildly, but without leaving characters on the paper. Since no information is printed, we don't put in a new paper tape. It would only run through within a short time but would nevertheless be empty any how. At 8.00 switched off

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 ToF ⊗ ≥1GeV·LG

20.10.79

5⁴⁵ ID tripped (23.3)

6¹⁰ beam lost

8⁰⁰ Hughs. Matsumura on shift
Run # 1949 "NO EVENTS for --- SECONDS"

8⁰⁸ STOP Run 1948 without "IBM BUSY" & without "N50 BUSY"

8⁰⁹ start Run 1949 Trigger box in "RUN" green + "Event Accept" white mode.

8⁴⁹ Stop Run 1949 Print DAS-STAT 5

8⁵⁴ Start Run 1950 RTC 5
STOP
EXIT, RT ZDAS, N50DAR & start Run 1950.

9³⁵ Phone call by TASSO: Pluto could not take any data at this energy. We agree to accumulate more lumi so that the 3 experiments together get ~80 nb⁻¹.
We take a generous 30 nb⁻¹ at this point.

9⁴⁵ Calculation of Bhabha/nb⁻¹ and Hadrons/nb⁻¹ show that at 15.590 GeV
Bhabha/nb⁻¹ = 10, Hadrons/nb⁻¹ = 0.39. These rates are very low and appear to be due to run # 1941 which has 8.35 nb⁻¹ but only 14 Bhabha & 0 hadrons ⇒ expect 140 and 5 respectively
Excluding Run # 1940 yields rates consistent with previous data but on only 14.7 nb⁻¹
E_p = 15.600 at 20.93 nb⁻¹ yields Bhabha/nb⁻¹ = 14.5, Hadrons/nb⁻¹ 0.4 ± 0.13
again lowish
Further investigation shows that Run # 1940 lasted 7 minutes and accumulated 8.3 nb⁻¹. Lumi = 155 triggers ⇒ 1.01 nb⁻¹
∴ ∫Ldt for 15.590 GeV = 15.7 nb⁻¹ only.
What happened between 20²¹ and 01⁵⁶ on 19.10.79 ?
Tasso called they will refill in ~ 15 min. Same Energy we will have 28 nb⁻¹ they also have 28 nb⁻¹

10¹⁷

19¹⁵ Stop Run 1950
19¹⁶ Start Run 1951
19³³ Stop Run 1951 New filing
11³³ Start Run 1952

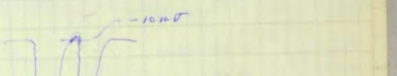
LG≥4 GeV	LUMI	<L> 10^{30} cm²sec⁻¹	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

12.15 Run Summary of Run # 1953 (after Computer Hang with NO IBM BUSY, NO NORD50 BUSY but NO events for ≥ 1 minute) had only 1 event & All Histos were empty
Run # 1954 also had empty histograms stop & print summary — as above zeros
EXIT
ESC
ENTER RT
RT ZDAS
& LOG
⟶ N50DAR
Run # 1955 looks OK.

14⁵⁵ Start New filling
15⁵⁰ Still no beam.

16:00 Kawabata, Suda on shift

16:50 • Lead glass threshold is adjusted to its 50% (-10 mV) point.



• Run # 1957
T_2-postpon } too big no.) something wrong !!
T_2-rejected }
multi hadron event too few exist.
• Run # 1959 LG-threshold set at -5 mV for all clust
• 19:15 (Run # 1959) Inner Chamber HV-alarms
• Run # 1960 N-50 Warning (says No_event) ⟶ Program is re-loaded. (why it happen so many times !!)

19:50 The "NORD50 BUSY" message does still work - I tested it by aborting the Nord50 during a test. The major source of 'hang ups' is probably the COPY task from Nord50 ⟹ Ring buffer 2 which we know about but don't understand. (H.E.M.)

ZDAS altered so that, like YDEBUG, it opens & closes the lineprinter properly e.g. for RTC 5 the last line is flushed out now. Also the time and date is put at the top of lineprinter output and DAS-STATUS includes RTC so this need not be done separately

17.E.17

⟹ To page 80

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TΦ REJECT $\times 10^6$	TΦ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 ToF $\otimes$ ≥ 1 GeV·LG
1939	19.10.79	19^{20}	20^{24}	9100	9800		3754	9828	977	82	894	6369	6360	7527	2700	4752
1940	"	20^{24}	20^{31}	7900	7900		386	803	100	6.9	93.3	470	469	607	218	375
1941	"	20^{33} 21^{15}	22^{15}	7000	7100		5624	1087	1463	67.7	1395	4886	4876	7535	399	438
1942	"	22^{11}	22^{34}	5300	5400		1377	1850	338	11.5	346.8	892	890	1408	750	653
1943	"	23^{15}	0.06	9100	9300	$1.7\cdot10^{-9}$	2921	7583	760	60.4	700	5926	5918	5690	2105	3543
1944	20.10.79	1.53	2.16	7900	8130		3350	3421	351	25.1	325.6	2302	2299	2533	941	1557
1945	"	3.02	3.35	8.060	8060		1999	5136	520	36.9	483	3486	3481	3855	1478	2317
~~1946~~	~~"~~	~~3.39~~														
1946	"	3.39	5.18	7.4	7.4	$7.1\cdot10^{-9}$	5891	9829	1533	63.0	1470	5781	5771	7340	3585	3648
1947	"	5.19	6.08	5.6	5.6		2685	3464	699	20.7	678.2	1583	1580	2605	1444	1142
1948	"	7.06	8.08	8.7	8.8		3658	9824	951	76.3	875	7941	7931	7708	2457	5083
1949	"	8.09	8.49	7.2	7.2		2312 5670	5656	601	39.4	562	3224	3219	4522	1487	3443
1950	"	8.52	10^{15}	7.2	7.2		4788	9805	1235	64.0	1171	4212	4202	7796	2686	5040
1951	"	10.46	10^{33}	5.0	5.0		983	1671	256	10.3	245.5	709	708	1338	535	807
1952	"	11^{33}	11.49	8.0	8.0		988	3401	257	29.5	227.8	1339	1336	2228	631	1584
1953	"	11.54	12.02	"	"											
1954	"	12.05	12.16	"	"											
1955	"	12.18	13.59	"	"		5980	9832	1557	62.9	1493	5147	5137	7688	3478	4129
1956	"	14^{00}	14.54	5.1	5.1		2861	4523	745	27.4	718	1774	1765	3129	1499	1638
1957	"	16.30 17.49	17^{36}	9.30	9.40		3828	6782	996	57.2	939	12890	12883	4486	2626	1680
1958	"	~~17.55~~		6.90	7.00		1034	3079	269	21.2	248	973	970	1076	629	423
1959	"	18.11	19^{15}	6.50	6.50		3551	5529	924	32.8	892	2508	2499	4000	2072	1969
1960	"	19.24	~19.30	5.30	5.60		190	304	49	1.8	47	101	101	210	116	116
1961	"	19.34		5.20	5.30		1287	3509	368	~~23.3~~	337	669	666	1866	785	1140
1962	"	21.00	~21.32	10.0	9.7		1921	6680	~~4461~~ 4773	72.2	427	4167	4160	4598	1376	3144
1963	"	21.36	22.05	~~8.3~~ 8.0	8.1		1651	4334	429	30.7	399	2829	2825	3290	1176	2124
1964	"	22.14	22.22	7.20	7.20		370	1248	96	8.9	87	460	459	758	245	539
1965	"	22.26	23.02	7.00	6.80		2146	5427	558	34.9	523	2118	2113	3675	1313	2369
1966	"	23.06	0.26	6.20	6.10		4734	9825	1232	66.3	1169	2841	2832	6043	2543	3556
1967	21.10	0.27	0.35	4.8	4.9		263	286	68	1.6	66.8	119	119	208	119	85
1968	21.10	2.09	4.02	8.1	7.2	$4.8\cdot10^{-9}$	6701	9824	1744	64.1	1680	6627	6617	7265	3994	3124
1969	"	04.03	05.00	5.7	5.2		3377	3922	879	22.7	856	1821	1817	2980	1808	1117
1970	"	5.59	7.49	8.7	8.7	$6.9\cdot10^{-9}$	6444	9823	1679	65.1	1612	8208	8198	7068	3990	2767
1971	"	7.50	10.48	5.7	5.7		10256	9826	counter overflow!	55.6	counter overflow!	4306	4297	7212	5234	1843

LG ≥ 4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int$Lat RUN	$\int$Lat EXP	IBM/TAPE	BP	Bhabha on line	Multihadron	NMR	Energy	Remarks
944	1337	2.07	7.77	20.88	IBM	2.0	118	3	2.70833	15.580	new filling continued from P. 73
71	122	0.88	0.73	21.61	"	1.90	8	0	"	~~15.580~~	
842	1434	1.49	8.35	8.35	"	1.70	14	0	2.70998	15.590	← Number of online Bhabha very low and of hadrons
163	280	1.18	1.63	9.98	"	1.70	20	0	"	"	New fill
757	1069	2.12	6.18	16.16	"	2.0	95	4	2.70998	"	Beam lost
343	434	1.87	2.52	18.68	"	2.0	42	4		15.590	New fill beam lost
545	707	2.05	4.09	22.77	"	2.0	56	1	2.7100	15.590	New fill
										15.600	this fill continued
863	1610	1.59	9.36	9.36	"	1.9	138	4		15.600	
295	542	1.17	3.15	12.51	"	2.4	41	2		"	beam lost
877	1207	1.91	7.00	19.51	"	2.0	91	3		"	
538	593	1.48	3.42	22.93	"	2.0	62	0	~~2.70998~~	"	Computer Hang up
1099	929	1.12	5.34	28.27	"	1.5	87	2		"	
167	162	0.94	0.96	29.23	"	1.5	16	2			Beams dumped for new filling
863	342	1.75	1.77	31.84	"	2.0	14	0	~~27117~~	"	
			~0.5		"				27117	15610	Computer Hang up
			0.87		"					"	Stopped because NORD-50 HUNG ALL Empty
855 ~~3478~~	1283	1.24	7.40	7.40	"	1.5	107	6		"	
955	447	0.89	2.56	9.96	"	"	29	2		"	
792	1486	2.25	8.61	18.67	"	"	136	1	2.7135	~~15610~~ 15620	warning from new partitions, no action taken
1721	303	1.69	1.75	20.42	"	"	30	0	~~27118~~	~~15620~~ "	
611	916	1.50	5.34	5.34	"	"	74	3	2.7153	15620	Ina. Ch. HV-alarm at 19:15 → checked all OK. warning; no event. STOP RUN (Very short run)
46	47	1.46	0.28	5.62	"	"	6	0	"	"	
1380	277	1.77	1.63	7.25	"	"	25	1	"	"	Beams dumped for new filling ~~Sec Page 80~~
1284	788	(~2.66) ~5.1		12.35	"	1.9	60	1	2.7153	"	new filling — Luminosity counter doesn't working Luminosity is exported from low threshold
416	621	2.23	3.68	16.03	"		52	1	"	"	warning; no event. stop run NSD hung up
347	139	2.24	0.83	16.86	"	1.5	11	0			Computer hung up (no event ....)
1079	663	1.84	3.96	20.82	"	"	59	1			not new filling
2610	1166	1.47	6.97	6.97	"	1.7	120	1	2.7153	15630	beams dumped
27	51	1.15	0.30	7.27	"	1.5	2	0		"	
819	1726	1.54	10.32	1759	"	1.5	146	8		"	
276	665	1.17	3.95	21.54	"	1.2	56	2			beams dumped
693	2041	1.90	12.25	12.25	"	1.9	145	2	2.71877	15.640	
812	1809	1.06	10.86	23.11	"	1.1	165	5	2.7187	"	10000 records.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF $\otimes$ ≥ 1 GeV·LG

20.10.79 (cont. from page 77)

- Run # 1962. Luminosity Counter doesnt working from the begining of this Run.
  → ① Scaler dosent count up. ② Color display shows allways zero
  Mr. Hughes checks his NIM module (coincidence) → Coincidence Module is exchanged.
  From the Run # 1963 Luminosity Scaler is otc.
  LG - threshold set at $X = 0$ ~~mV~~ mV

- Run 1963 } Nord hang up → Nord Hanging up could happen when we use Graphic Display at the same time!! why?
- " 1964 }

22[55] During # 1963 #64, Lumi scintillator threshold reset to 300 mV all A and all B counters. (1200 mV on test point)

21.10.79 Watanabe, Naroska

0.15 LG threshold adjusted to $x = \pm 10$ mV

0.35 Stops run, Petra will be refilled
We checked histograms:
The leadglass seems a little bit disturbing. Suddenly also the endcaps get noisy.
The spike below 4 GeV in the threshold 3 histogram is growing.

2.03 New filling ready. e^- 4.3, 2.9 mA e^+ 4.3, 3.9 mA
Run 1968 → channel 122 of ENDCAP LG now dead, 123 seems to be 2x as high instead.
LG threshold now set at +15 mV. Seems to stay there.

6.00 New filling ready New energy 15.640
LG threshold adjusted to 20 mV

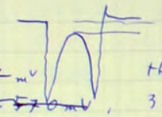
08:00 Hubbiel, Ball on shift
10:41 10,000 records — end run 1971
10:43 Starts Run 1972
10:49 Stop run 1972 — beams dumped

LG ≥ 4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{2}sec^{-1}	$\int$Lat RUN	$\int$Lat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

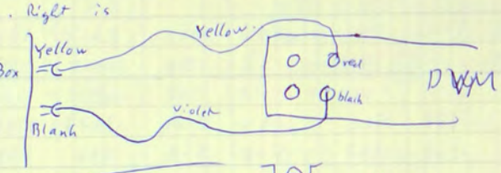
Looking at histograms from run # 1971
LG. seems quieter, + thresholds are stable.
Inner detector, TOF, B.P. all O.K.

12:09 Stable beams: start run 1973

12:31 Pause while Hubbiel makes some tests on trigger.

Leadglass Summing pulse looks now 

20 mV which ~~enters~~ corresponds to negative x in the formulas for the threshold voltages.
I set the voltages as follows: ~~4: 570 mV~~, 3: 580 mV, 2: 480 mV, 1: ~~200 mV for safety~~ 1: 200 mV minimum of Box.
~~reason not quite as in formula~~)
Some people do not know how to use a DVM.
The cords have been in the two red sockets, which is wrong. Maybe all the old readings were wrong. Right is



13.44. Leadglass Pulses fluctuate, . Kobayashi is not at home. Called Tetsuka. Says Wait for Kob. who is on shift at 16[00].

14.07. Threshold (Pedestal went to −40, with fluctuations. Thresholds were not readjusted because of fluctuation. No one of the Japanese available. We try again. Run started (1974) anyhow, on good luck.

14:14 Strong smell of burning in trigger electronics! Run stopped. Hubbiel investigating cards in rack 7.

14:40 Hubbiel removing cremated capacitor — other works also necessary to repair board.

15.10. Start again with caution RUN 1975

15.41 LG - Tot. Energy-Signal looks sometimes like Saturn Rings  Famous Cassini division.

16.00 Kobayashi/Kerer
Kobayashi investigates LG-problem

17.00 New filling + new energy requested by Jasso. I tell that we have only 17 nb^{-1}, but all other exp.[s] have more than 20 nb^{-1} and want to change energy. So I have to agree.

19.15 T.K. checked LG linear sum level shift. Timing between TØ and linear sum was drifting by ~10 nsec although ~~TØ~~ timing between TØ and propulse was OK! Without beam everything seems OK. (level ~ 0 cnts)
It is also stable with the beam. "The cause might be temprature." ← Keep the door to this room closed!!
Remark: When you adjust the linear sum level, wait for ≈ 2–3 min until it becomes stable.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPULSE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF $\otimes \geq 1$ GeV·LG	LG ≥ 4 GeV	LUMI	$\langle L \rangle$ $10^{30}\,cm^{-2}sec^{-1}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM / TAPE	B.P.	BHABHA	MULTI HADRON	NMR	ENERGY	REMARKS
82																												83
1972	21/10/79	10:43	10:49	3.7	3.8		388	271	101	1.3	99.6	102	102	195	167	24	27	49	0.77	0.3	23.41	"	0.8	4	Ø	2.7187	15.640	beams dumped
1973	21/10/79	12.08	14:01	8.40	8.50		6319	9686	1643	70.1	1573	9476	9466	4978	3762	967	2863	1918	1.81	11.46	11.46	"	1.6	162	4	~~2.7187~~	15.650	Run stopped. Leadglass the total energy running amuck. Leadglass Pedestal went to -40.
1974	21/10/79	14:07	14:13	5.5	5.6		383	400	99.4	3.0	96.3	389	433	275	208	58	4231	91	1.40	0.54	12.00	"	1.7	2	Ø	~~2.7187~~	15650	1974 stopped - smell of burning in trigger electronics.
1975	21/10/79	15:10	17.01	4.7	4.7		6302	7992	1691	74.5	167	3659	3651	4055	3095	863	3504	947	.86	5.56	17.56	1857		84	4	2.72045	4	During Run: Leadglass amuck, LG rates madly up and down. Last Rate 8 Hz, 01.80%, but went away as it came.
1978	21.10.79	19.40	19.46	8.3	8.2		335	698	87	4.7	82	482	491	526	220	295	5947	117	2.05	.69		TAPE	1.8	6	Ø	2.72259	15.660	
1979	"	19.46	20.35				2846	5942	740	39.7	701	3276	3270	4542	1751	2775	523	860	1.85	5.25	5.25	1847		72	4		"	stopped because LG becomes noisy. Reset pedestals
1980	"	20.34	21.23	6.3	6.3		2829	4768	736	30.1	706	2157	2152	3640	1638	2024	356	702	1.52	4.29	9.54	"		53	3		"	fastest crew, ever on shift! stopped (LG noisy)
1981	"	21.23	21.38	5.5	5.4		874	1376	227	8.4	219	515	514	1062	455	620	112	200	1.79	1.22	10.76	"		16	Ø		"	Nord stopped taking data without any message.
1982	"	21.40	21:46																									No Run-Summary
1983	"	21.47	23:06	5.1	5.1		4447	5220	1209	32.0	1177	1959	1954	3967	2438	1520	426	816	1.07	4.97	15.73	"		72	2		"	
1984	"	23.06	23.35	4.2	4.1		1599	1606	416	9.3	406	497	495	1272	833	423	176	227	0.87	1.39	17.12	"		19	1		"	beam dumped
1985	22.10.79	00.47	00.47	7.0	7.4			(1)															1.7			2.72233	15.660	beam lost shortly after start
1986	"	1.42	2.59	8.4	8.5	5.2×10⁻⁴	4616	7640	1200	~~4752~~	1148	5751	5743	5672	2765	2775	565	1393	1.83	8.46	25.58	"	1.9	105	6	2.72239	15.660	stopped, beam energy is changed
1987	"	3.02	4.32	5.7	6.0		5258	6274	1368	37	1331	3005	2999	4707	2880	1826	446	1068	1.23	6.49	6.49	"	1.4	85	2	2.7240	15.620	new energy (beam lost)
1988	"	5.46	6.12	7.2	7.0		1426	2345	370	18	352	3801	3798	1786	930	842	185	372	1.59	2.27	8.76	"	2.0	30	2	"	"	stopped because of noisy endcap LG-counters
1989	"	6.12	8.35	6.0	5.7		8426	9828	2162	63	2129	8347	8338	7601	4593	2905	730	1494	1.08	9.11	17.87	"	1.3	118	4	"	"	LG OK
1990	"	08.36	9.00	3.6	3.6		1410	1257	367	8.07	358	622	621	990	681	307	101	169	0.73	1.02	18.89	"	1.5	10	0	2.724	15.670	
~~1991~~ 2007	"	Pulser runs for ID.																									~~15.670~~	
2008	"	14.36	16.43	7.8	7.8		7530	8279	1960	57.7	1903	10221	10212	6732	4230	2394	555	1001	~~8.81~~	6.08	24.97	"	2.3	73(4)	3	2.72415	15.67	B.C. COUNTER PEGGING HIGH INITIATIVELY BUT DROPPED TO 18 Stop for new Energy
2009	"	19.59	21.42	8.1	8.3		5984	9232	1556	63.3	1493	6083	6073	7165	3417	3765	270	1227	1.24	9.44	7.44	"	1.8	87(7)	1	2.72585	~~15.650~~	new energy
2010	IBM busy for ≈ 2 minutes, data retarded																					—	1.8			2.7266	15.680	beam lost, stop scan
2011	23.10.79	3:18	3:44	7.2	6.9	5.2×10⁻³ / 1.8 "	1283	1769	333	11	322	1690	1688	1323	727	554	145	299	1.41	1.81	9.25	IBM	1.8	27(3)	0	2.7266	15.680	no data (0 records)
2012	"	5:37	5:45	8.4	8.2			1%-137?														"	2.0			—	"	biggest part of beam lost, 1 min. later dumped
2013	"	5:48	6:21	7.9	7.7		1941	3819	505	268	478	3478	3474	2841	1222	1596	341	566	1.77	3.44	12.69	"	1.9	37(4)	1	2.72589	"	no IBM-Ack found, then nonsense "do not use" stopped by self
2014	"	6:25	6:52	6.7	6.6		1560	2602	405	19	386	2034	2032	1995	962	989	217	379	1.49	2.32	15.01	"	1.6	29(3)	0	"	"	Stop due to 'No Events'
2015	"	15:29	15:29					23															2.0			"	15680	biggest part of beam lost, not dumped
2016	"	13.07	13.10					No	DATA		IBM		PROBLEM															beam lost immediately.
2017	"	13.12	15.12	8	8		7051	9460	1834.4	97	1738	16393	16383	7319	4107	3079	687	1421	1.23	8.67	23.68	"	2.0	129(4)	4	2.72690	15680	new fetting
2018	"	18.06	18.43	7.8	7.8		2069	3402	535	31	504	6476	6473	2646	1333	1237	208	528	1.56	3.22	~~3.22~~ 5.07	IBM	2.3	42(5)	1	2.7288	15690	no trigger → stop scan
2019	"	18.45	19.13	5.3	5.0		1602	2108	0417	15	401	2417	2415	1601	895	715	139	298	1.15	1.85	~~1.85~~	"	1.5	26(4)	1	"	"	no trigger → stop scan
2022	"	~~19.18~~ 19.18	20.10	"	"		3115	3501	810	20	789	2057	2054	2776	1139	1143	232	442	0.87	2.72	7.79	"	1.5	30(4)	1	"	"	beam lost

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG	LG≥4 GeV	LUMI	<L> 10^{30} cm²sec⁻¹	Stat RUN	Stat Exp	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

19^{35} New filling ready
Nozaki checks LG

IBM ~~down~~ has problems with the links no write on tape, since R1 says: severe problems

19^{45} IBM link ok ~> forget Run 1978 (proposal)

	Delay	Width
20^{55} Run # 1979 Tagging Latel Strobe reset. cf page 19 Trigger latch	860	960
Scintill at cv latel	700	810
(was "	758	750) page 19

Trigger latel not touched only scintillater strobe

21.40 "No events" on display ~> Run stopped. F1 ⇒ Nod asks for NSO-Program. I load NSO DATA

21.45 Run stopped again because "No events". F1 worked properly this time, but we don't get a useful Run-Summary for the previous Run

23.00 IBM - Error check 4 (lead buffer length) and "NO Events" ~> stop Run and start new one

23.35 Freigabe for new filling

22.10.78, 0^{00} Watanabe / Brumm

0^{47} shortly after the new filling was ready: beam lost; ID tripped (power supply was fallen out)

1^{40} new filling ready

3^{00} energy of this filling is raised to 15.67 GeV

4^{32} beam lost, ID tripped

~~5~~^{40} TV does not update (PETRA STATUS). ~~PKR~~ too high background. bp = ~~5~~ 1.0.
PKR controls collimators: one is too far in. After correction the beam is OK

5^{45} start

5^{48} ID tripped with overcurrent. Reason unclear; partial beam-loss?

6^{12} Looking at event displays, we found that some of the end cap counters seem to be always on. As they were ok previously, we decided to stop this run and start a new run to have the right pedestals. Now they are gone, (End cap hit map had several spikes before, now ok.)

7^{04} ID trip with overcurrent. Reason unclear.

08^{00} HEDGECOCK, STEFFEN ON SHIFT.

09^{00} SWITCHED OF EQUIPMENT. PETRA OFF UNTIL ~ 11^{00} HRS.

11^{20} SH Lumi Scintillator Hesh-Peds reset to 800 mV on Monitor Pmt Next Run # 2008
One compensating magnet power supply faulty. HER. PILLAT informed.

9^{00}–11^{30} Pulses runs for ID / for details, see Chamber log book

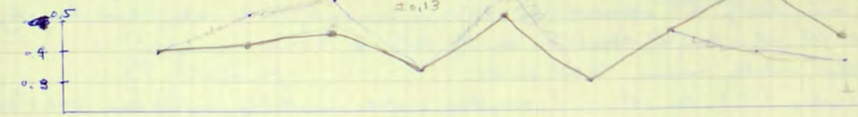
Checked at intervals with PKR. Various problems put forward for delay in restarting.
Latest estimate of beam on 13.30 HRS.
HER. PILLAT still working on power supply.

13^{15} Compensating magnet power supply is now on and announced OK.

14.30 FILLING COMPLETE. STARTED TO SWITCH ON. INITIAL HIGH BACKGROUND. APPEARED TO REDUCE WHEN ALL COLLIMATORS HAD BE SET.

16.00 Nozaki & Elsen on shift

E (GeV)	15.59	15.6	15.61	15.62	15.63	15.64	15.65	15.66	15.67	15.68
SLAT (nb⁻¹)	22.27	31	20.42	20.82	41.54	43.41	~~47~~ 47.56	25.58	29.97	33.68
Nhad	9	13	~~10~~ 9	7	11	7	8	16	~~7~~ 11	6
Nhad/SLAT	0.395	0.419	0.~~44~~41 ±0.13	0.336	0.511	0.299	0.456	0.625 ~~0.625~~	0.~~44~~ ± 0.1~~3~~	0.183 ± 0.103



16.30 Tasso called me that they intended to change beam energy in 10 minutes.

19.45 New filling e^- 4.2 4.1 mA e^+ 4.1 4.~ mA E_B = 15.680 GeV.

20.20 LG endcap hit map shows 4 channels are always on.
CHA 102, 108, 126, 132

20.30 Lead gl. am threshold readjusted.
BP = 1.6.

21.45 Beam lost stop run.

22.30 PKR says the interlock was broken and now they are changing it to new one.
It takes ~ 30 minutes then will start filling.

23.55 Magnet trips. Cooling water very warm. Vorlauf 34°C, Rücklauf 57°C, Lake 24°C

23.10.78 0.00 Yamagisawa, Brumm on shift.

~~0~~ 1.00 We checked the cooling water temperatures with the ~~control~~ Kontrollrechner and "through the phone" with Hedgecock. The values are normal!! The magnet did not trip any more.

~ 0.20 start of filling.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPRUNE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG

3^{10} Finally beam (There had been problems with the PKR computer ⇒ therefore the filling took so much time)
At start of Run 2010 we get not linked to the IBM (IBM busy for minutes, no event read). We restart with T1 and have the same problem. After about 1 minute the link is established without further action.
Consequence: Run 2010 is empty. We write on Run 2011.

3^{33} Biggest part of beam lost (problems with PKR computer again). The ID did not trip: Run continued.

3^{40} PKR asks for Freigabe. We end run. Beam is dumped.
PKR announces that it might take some time to refill because of their computer problems.

5^{35} new filling ready

5^{37} At start of Run 2012 again no IBM link for 2-3 minutes. Then it came, but only 1 event (pedestal) read.

5^{40} Then a ID trip with overcurrent occured (maybe some beam loss). After switching on the ID and pressing the Run button at the trigge box, according to the colored display 135 events were read. But this number did not change any more. The Stop-command did not work. We stopped the run by Exit. ⇒
⇒ Run 2012 contains probably nonsense. Do not use it.

5^{47} After reloading the system (EXIT, ESC, RT, ...), everything worked immediately. Everything means: IBM-link, data taking.

6^{21} We stopped runs because of 'No Events' message for ~2 minutes and got status informations by command 'DAESTAT 5'.

6^{52} Run stopped because the biggest part of beam lost (~6mA). PKR people said they wanted to fill.

0800 Tortella + Murphy

9:30 PKR has a problem on the transmitter and the cabities. It will take more then ½ hour.

10:29 Start run 2015, beam lost immediately.

10:55 Event display modified to correct focus/defocussed spot problem on CYLINDER view. H.E.M.

11:30 filling ended but beams lost immediatly.

12:45 PKR 10 mm to restart IPS system

13:07 PKR had a trouble to move the collimators in.

15:12 End run to dump beams.

15:45 New error messages:
a) during Eg-ped. run, the NIM-AND-OR switch on trigger box is checked if in position "AND"
b) in each event, the length of T1-, and T2-trigger bank is checked since the bank is missing sometimes (error code 57, 60)
c) at run start, all muon miprocs are reset with A1F17 $D=400_8$. If message crate xx no responce appears, you should call muon experts.

RAE

LG≥4 GeV	LUMI	<L> 10^{30} cm²sec⁻¹	Stat RUN	Stat EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

16^{00} Bartel, Naroska

8.00 $E_b = 15.69$ GeV. NMR = 2.7288 $I_{e^+e^-} = 4 \times 3.9$ mA new filling ready.

Start run # 2018

plot N-50 histogram → normal detector

18.45 Stop Pause button and adjust attenuator, but computer does not read data ⇒ no trigger
⇒ stop run start new run # 2019

19.15 No trigger → stop run → new run # 2022

20^{15} Beams lost ID did not trip
RF failure

22^{10} Filling ok
Start Run 2023
Difficult to get to the IBM (takes about 3 min to load IBM-module)
After Pause/continue we got

JDAS ERROR $0000\,44_8$ SUBERROR $0\,00\,303_8$ TASK 1

over then normal continuation of the run

00^{00} Olsson, Minowa

13^{00} End of fill

19^{00} Problems with filling, will take time

05^{30} NF OK, start run Muon crates 9,10 missing. Resetting doesn't help
call Murphy: ignore it for the time being.

07^{00} Energy change: on e^+e^- ask in Pty system for last energy at very high! (forget it!)

0800 SUDA, GODDARD

08^{10} beams lost chamber tripped.
optimize beams

16.00 Hamadmann, Naroska
Called PKR about status: They have many problems (transmitter, vacuum, synchrotron, etc). They have only completed half of their program for orbit corrections. The other half will certainly take ≥2 hours.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPROM $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 $\geq$2 TOF $\otimes$ $\geq$1GeV·LG	LG$\geq$4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int$Lat RUN	$\int$Lat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY	
2023	23/9	22^{02}	24^{01}	8.0	8.2	$2\cdot10^{-9}$	6579	9822	1713	65.8	1647	7354	7344	7718	3874	3780					7.79	IBM		38	3	2.7288	15680	
2024	24/9	24^{01}	0059	4.3	4.7	"	~~3516~~ 3832	3764	916	22.7	893	1775	1772	3020	1849	1175	722	1363	1.26	8.32	16.11	IBM	2.0	123	5		15690	123/8 (2.5)
2025	"	05^{36}	06^{45}	7100	6900	"	3939	7877	1025	64.4	961	8002	7994	6207	2541	3587	334	413	0.82	2.54	18.65	IBM	1.60	39	0		15690	8817 (3) beam dumped
2026	"	06^{48}	08^{02}	6400	6300		4471	6295	1160	41.7	1119	4712	4705	4949	2549	2900	548	1090	1.69	6.67	25.32	IBM	2.0	88	5		"	(7)
2027	24/10	20.21	2030	8000	7800		499	1210	129	8.4	121.4	917	916	919	375	551	449	896	1.23	5.49	5.49	IBM		86	6	73040	15700	(5) new energy
2028	24.10	21.14	22.46	8200	8000		5517	8510	1435	61.0	1374	7987	7979	6454	3393	2848	86	177	2.19	1.09	6.58	IBM		13	0	"		(4) beams lost
2029	"	22.47	23.08	5.0	5.2		1162	1432	302	8.5	233.9	9130	911	1058	712	361	582	1440	1.60	8.80	15.38	IBM	19	106	3			(3) run stopped when trying YHTION
2030	25.10	0 ^{06}	01.39	7.0	6.4	2.10^{-9}	5470	6440	1424	41.7	1383	4352	4346	4853	3005	1735	86	230	1.20	1.39	16.77	IBM	-	21	2			(5) beams lost
2031	25.10	01.40	02.40	4.5	4.4		3409	3260	888	18.8	869	1476	1472	2537	1761	823	513	1087	1.22	6.68	23.45	IBM	1.6	92	3	2.7304	15700	A accidentally reset scalers, so stopped run. 13.B (8.5)
2032	25.10	02.41	02.40	3.7	3.7		1088 ~~1140~~	940	283	6.1	277	374	373	752	545	200	239	425	0.77	2.62	26.07	IBM	"	29	1	"	"	(4) Malfunction of trigger box
2033	"	3.47	4.15	7.8	8.6	2×10^{-9}	4037	6107	1051	41.6	1009	5468	5462	4575	2463	2017	73	118	0.67	0.73	26.80	IBM	"	10	8	"	"	(5) Beams dumped
2034			Test	run		for	YHTON										437	1073	1.62	6.56	6.56	IBM	1.8	83	8	2.7322	15710	beams lost NEW ENERGY. (4)
2036	26.10	5.11	7.32	7.3	8.1			11793		96.3	2064	27554	5765	9229	5080	3902											15710	
2037		7.33	7.50	9.0	8.5			~900									836	1724	~1.3	~9.	~18.5	IBM		124	9	2.7314		No Run Summary further then
2040	26.10	10.10	11.45	8.8	8.4	$2\cdot10^{-9}$	3080	6382	1040	87.3	923	9519	9505	4995	2333	2394	424	1051	1.15	6.42	24.92	FII02	2.0	92	3			
2041		11.21	11.29	6.0	5.6		316	491	82	8.0	74	433	432	333	197	179	32	66	1.27	0.40	22.32	IBM		9	0			
2042		11.35	12.14	5.7	5.3	20/53	2198	2833	572	20.9	551	2386	2383	2159	1222	929	217	439	1.21	2.66	2.66	"	1.6	44	1	2.7330	15720	NEW ENERGY
2043		12.16	12.22	4.8	4.5		172	233	467	5.9	388	117	117	134	112	67	18	25	0.92	0.16	2.82	"		7	0			2043 Noise kicks up
2044		12.25	13.00	4.8	4.5	17/52	1956	2009	509	21.6	488	1180	1178	1547	985	565	153	312	0.97	1.90	4.72	"	1.7	27	0			Beams lost
2046									45				Very short run															Suspect TOF voltages (65 - 33) not on!
2047		17.09	17.23	6.0	6.0		1028	830	268	5.9	261.2	153.6	153.1	304	33	252	104	226	1.32	1.42	6.14	"	1.5	21	1	2.7330	15720	" " TOF VOLTAGES DEFINITELY OFF
2048		17.41	19.12	6.6	7.2		1764	2583	459	19.3	440	2347	2344	1944	1087	826	161	455	1.59	2.30	8.94	"		41	2			TOF voltages on for this run
2049		19.14	20.29	5.6	6.2		4391	4916	1149	31.7	1112	3623	3618	3712	2396	1232	344	844	1.18	5.19	14.13	"		67	1			HANG-UP stopped run and restarted.
2050		20.31	20.42	4.0	4.0		5897	3452	1014	18.9	995.5	1663	1660	2699	1964	780	275	480	0.85	2.93	17.06	4		47	2	4	"	
2052		21.43	22.03	3.2	3.5		1111	992	289.1	4.9	284.1	345.6	344.7	772	593	234	64	98	0.54	0.60	17.66	"		9	0	"	"	Trig30 requests Beam dump.
2052a		22.53	22.53	7.1	7.0		102	~~138~~ 138												0.19	0.19	"	1.5	4	0	2.73465	15730	NEW ENERGY Run stopped due to computer hangup.
2053		22.54	23.38	7.1	7.0		1930	3076	561.9	21.9	480.	2253	2250	2304	1089	1215	243	524	1.66	3.21	3.40	"	1.5	42	2			
2054		23.36	23.52	5.0	5.0		957	610	243.9	4.0	244.8	127.4	126.7	381	31	348	102	199	1.29	1.23	4.63	"	1.5	24	0.			Beams lost.
2055	27/10	02:55	03:08	8.0	8.0		780	1312	202.9	9.5	193.4	174.1	172.8	747	27	712	295	266	2.1	1.64	6.27	"	1.6	16	1	2.72475	15730	Beams lost.
2057	27-10	21:42	22.25	9.9	9.8			~5500											~2	~5	~5	FII 103	1.8			2.6082	15000	Energy in event header wrong for first 3000 events
2058	27/10	22.28		8.2	8.1	2.7/5.5	5277	9827	1373	66	1306	6282	6272	7397	3524	3690	688	1708	1.8	9.48	~14.48	IBM		136	0	"	15000	
2059	28/10	0.09	0.31	6.0	6.0		1234	1769		11	321	983	982	1329	678	651	139	291	1.29	1.59	~16.0	IBM		21	2			Beams lost
2060	28/10	1.35	3.13	9.4	9.4	2.4/6.0	3612	9821	940	78	862	8954	8949	7837	2718	5002	769	1185	~1.57	~6.5	22	IBM	1.7	53	3	2.6085	15000	Energy in ev header wrong

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPULSE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 $\geq$2 TOF ⊗ $\geq$1 GeV LG

16.30 Nord 50, Histogram display program, altered to force Yaxis origin to be <= 0.0 instead of minimum Y. H.E.17

17.35 Strange coding found in ZDAS where YRUNSM started - it used a variable that could be cleared at any time! Tidied it up. N50 histograms now saved if $\geq$300 ~~runs~~ events. This was originally the case. We were swamped by short runs with no statistics and pulsar runs. H.E.17 (Hope it works)

20.30 V. Krogh replaces Heintelmann

20.30 beams, lost 5 min. later

21.00 beams, again

21.35 ~~Ele~~ Cell 4 ring 3 is missing completely in T2. We switched on the hardware wire switches for this run. After the filling we shall try replacing the card.

Info about Bhabhas:
Telephoned T. Dittmann. There is a histogram where he displays the # of noisy blocks. We tried to find a correlation between this number and the normalized Bhabha rate. Histogram behind Bhabhas and Hadrons. It is not very convincing.

22.46 Started YHTION, the run hung immediately with "no events"

23.08 lost beams

23.30 changed T2-card ring 3, cell 4. (checked later: now it's working)

24.00 Murphy / Gods

24.06 luminosity: $e^- = 6.4$, $e^+ = 7.1$, NMR = 2.7304 (E = 15.7 GeV)

1.15 some of the LG endcap blocks are on all the time; their numbers are: 102, 107, 125 and 132

3.00 beams dumped at Tasso's request. Will refill at new energy.

4.55 beams lost due to transmitter failure in south-west

6.15 more transmitter failures

8.00 Wriedt & M^c Cann on shift. Still no beam.

9.00 Going Down for ~ 2 hours (Thai delegation)

12.20 Problems with LINAC II, no stable beams before 13.30 (PKR thinks)

16.00 Foster, Kleine on shift

17.25 PKR report vacuum trouble - no beam $\geq$ 2 hours.

LG $\geq$4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	Stat RUN	Stat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

22.40 We had beams for ~5 min.! ID was not got turned on because of high background

27.00 PKR has 2 problems: 1) Power supply in the south hall fails very often, because the wind shakes the door and breaks the interlock! They are going to fix it!!
2) RF drifts. Mr. Hobarth is on shift and will investigate the problem during the next hour.

0.00 M. Goddard + P. Steffen on shift
still no beam

5.00 beam back again started new run E = 15.77 GeV

7.50 end of filling

No run summary for Run 2038. Summary of Run 2036 printed after Run 2037 Printer was blocked.

Run 2038 started and stopped in effort to get run summary.

08:00 26 october, 1979 Dayshift, Peterson, O'Neill.

09:40 Beams Σ bp ~ 4v. They are still playing with the collimators

10:00 Finished with collimators. Σ bp = 2.0.
Try to start run. No response from link. Fortunately Konrad Mills here.

10.10 Finally going, writing onto tape F1102. No idea what is wrong with link IBM operators claim everything ok. Try to reach P. Cords. Σ bp = 2.0 3TOF / To ~ 4½ %. Guess it's ok. Writing 1.8 hz.
Run 2039 was our unsuccessful attempt to write to ~~TOK~~ IBM.

Tasso claim their IBM link Ok. Just before starting run I tried IBM-ATTENTION. The BUSY flag went out after 2 seconds but no message came on T9. I reckon something is wrong in the computer buildings.

11.14 Stop run 2040, Tape full. I have often complained bitterly about experimentators who write on tape. Now I am guilty too. (L.O.N)
YHTION tested both with & without IBM LINK. Works *PERFECTLY!!
**OOPS - spoke too soon - but *BUG* located HERE

~11.15 Herr Cords arrives, gets IBM Link running again.

11.21 Start Run 2041. Must stop again almost immediately for an energy change.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG

26. October 1979

Dayshift O'Neill, Peterson continued.

11.35 Running again at 15.72 GeV. Run 2042

11.52 White light ON! Don't know how long. Pause Run 2042, decrease attenuator, continue after ≈ 1300 events.

12.10 Pause run so Murphy and Ball can switch off muon crate, pull out modules. Start again. This doesn't work. Hangup. Start new run. M+B, having wrecked the expt. leave. It should be possible to switch the experiment on and off. That is, if the shift operators are competent. (In an experiment this size that is an unrealistic expectation!

13.00 Beams gone urplötzlich. Beams have oscillated

16.00 Nuttin. I'm goin. I got plenty o' nuttin'

6-00. King, Onetto ON SHIFT.

We get beam: start run: but get error message that TOF voltages (in ch. 65 onwards) are not correct. Navarska coming to sort it out! TOF hit map indicates effect is real. Tracing voltage supply looks to be "OFF"

runs 2046, 2047 are "bogus". Beams lost 17.27.

18.10 HV channel 24 of crate 3 was broken (TOF counters). It seems to have tripped the whole crate. I reset all voltages to nominal values. Now it should work again. The channel itself was not in use, so I didn't exchange the supply (B.N.)

18.40. New beam: TOF counters now all OK.

22.00 Taro request beam dump and now filling at 15.730 GeV.

27th October 1979

24.00 Ball, Kawabata on shift.

Ø2:54 New filling (at last!) Starts run 2055 $I_{e^+e^-}$ = 4 × 4mA

Check on LG thresholds by Kawabata

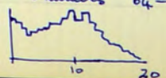
Ø3:09 Beams lost

Looking at TOF counter histos — gone crazy!

Hit map channels 64 → 84 missing

Mean TDC / ADC } channels 22 → 42 missing, channels 64 — 84 missing

Multiplicity



Check obvious things like power on to TOF crates

— call B. Navarska

LG ≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	Stat RUN	Stat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

B.N. says it's a power supply problem. Is non-trivial and requires expert attention if it recurs.

There is still a broken channel in the 3rd crate. We tried to install a spare crate. That does not seem to work at all. I'll phone Schmidtmann in the morning to find out about it. For the time being we continue with the old supply. I pulled out the powerpack that is responsible for the bad channel. Please watch histograms more often.

Ø4:55 No sign of beam. Ring PKR. Problems are with injection TT, also experts working on a klystron problem.

8.00 Sueda / Cords

9.20 1 klystron still broken; PKR tries to run with 1 klystron only (½ HV); problems of instability

10.25 § Wolf from TASSO called:
1) a replacement klystron can probably only obtained after 1 or 2 weeks.
2) all PETRA experiments agreed to continue the scan from 15.0 beam energy upwards, in order to get any data at all.
3) after the 2nd klystron is back one can hope to continue the scan up to 16 GeV (from 15.73 GeV).

10.50 another sad news: atmospheric pressure in part of the PETRA vacuum chamber! experts have been called; no beams for the next 2 hours or more

13.05 PKR: a window on one of the cavities burst; therefore downtime for at least 7 or 8 more hours.

16.00 Foster / Gridnev. Turn magnet off to save power. No beam till at least 19.00

19.30 call PKR. Beam will come in next hour. Mark J opened interlock. Has to be closed first.

20.15 Turn magnets on. Give "freigabe" to PKR

21.42 Run 2057 started, IBM down for ½ hour, put onto tape. (P1103 → Kawabata's Disk. LON) luminosity on TV looks crazy. Found, that energy of petra was only 1.5 GeV instead of 15 GeV. Correct after event 3000.

22.25 Nord 50 hang up. Get Nord-50 status: flu-50 run error 434 in FRFIT line 867 at address 60424 negative square root. Pattern recognition flag was on! Switch it off. Write EOF on tape with DOEV MT W-EOF,2

22.28 Start Run 2058 IBM link OK.

Run event display with eventtyp selection on. Get fortran run time error 405 in Yecopy (output record size exceeded) for every event. Abort event display. Printout stopped. Without event selection the fortran run time error comes only if corrupt header appears simultaneously on terminal 37.

23.50 stop run 2058 after 10000 events. Reload JDAS. Start new run 2059. Error 405 in Yecopy remains!!

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 GeV-LG

Sunday, 28 October, 1979

00[25] Graveyard, Goddard + O'Neill.
00[30] Beams lost; shift getting off to a normal start.
01[30] PKR calls. Stable beams. Σ_b ~ 2r. 3TOF/To acc ~5% marginal, ok.
01[35] Going again with run 2060
01[50] Check TOFs on trigger 1 input histogram. Ok.
02[00] PKR calls. Mark J is dying of background; PKR wants to make orbit adjustments and requests we turn of Hrs. Intend to pause Run. Hit F2 not noticing NORD is in histogram mode. Run not paused by F2 but by JET CHAMBER Hv rundown. Hope this does no harm. LON made mistake. (Extremely unusual.)
02[38] PKR calls back. They are finished. 38 min fiddling with the orbits. Geez!
03[14] Run 2060 ended automatically at 10k events.
03[20] Beams lost. 2061 terminated. TOF histograms still ok.
Beam energy in event header for run 2060 & 2061 is wrong. (because set wrong by Goddard.)
05[01] Called PKR to ask what the ---- is going on. It doesn't look good. HF Ausfall. Maybe another hour.
06[14] PKR calls. Beams ready.
Σ beam pipe ~ 2.1 3TOF/To accept = 8%. A little too hot.
Call PKR; can the adjust beams. They are still running in collimators at Mark J, though they are finished with ours. Will check orbits in a minute.
06[29] Σ beam pipe ~ 1.9 3TOF/To accept ~ 6½%. Still a little hot, but decide to go ahead. Start Run 2062
Forget to plug in Run stop cables for No beams and JET Chamber off for the first ~ 2min of run. Guess this doesn't hurt.
Check LG thresholds. Find "x" = 35 mv. Thresholds all set for 30. Adjust.
TOFs still OK
06[45] PKR calls. Increase energy in 5 min.
06[49] Stop Run 2767. Run down JET Chamber Hv just in case.
Make standard histograms.

LG ≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	Stat RUN	Stat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

06[53] We have 15.010 GeV. Run up JET chamber.
06[55] Start Run 2063
07[40] Finally looking at histograms for Run 2062. T2 output has some statistically significant peaks somewhat more pronounced than in the last batch of histograms (Run 2058). Looking at screen I see same effect this run. Maybe dayshift should notify Herrn Krahbiel. There's a peak at some θ position in both All + Fast.
That was caused by extremely noisy jetchamb B.N.
08.00 Kobayashi & Nozaki on shift.
08.20 Run stop at 10000 events normally.
New Run start R 2064
R 2064 stop, because we saw a lot of noise signals on display
start new Run R#2065
Noise signals decreased by factor 2 → Cont: same run
08.37 Stop Run 2065 There are still noisy blocks in the end cap lead glass.
We adjusted the threshold for the LG.
Start Run 2066
When we use the "regular event display", the Fortran error message appears on the teletype frequently.
11.00 YECOPY format statement Fixed. There always one more bug ------
11.45 New Setting ready E_B = 15.020
BP = 4.0 too high, let go down to 2.0 soon.
start Run # 2069 Junk
" # 2070 too high dead time ~ 30 %) but going down slowly.
Event rate 4.8 Hz
12.05 Dead time = 14%, Event rate 3.8 Hz.
12.18 stop run # 2070. due to no trigger.
Dead time = 7%
LG looks noisy at the beginning of the run. It then becomes less noisy gradually. Pulse heights of theses channels are mostly ~5 ch.
14.20 stop Run. no trigger occured when we adjusted the attenuator. (Power was pushed)
start Run # 2074
No trigger occurs soon spontaneously → stop run → start run 2075

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPULSE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG
2061	23/10	3.15	3.20	6.7	6.5		193	555	50	4	4.6	453	452	387	165	273
2062	"	6.29	6.48	8.7	8.5	2.6/6.0	1114	2700	290	22.6	267	3532	3529	2114	917	10.99
2063	"	6.55		8.3	8.2	2.7/6.0	4981	9817	1296	73.4	1223	13989	1396	13969	3731	3286
2064	"	8.19	8.21				88	164	22.8	1.2	21.6	208	208	123	77	43
2065	"	8.21	8.38	6.3	6.3		977	1559	259	10.9	243	2156	2155	1112	670	402
2066	"	8:39	10:20				6021	9820	1565	68.6	1496	9846	9836	7688	3809	3778
2067	"	10:20	10:47	4.7	4.7		1573	2534	409	17.1	392	1976	1974	2045	911	1163
2068	"	10:48	10:57	4.4	4.4		529	823	137	5.3	132	587	586	658	301	367
2070	"	11:50	12:18	8.8	8.8		1665	6286	433	108	324	6700	6694	5228	1303	3869
2071	"	12:20	13:35	8.0	8.0	3.1/6.5	4497	9813	1170	87.8	1082	14261	14251	7665	3377	3977
2072	"	13:35	13:45	6.4	6.4		509	851	132	7.9	124	1031	1030	633	340	265
2073	"	13:45	14:17	6.4	6.4		1865	2993	485	28.4	456	3458	3455	2171	1205	935
2074	"	17:18	14:21	5.7	5.7		84	173	21	1.3	20	140	140	84	70	52
2075	"	1422	16:23	4.5	4.4		7169	9010	1862	89.4	1772	9118	9109	6782	4109	2579
2076	"	16.24	16.38	4.2	4.2		870	1107	213	9.2	204	910	909	888	459	431
2077	"	1748	1753	8.8	9.4		267	820	69.5	7.8	51.3	1088	1087	746	216	571
2078	"	1754	1757	8.8	9.2		170	553	44.2	12	32	614	614	475	126	340
2079	"	1800	1907	7.3	7.8		4030	9800	1048	113	929	14241	14231	7918	3157	4432
2080	"	1908	2016	5.7	6.1		4045	8203	1051	186	865	8715	8706	6454	2488	3876
2081	"	2017	22.01	~4.9	~5.0		6172	9783	1605	95.5	1510	9408	9399	7636	3640	3907
2082	"	2203	22.35	4.4	4.7		1852	2094	482	19	463	2230	2228	1610	1005	608
2083	"	23:16	00.11	9.5	7.0		3255	6348	841	165	675	12516	12510	5303	2307	2831
2084	"	0:13	1:14	5.8	7.8		3608	6325	932	66	871	11904	11898	5130	2594	2456
2085	"	1:16	1:25	4.9	6.7		537	867	139	8.9	130	1432	1431	679	355	307
2086	"	1:26	1:37	4.9	6.2		630	1035	228	21.5	206	2060	2059	938	389	326
2087	"	1:38	1:52	4.5	6.7		876	1181	229	11.3	216	2060	2059	938	524	383
2088	"	1:55	1:55	4.5	6.1		159	248	—	—	—	—	—	184	117	62
2089	"	2:00	3:34	4.5	6.1		5626	1167	1461	2946	1167	8445	8440	4354	2718	1584
2091	"	5:03	6:29	8.2	8.2		5148	9326	1339	110	1229	16152	16143	7279	3804	3187
2092	"	6:36	7:20	6.3	6.3	3.3/6.5	2566	2945	668	24.7	643	2744	2746	2199	1431	728
2093		7:22	8:32	4.1	3.9		4210	3867	1096	30.6	1065	2883	2879	2923	2121	740
2094		17:[illegible]	17:28	4.5	4.1		379	491	99	19.5	79	481	480	377	240	149
2095		17:36	18:50	4.3	4.9		4422	4951	1151	71.8	1075	5557	5553	4016	2583	1417

LG ≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	SLdt RUN	SLdt EXP	IBM/TAPE	BP	Bhab online	Multihad online	NMR	ENERGY	
47	69	~1.7	0.3	~22.3	IBM		4	0		15.000	beams lost Energy wrong in ev header
182	389	1.94	2.16	24.4	IBM	1.9	31	2			& not new filling
783	1657	1.85	9.19	9.19	"	2.1	127	6	2.60975	15.010	New Energy
13	28	1.80	0.16	9.35		1.5	5	0			Junta
116	285	1.61	1.58	10.93	"		25	0	"	"	
711	1372	1.28	7.68	18.46	"		120	6		"	stopped because LG became very noisy.
207	282	1.00	1.57	20.18	"		28	1		"	~~monitor put~~
74	90	0.94	0.50	20.68	"		8	0		"	beams dumped
480	488	1.61	2.69	2.69	IBM	2.0	32	2	2.61180	15.020	New Energy YHMON/EVDISP Sam?
672	1441	1.76	7.91	10.60	"	2.0	116	3		"	10000 events
63	150	1.65	0.84	11.44	"	1.6	13	1		"	LG. noisy. restart the run
213	491	1.45	2.70	14.14	"		39	0		"	
9	20	≈ 0.11	≈ 1.33	14.14	"		6	0		"	We might then run for calculation of Expt Lumi. SLdt is not reliable because it was short term time. To know why it stopped.
731	1461	1.13	8.06	22.20	"		114	8		"	See from system constants if you want
93	125	0.83	0.68	22.88	"	1.2	8	0		"	beam dumped
69	6	0.12	0.03	0.03	IBM	2.0	5	1	2.61322	15030	tagging was switched off
34	38	1.20	0.20	0.03	Helico!		2	0	"	"	
678	1158	1.57	6.33	6.36	IBM	1.8	101	3	~~2.61340~~	"	
639	1067	1.45	5.87	12.23	IBM		86	2	"	"	
787	1340	—	~7.3	19.5	"	1.3	124	4	"	"	
157	300	0.89	1.66	21.16	IBM		31	0	"	"	
344	655	1.10	3.57	3.57	IBM	1.7	46	0	2.61485	15.040	IBM problems ⇒ 19.7% total deadtime.
374	805	1.22	4.42	7.99	"	1.8	74	1	"	"	
173	114	1.18	.64	8.63	"	1.5	16	1	"	"	
174	120	1.05	.66	8.29	"		8	0	"	15.040	
73	170	1.08	.95	10.24	"	1.3	13	0	"	"	
22	41	1.2	.24	10.48	"	1.3	4	0	"	"	
392	774	0.75	4.23	14.71	"	1.3	73	4	"	"	
534	1440	1.59	8.20	22.91	"	~2	122	6	"	"	
210	546	1.18	3.04	3.04	"	1.4	48	3	2.61650	15.050	
259	690	0.91	3.85	6.89	"	—	64	2			
61	54	0.77	0.29	7.18	"	1.3	4	0	2.61[illegible]	15[illegible]	IBM failure.
310	620	0.77	3.42	10.60		1.[illegible]	37	3	?		Beams lost

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RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPROJ x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 GeV·LG	LG ≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	Stat RUN	Stat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

28.10.79

14.22 SDAS error 56 sub 272 task 1 - TOF bank wrong length (?)
Run continues

16.00 Hazard, Warning on shift
LG thresholds readjusted according to scope reading 30 mV

16.23 Run stops unexpectedly - "no events". We restart.

16.36 Tasso want new energy in 5 minutes. We have > 22 nbT

17.00 YCLRTV had ring violation in Scaler display - rebuilt it. It seems OK. IHSY

19.30 problems with link, the error message "IBM busy" occurs quite frequently and stays sometimes for 20 à 30 seconds; then 1 event is transfered and IBM is busy again for 15 and 20 seconds.
I phoned ~~to~~ to Tasso: They see jumps in their dead time from 5 → 40 % (at the same time we see 10% → 60 %, 10 → 95% jumps), but they work only with 1 Hz
I complained to the IBM operators, they claim, ~~every~~ everything is ok.

20.17 Attenuator light went white. We pause, reset attenuators and continue. However, 'no triggers' We stop and restart with run # 2081.

23.47 IBM busy light has a period of being on most of the time. INST dead time reaches 74%. It seems the IBM controllers are running at half power but the fault goes after a few minutes

23.53 Problem returns. If it continues for >3 mins we'll switch to tape.

23.56 Its intermittent but total dead time already 20%!

00.01 Problem seems solved by IBM experts.

00.11 Run stopped because "no events". We forgot DAS-STAT. Start run 2084

00.13 Run 2084 — IBM seems cured.

0.00 On shift Elsen + Harsch replaced by Barth (sleeping)

1.15 End run 2084
Start run 2085
LG-hit maps is full of noisy tubes. We stop the run and start a new one to get better pedestals.

1.25 Stop # 2085
LG hit maps looks better however much worse than before from # 2076

1.37 Stop # 2086. LG still bad
Nord hang up during evt-display stop # 2086, start new run
hang up: No evts for 5 sec + always flashing evt light.

New hang up of N 10/50 after pressing F2
our fault: F2 was not accepted because of busy level.

2.15 Frequent "IBM - busy" (20 secs busy, few events accepted) repeated.
PI says, Pluto sends at high rate. IBM okay for a few minutes. Then same problem again

2.35 Talk to Tasso: Tasso has problems they get the message of a hardware link error.
They accumulate ~200 evts on disk and send them to the IBM.
As soon as they try to set up the link and load the on line module we cannot send data to the IBM. 'IBM BUSY' signal.
Tasso will call an expert.

3.10 Tasso tries link again: same problem they stop link test

3.30 Last attempt by Tasso to get link working: failed called expert.
From time to time 'IBM busy'
Tasso telephone line also busy
We get IBM transfer error #53

3.45 We urge Tasso to stop their link fiddles.
They promise to stop
Tasso is unable to stop their programs

3.58 Ask IBM-operator to abort TASSO on line job.
Now we have a problem to get to the IBM

4.00 New filling requested

4.15 D. Cuarrie has an indication that their problem, which now is also our problem, is the micro processor between the Nords and the IBM

Run 2089 On line print out looks odd.
Host Color TV says: Stop 3:57 print out: 3.34

4.45 Tasso blew up the microprocessor program by their fiddles. D. Cuarrie reloaded the paper according to Nobi's description of 11.5.79 our folder 'What to know about SDAS'

4.55 Filling ok

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 GeV·LG

Nord hang up: no key on the key board works
we had gotten to the point where it asks OK to start run.
we load Nord from scratch. Run number was incremented. (run 2080 contained no cosm.)

5 ^{02} It seems as if we are taking data again
Run 2091

6 ^{30} Change energy with beams stored, we turn off ID.
Stop run # 2091

6 Start run # 2092 Energy = 15050
NMR = 2.61650

7 ^{20} Stop run # 2092
Nord hang up after Pause - Continue
This time ~~wrong~~ we did everything right and the
white lamps on the 'traffic light' had flashed only once.

Cords: * Nord Status saved

Magnet cooling water:
We lose some water through the safety valve into
the auxilary cooling circuit. Group K will fix it
next week.

8.00 G. Weber, A. Wagner
8.30 NF requested
11.00 Still no beams. PKR: instabilities during injection
16.00 Nuhrin gotten. (Later put: L.O.N)

1600. 29 Oct. 79. Murphy + Orito.
1714. Start run 2094. Energy 15050, but NMR = 2.61675.
1722 After 531 events IBM goes permanently busy. Computer people say they know.
1728 Stop run 2094
1747 TOF histograms look OK.

19.10 RTFIL in SINTRAN died during use of RT-LOADER during PETRA fill.
HENT & build of JDAS run.

LG ≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	Stat RUN	Stat EXP	IBM TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

1850 Beams lost: end run 2095.
1930 New beams ready, but high background (vacuum wise).
21^{25} L.H.O'Neill showed events which suspected 2 interchanged cables of the I.D. Segment 2 cell 3 and 4 second half were interchanged. Correct from Run 2097 on
At the same time T detect, that Segm 1, cell 4 1. and 2. part are interchanged. Correct from R 2098 on
2314

2320 IBM link permanently busy. We reload NORD several times. No success. "IBM transfer error (oct) 000053."
There seems to be a problem in the link computer. TASSO experts are trying to restart it.

00.00 Helbo, Shield
00:15 Unable to write to Tape: after starting a run error message:
"error 28 in 34441 at 140761; space not available, request to no 73"
occurs on line-printer
According to V Carls this is due to writing to tape. He comes in to fix it
00:48 TASSO fixed the IBM-link
00:50 MARK J asks for new filling at 1:00
01:00 Beams dumped
02:10 new filling ready
3:54 new energy: 15070 GeV
5:30 MARK J asks for new filling at 5:45
5:30 beams lost
5:30 LG thresholds readjusted
6:37 new filling ready
6:51 beams lost due to "bellowsfail"
8:00 MATSUMURA, WARMING
9:25 new filling ready
9:30 beam pipe rate meter reads ZERO, beam pipe HV supply was switched off (by whom?)
9:45 run 2114 stopped because LG is very noisy
not much better on the next run
9.35 our live job was not running, lost a few minutes while loading it.
11.35 Mark J asks for agreement to increase energy for the rest of this fill,
we have only 19.5 nb^{-1}, so we ask for another 10 minutes, it's granted.
11.45 PKR announces increase of energy, we stop run 2116
12.15 after switching off attenuator (JDAS paused) we get JDAS Error 00044 Subsys 303 Task 1

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPRUNE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 GeV LG

continued from page 97

Run	Date	start	stop	I_1	I_-	Vac	Time sec	Nord ev. Accepted	All trigger x10⁶	Tø reject x10⁶	Tø Accept x10⁶	T1 Accept x10³	T2 Reject x10³	T2 accept	T2 collan	T2 ≥2 TOF ⊗ ≥1 GeV LG
2096	29.10.77	19:50	21.18	7.9	7.6		5061	7667	1317	92.4	1234	5381	5374	5208	3084	1936
2097	"	21:43	22:52	5.9	5.6		4722	4821	1102	359	1066	1900	1895	3317	2287	767
2098	"	23:24	23:20	4.9	4.6		1554	1562	405	11.4	393	523	522	1088	817	274
2102	30.10.77	00:42	1:00	3.6	3.8		1050	842	273	5.8	268	235	234	625	467	149
2109	30.10.77	02.15	3.43	6.3	6.8		5255	6685	1368	52	1315	3325	3318	4581	2981	1500
2110	--	03:44	3.52				431	476	112	3.6	109	241	241	335	238	77
2112	--	3.54	5:28	5.3	5.2		5552	5712	1445	46	1400	2570	2564	4106	2913	1134
2113	--	6.53	6.51	7.5	7.6		753	1436	207	12	194	302	300	1037	526	437
2114	"	9.38	9.47	9.4	9.4		513	1095	133	11.7	122	683	682	836	398	407
2115	"	9.47	11.28	8.7	8.7		6017	9787	1566	88.6	1477	6153	6143	7191	3888	3072
2116	"	11.29	11.44	6.4	6.4		880	1262	229	10.3	219	725	724	922	560	342
2117	30.10.77	11.55	14.21	5.9	5.5		8594	9694	2287	76.6	2160	4208	4198	6950	4488	2406
2118	"	16.28		9.2	8.8					Run 2118 - 2120			Junk			
2121	"	18.22		8.6	9.5		5956	9813	1549	84.8	1465	668	6674	7181	3590	3370
2122	31.10.77	20.09		6.0	6.8			~6000								
2123	"	21.34	23.09	4.8	5.4	2/5	5672	5272	1476	39.1	1437	2371	2366	3759	2507	1241
2124	31.10.77	0.37	0.45	9.7	9.6		391	849	99	7.6	91.4	939	939	574	265	303
2125	"	0.48	1.51	"	"		3781	6517	984	54	93	3972	3966	4488	2506	1870
2126	31.10.77	1.52	4.18	"	"		8664	9809	2285 2039 (comp)	190	2064	4743	4734	6904	4490	2258
2127	31.10.77	4.19	4.43	4.2	4.8		1440	1378	374	10.2	364	567	565	1018	706	296
2128	"	5.39	6.27	9.9	9.9		2637	5187	686.5	51	635.5	3072	3067	3883	1940	1843
2129	"	6.28	7.12	9.9	9.9		2629	4304	684.1	366	647.5	3499	3494	3824	1625	1307
2130		7.16	9.29	6.8	6.9		7946	9804	2068	109	1960	5844	5834	7011	4288	2597
2131	~~1.11.77~~	9.29	9.42	4.7	4.8	2.0/5.4	735	749	191	6.4	185	370	369	542	358	176
2132	31.10.77	12.51	13.47	8.1	9.3	2.1/6.1	3210	5638	836	51	785	3935	3930	3982	2201	1683
2133	"	13.47	14.15	7.1	7.4	2.1/5.8	1611	~1500	419	23.0	396	1557	1555	1770	?	?
2134	"	14.17	14.57	6.5	6.8	2.2/5.7	2278	3097	593	28.5	565	1789	1786	2196	1366	797
2135	"	15.01	15.05	5.7	6.0		172	138	45.0	243	23.7	66.6	66.5	83	69	28
2136	"	15.06	17.03	5.7	6.0		6912	7354	1799	72.7	1726	3641	3634	5355	3609	1689
2137	"	18:40	19 55	9.4	8.8		4476	8195	1164	98.9	1065	5512	5504	6396	2855	3494
2138	"	20.00	20:40	9.2	6.5		1853	2713	482	21.6	460	1485	1482	2070	1099	964
										Run 2139 - 2144		Junk				

LG ≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	∫Ldt Run	∫Ldt Exp 10.60	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY	

LG ≥4 GeV	Lumi	<L> 10^{30} cm^{-2}sec^{-1}	∫Ldt Run	∫Ldt Exp 10.60	IBM/TAPE	BP	e⁺e⁻ online	Multihad on line	NMR	Energy	
531	1882	2.08	10.52	21.12	IBM	1.6	160	7	2.6166	15.050	IBM disc fails to dump.
312	1086	1.43	6.04	6.04	ZBM	1.0	25	3	2.6183	15.060	
128	347	1.25	1.94	7.98	IBM	1.0	23	1	"	"	IBM disk fails
68	153	0.82	0.86	8.84	--	0.9	14	0	2.61653	15.060	stopped for new filling
472	1620	1.72	9.02	17.86	--	1.3	109	5	2.61653	15.060	
35	107	1.36	0.59	18.45	--		12	0		--	stopped for increase of energy
493	1098	1.11	6.16	6.16	--	1.1	83	0	2.62010	15.080	beams lost
94	287	2.02	1.61	7.77	--	1.4	20	0	2.62010	15.080	-- (Kaltmessfall)
73	182	1.38	1.01	8.78	IBM	2.0	12	0	2.62018	15070	
67	1905	1.79	10.75	19.53	"	1.6	146	2	"	"	
90	246	1.54	1.36	20.89	"	1.9	20	0	"	"	stopped for increase of energy
784	1946	1.26	10.83	10.83	IBM	1.4	169	4	2.62185	15.080	
									2.62190	"	see page 104
691	1907	1.79	10.65	21.48	ZBM	1.5	172	7	"	"	
			~7-8						2.62247	15.090	NORD crash - see comments : No run sheet produced
455	1059	1.04	5.91	13.5	"	1.1	87	3	2.62347	"	
57	170	2.52	0.96	14.46	IBM	1.4	19	0	2.62350	"	"no events"-hangup - see class 347
517	1493	2.21	8.35	22.81	"		125	3	"	15.090	< Energy change
771	2121	1.37	11.87	11.87	IBM	1.1	170	13	2.6252	15.100	
104	254	0.99	1.42	15.29	IBM	1.1	15	0	2.6252	"	
379	904	1.90	5.01	18.30	IBM TAPE	075	84	2	2.62293	"	also written to tape F22852
361	910	1.93	5.06	23.36	IBM	0.75	81	2	"	"	
755	2023	1.43	11.33	11.33	IBM		141	5		15.110	
65	141	1.08	0.80	12.19	IBM	1.1	10	1		"	
406	1164	2.03	6.53	18.72	IBM	1.7	100	3	2.62712	"	
190	525	1.82 2.44	2.94	21.66	IBM	1.3	?	?	"	"	← Part of Run 2200 is faulty
218	693	1.59	3.63	3.63	IBM	1.2	62	1	2.62865	15.120	New energy
6	27	0.90	0.16	3.79	IBM	1.0	2	0	"	"	
570	1425	1.16	8.03	11.82	"	1.0	117	3	"	"	beams dumped
913	810	1.02	4.56	16.38	"	1.4	66	1	2.62877	15120	TØ to TDC from here
132	377	1.17	2.12	18.50	FM104		25	1	"	15120	beams lost three times

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPRONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG

15:00 Nord 50 contexts in ZDAS changed in order that F04 always is EDIT-HISTOGRAM. (Like F03 = SET-OPTIONS) Thus F05 is the first histogram drawing button (then)

15 15 Replace the TASSO Camac DMA by our DMA (now well tested at Cern)
Short test with 10000 events and old backup disk shows no problems
Make a new backup-disk of present disk

1600 Ball, Yamagisawa on shifts:

16 35 Run 2118 ~ Run stopped due to 'No trigger' after several events were read.
T2-trigger bank has not correct length ZDAS error 60 suberror 27
T2-trigger bank one word is missing. This error comes sometimes for every event, sometimes only every 10th event.
T2-trigger check program by Helen / Waroshe finds no error.

18 22 Take the error check out of ZREAD and start run 2121. But the error is still there!! [The file (EIC) ZREAD has version without T2-check } for experts only
(DAS) ZREAD " with T2-check }
load with BDAS. Change ZMONX-B.

19:37 Mark J keep ringing up wanting to change energy. Both TASSO and ourselves still don't have 20 nb⁻¹. Stall them for 10 mins more.

20:00 Run 2121 ended 10,000 events read. Mark J say they want to change energy now.

20:09 PKR say beam OK at new energy = 16.090 GeV. Start run 2122

20:10 Cable for Endcap 7 was disconnected to ADC.

21:20 Try to get out N50 histograms for old run 2121. Result: 'MEMORY PARITY' ERROR 38 indicated on LP PEA : 132, PES : 41100. Display locked in 'display searching for old run' mode.

21:30 Colour TV suddenly goes blank — only top 1/2 of normal display showing — no energy + beam events filled in. Stop run 2122. Try to restart. No response after entering PETRA energy. Try starting DAS (recipe B in 'what to know about ZDAS'). Hangs up : 'MEMORY PARITY' error 38. Restart N-10. Start run 2123
I dare not now try to get histos out for previous run! Suspect DMA, call Eilke
No RUN-SHEET was printed for run 2122 after STOP command — why not? I guess we had about 6000 events?

22:50 Mark-J phone. They want to dump beam at 23:00

22:55 — no they don't ... it's now 23:15.

23:15 dead V34 found. Call Wagner (V34 19.2 repaired, 23.50 AW)
Change DMA to second (JADE) modified DMA. Load ZREAD with error printout for T2
No error in T2 after 12095 events. No ~~error~~

LG≥4 GeV	LUMI	<L> 10^{30} cm⁻² s⁻¹	∫Ldt RUN	∫Ldt EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

23:30 No errors after 32000 pulser events ⇒ one of our (mod.) DMA's is still bad.
No errors after 10000 F1 events (prepulse)

31/10/79 N50 dies : disk/drum error on typewriter.

00 00 Diffmarttkassard

0 10 15.090 GeV reached
It takes 20 minutes (!) for PKR to move in our collimators
after ~800 events : ZDAS program hang-up. Restart o.k.

1 45 Energy changed during fill

2 57 Problem with IBM — every experiments similarly affected

3:09 Everything's fine again.

4.43 Mark J want refill at same energy.

5.39 Start run 2128, writing both to tape and IBM.

5.48 ID trip! Reason unknown,

7 59 Very successful 8 shift : we got 26 nb⁻¹ incl. one run with 10000 events and 11.87 nb⁻¹

To Ralph: the 2. new DMA worked without any problem during the night

08.00 Riesberg, O'Neill on Dayshift.

9.29 Run # 2130 ends with 11.4 nb⁻¹

9.42 Stop Run # 2131, Mark J has requested a new filling

11.30 YRUNSM & ZDAS modified to include recent error type additions. MM

12.32 PKR announces beams available. Playing with Collimators at PKR. LP can't Run Σbp ~ 4 v.

~12.45 PKR finished with collimators. Σbp ~ 2v. I'm doing something wrong measuring 3TOF / TØACCEPT. "No beams" and "No Jet Chamber HV" inhibit cables both out. Dial on "Auto Reset". Both manual buttons punched. 3TOF afew % but TØ reject is 75% of TØ, ! ~~[illegible]~~
Σbp low enough. Plug inhibit cables back in. Start normal run
Now dead time perfectly sensible ~ 6%. 3TOF/TØ accept ~ 5%
Do not understand. Experts please comment. [That was because you had T1 on forced accept. Go to forced reject to have 0 deadtime and efficient and quick counting]
"expert" Beate

12.51 Finally get going. Run 2132

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPRUNE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG

106 31.10.79

13.47 Stop Run to change the amplification of V34 19.2 (which was repaired last night) back to normal
Continued with Run 2133

14.15 Change of energy : New energy 15.12 . Run 2134
Run Summary of 2133 is partially destroyed by pushing too early the F1

Several time message "Muon Crate Missing" on Color TV
and JDAS error 44 Saberror 302
Run ended by "No events", see Debug Printout.

15.05 Also next Run # 2135 ended by "No events"

16.00 Onto Nanoska (Swingshift as Larry would say!)
Everything running smoothly

16.55 Mark J wants to dump beams at 17.00

17.00 Beams dumped.
Change TØ to TPC so that it comes from low threshold DISCRI.

18.15 YCLRTV & ZDAS updated to give correct "WAITING FOR IBM LINK" message

18.30 New filling
Set LG threshold to 35 ~~mV~~ mV.

18.40 oops - Above mod to ZDAS caused it not to ask for PETRA currents during start-up procedure! ZDAS source fixed and ready to be loaded. There's always one more bug ----- H.E.M.

19.30 Something is wrong with Petra they have currents of ~ 8×8 mA but the Lumi is only ~ 10^{30} nb^{-1} and stays constant.
PKR investigating.

19.45 A. Ball came and explained how to reset the muon crates:
You look in the readout crate which of the units does not have the two top flickering red lights. Counting from the starting unit (irrespective of what's written on the label) that gives you the crate number. You look up in the plan above the typewriter where it is. Then you go there and push the reset button once.

19.55 No events because IBM is busy. Call up IBM. They are investigating.
Tasso calls, they have the same problem.

20.00 Stop run and write on tape.

LG ≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	Stat RUN	Stat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

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20.10 IBM was down, Holzhausen is searching the bug(s).

20.15 Info from Mark J: The low specific luminosity is due to a positron bunch that has blown up during filling. The synchrotron is down for at least another hours. So we have to live with this beam for some time.

20.30 Beams lost

20.50 Message from PKR: beams were lost because the Synchrotron crew is looking for their fault~~s~~. In doing so they have switched on and off big powersupplies which created noise in the Petra RF system.
The synchrotron is expected to be down at least for ~2 hours.

22.30 Mark J asked whether we agreed to change energy.
As we have only 18.5 nb^{-1} J asked to continue a little bit and change energy during the next run. We agreed.
No news from synchrotron. They are still searching ....

23.30 talked PKR about status.
Apparently the short was found in the synchrotron. Now they have a waterleak. But they expect to get going in the next couple of hours (!?!)
(Thank god my shift is over!)

00^{00} Petersen + Hassard

1^{10} Beams finally but no IBM: "Waiting for IBM link", "IBM disc overflow". Ltl 6e 2 to 5 minutes, say

IBM

1$^{''}$ ID trip

1^{21} IBM OK again

1^{40} Mark J want new energy at 1^{50} - so do we. (+ run 2147)

1^{50} IBM giving some messages so we put run 2148 on magtape

2^{45} Tasso ring and say the IBM is now better so we stop run 2147 at 2.50

2^{49}! Start run 2148 onto IBM

4^{43} Mark J want a new filling in 7 minutes at same energy.

5^{46} Start run 2149

6^{21} µcrate 1 needed resetting for 2nd Time this shift. 4th/3rd

8^{00} We made 34.02 nb^{-1} this shift.

Laidlaw, Wright

8:30 µ crate # 1 again faulty

10:10 MARK J wants new filling

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1GeV·LG
1 108																
2145	NOV 1	01:21	1.49	9.4	9.6		1614	2940	4198	25,5	3.94	2054	2051	2041	1072	919
2146	"	1.58	2.07	7.1	7.5	22/60	409	745	106	6,4	99,9	510	510	530	288	215
2147	"	2.06!	2.50	7.5	7.3		2534	3790	659	30.6	628.6	2637	263	2606	1607	928
2148	"	2.50	5.06	7.9	8.0		8113	9437	2110	74.2	2035.8	4849	4840	6684	4454	2099
2149	"	5.46	6.36	9.2	9.8		3027	6131	787	57	729.5	6267	6261	4616	2319	2141
2150	"	6.39	8.34	7.3	7.9		6826	9800	1775	84	1691	9003	8994	7004	4189	2540
2151	"	8.34	10.12	5.0	6.5		5759	6065	1498	49	1449	3736	3730	4350	2991	1280
2152	Nov 1	11.00	11.38	10.2	10.2		ASU	4107	513	44	469	4948	4944	3184	1588	1407
2153	"	11.40	13.31	8.6	8.5		6516	9801	1696	92	1603	8547	8538	6926	4075	2511
2154	"	13.31	15.21	6.1	6.1		6490	7200	1689	59	1630	3350	3343	5007	3347	1579
2155	"	15.23	16.17	4.6	4.6		3141	2899	876	27	789	1104	1102	2117	1527	586
2156	"	17.03	17.42	8.5	7.5	2.3/6.7	2241	3524	583	30	553	2703	2699	2569	1388	1118
2157	"	17.44	19.55	7.5	6.6		7719	9819	2008	84	1923	6679	6670	7092	4270	2675
2158	"	19.54	21.05	5.2	4.6		4153 ~~4350~~	4316	1080	34	1045	2699	2694	3232	2141	1058
2159	"	21.22	21.33				614	565	159	4	155	218	218	444	334	208
2160	"	23.35	0.52	9.9	9.6		4345	9259	1130	94.7	1036	8761	8752	7093	3231	3707
2161	Nov 2	01.44	03.14	9.9	9.9	25/66	5281	9801	1374	94.4	1280	11987	11977	7327	3950	2994
2162	"	03.14	03.32	7.2	7.2		983	1524	256	13.2	242	1529	1528	1104	659	420
2163	"	04.32	05.12	8.7	8.6		1938	5973	504	85.8	419	11147	11141	4765	1899	2434
2164	"	05.12	5.54	7.5	7.5		2380	4087	619	36.6	583	5108	5104	3027	1749	1144
2165	"	5.59	7.48	6.5	6.5		6423	7944	1672	66.3	1606	6615	6607 ~~6611~~	5821	3758	1920
2167	"	8.59	10.24	9.2	9.3		5109	9002	1329	97.3	1231	10925	10916	6611	3461	2854
2168	"	10.27	11.08	6.7	6.8	24/63	2325	3132	605	43.2	562	3008	3005	2245	1331	842
2169	"	11.09	12.01	5.9	6.1		3020	3698	786	30.6	755	3116	3112	2639	1737	861
2173	"	13.25	15.05	9.2	9.4	25/65	5900	9797	1634	91.8	1443	10023	11013	7127	3920	2932
2174	"	1505	15.31	6.2	6.5	22/62	1442	1977	375	16.3	359	1636	1634	1383	915	463
2175	"	15.32	16.30	5.8	6.0		3358	3756	874	68.1	805	2906	2903	2682	1748 ~~1744~~	857
2177	"	16.45	17.18	4.3	5.1		2581	2367	671	43.6	598	1653	1651	1719	1199	506
2178	"	18.23	18.36	4.6	8.5		704	1871	183	23	160	3739	3737	1500	651	942
2179	"	18.40	20.11	4.6	8.5		5447	10002	1417	106	1311	14951	14941	7332	3931	3063
2181	"	20.13	20.29	6.7	5.9		958	1305	249	11.7	237	1312	1311	962	587	334
2182	"	20.37	21.36	4.7	5.3		3452	3975	898	346	863	3325	3321	2929	1838	1018
2183	"	22.16	22.29	8.3	7.7	25/64	672 2349 ~~2350~~	1237	1750	11.1	163	1447	1446	869	478	411
2184	"	22.40	23.19	8.1	7.5		3527	6116	32.6	579	3461	3457	2512	1435	979	

LG ≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	$\int$Ldt RUN	$\int$Ldt EXP	IBM TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY	REMARKS
109											
252	628	2.18	3.53	22.03	1·S	14	63	1	2, 6288	15.120	
61	149	2.03	0.83	083	TAPE FILIOS	13	18	0		15130	no new filling
313	862	1.92	4.86	5.69	TAPE	12	78	0		"	
819	1945	1.35	10.93	16.62	IBM	12	161	3	2.63050	"	← new filling ?
478	1019	1.89	5.73	22.35	IBM		76	2	2.63222	"	
823	1950	1.61	1102	1102	IBM		163	3	2.63212	15.140	
546	1186	1.17	671	1773	---	1.2	116	2	---	---	
267	640	1.83	361	21.34	---	1.8	40	3	---	15.140	
779	2084	1.81	1177	1177	---	1.8	166	2	2.63385	15.150	
659	1540	1.34	867	20.44	---	1.3	156	4	---	---	
260	529	0.75	2.98	2.98	---	1.1	43	4	2.63550	15.160	beams dumped
259	670	1,68	3.76	6.74	IBM	1.5	62	0	"	15.160	new filling. stopped for "no events for ··· sec".
797	1906	1,46	10.80	17.54	"		153	5	"	"	
370	716	0,97	4.01	21.55	"	1,2	48	4	"	"	stopped for new filling. PKR made further study
36	83	0.73	0.45	22.0	IBM (?)		9,36	1	"	"	not new filling. IBM Link not save
615	1466	1.91	8.31	8.31	IBM	1.8	141	3	2.63745	15.170	New filling, beam lost
703	1746	1.86	9.83	18.14	IBM	1.5	160	2	"	"	New filling
117	277	1.58	1.56	19.70	IBM	1.5	17	0	"	"	
525	599	1.74	3.37	23.07	"	2-2.5	45	3	"	"	New filling
328	701	1.66	3.94	3.94	"	2→1.5	75	1	2.63910	15.180	Nord hang up
679	1453	1.27	8.19	12.13	"	1.5→1.0	131	2	"	"	beams dumped
684	1667	1.83	9.37	21.50	"	2	150	5	"	"	new filling
244	642	1.57	3.64	3.64 ~~3.64~~	"	1.5	52	0	2.63910	15.190	change energy with same filling
315	740	1.37	4.15	7.79	"		69	1	"	"	beam lost
707	1921	1.84	10.85	18.64	"	1.8	172	6	"	"	New filling
160	382	149	2.15	20.79	"	1.4	40	1			Nord hang-up. Fixed by Cords
304	773	1.32	4.44	25.23	"	1.6	66	4			Run ended just after energy change to 15.20 GeV
207	444	0.97	2.51	2.51	"	1.6	35	1	2.64260	15.200	beam dumped
189	203	1.63	1.15	3.66	"	2.1	27	0	"	"	New filling
809	1599	1.66	9.02	12.68	"	1.6	146	3	"	"	10000 ev
106	238	1.43	1.37	14.05	"	1.4	17	1	"	"	stop run due to ~~ERP~~ SE problem.
324	721	1.18	4.06	18.11	"	1.4	74 ~~77~~	3	"	"	beam dump
83	220	1.85	1.24	1.24	"	1.6	26	0	2.64440	15,210	
299	732	1.75	4.12	5.36	"	1.4	77	3	"	"	

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF & LG	LG ≥ 4 GeV	LUMI	$\langle L \rangle$ $10^{30}\,cm^{-2}sec^{-1}$	Stat RUN	Stat EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

10.30 ZDAS rebuilt to incorporate last nights corrections. (HBT)
11.00 Start new run 2152
11.05 Inner detector alarm
11:18 MARK J wants to increase energy in about 10 minutes
11:40 new energy: 15.150 GeV
15:00 MARK J wants to increase energy in about 15 minutes
15:20 after Run 2154 - exchange of CAMAC-unit for μ-crate #1
15:23 new energy: 15.160 GeV
16:00 we wants 35 ~~72~~ nb^{-1} this shift.
16:00 Heinzelman & Kobayashi on shift
16:18 beams dumped
17:00 PKR announced beams available
20:45 MARK-J wants to dump the beam, and change the beam energy in 20 min.
21:00 PKR makes special study by ~~changing~~ changing the orbit and wants tagging counters ON.
21:20 Beam orbit was changed. Background is almost the same or a bit better ~~than~~ than before. To know the event rate we ran JDAS without IBM Link, but IBM seemed to be linked as the display said "IBM linked successfully"!
22:30 New filling. Very high background (B.P. = 6~8$^{\nabla}$). Other groups have also the same problem. PKR is checking beam orbit and - - .
23:00 They dumped beam and try new filling.
23:30 New filling was done. This time background is fairly low.

00.00 Marshall and Petersen on shift.
Inherit nice fill
00.52 Beams lost (except for 2mA) new fill → Beams just disappeared, PKR knoweth not why.
01.44 New fill
03.32 Beams lost
04.05 New fill but very high and unstable BP currents.
Tasso also find it too hot to run. For Mark J it is perfect.
Start with V_{BP} = 2V but it gets worse and ~30% dead time when we start
Rate 4.3 Hz. Agree with Mark J to kill the fill.
But ..... Mark J collimator are out of control and stuck in unknown position - new fill would have same problems.
Outside expert called in - so we stay with this fill and run as best we can. Keep eye on BP current etc.

00^{50}	SL = 2.65	10^{28}
00^{55}	= 2.87	10^{28}
00^{00}	= 3.20	10^{28}
01^{50}	SL = 2.13	10^{28}
02^{00}	2.39	10^{28}
03^{45}	= 2.91	10^{28}
04^{50}	SL = 2.81	10^{28}

05^{05} Mark J collimators back under control - conditions improve. 06^{07} SL = 3.59 10^{28}
05^{10} Up 10 MeV.

06^{00} Events stop coming (no IBM & NSQ busy) so end run and restart OK
07^{05} Beams dumped for new filling 06^{58} SL = 3.49 10^{28}
A more 35 ~~72~~ nb^{-1} this shift - ah well better luck next time.

8.00 Nelson, Weiler on shift
wait for fill, new fill compiled at 8.59. Check dead time, while Mk. J move in collimators BP ~19 before and after?
dead time ~ 9% " " " " not as good as up to run 2167 but no effect of
trigger rate ~ 2.5 Hz) Mark J collimators same.
after ~ 1 hrs running: dead time ~ 8%, Rate 1.4 Hz, BP. 1.6
12^{00} Beams lost ID did not trip
RF failure

16.00 Nozaki & Stephens on shift

16.30 Change energy to 15.20 GeV. New run # 2177 starts.

16.50 We get quite frequently IBM-busy.
The reason is that the people are now doing some TEST at IBM.

17.00 Mark J ~~told~~ told us that they want to dump the beam at 19.15.

17.19 Stop run for beam dump.

16.05 New filling finished. PKR are adjusting the collimators $\bar{E}$ = 15.20 GeV

18.20 Start new run # 2178
We got the message " IBM BUSY. IBM DISC OVERFLOW" for one minute.
Then start reading event.

18.30 When we adjusted the attenuator, No trigger occurs even if we set the Trigger box

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & LG

we cannot read the data. Stop the run and start new run 2179

19.00 LG Total threshold setting is OK.
all ~~scan~~ histograms are OK.

19.05 Muon Crates 1&2 need resetting.
20.05 Muon Crate 1 need resetting
20.10 Stop run 100000 ev.

20.12 Start new run 2181

20.15 Muon Crate 1 would not reset. Run stopped and CAMAC module in Rack 17 changed. Seems OK now.

20.35 stop run because computer does not read data. No message was seen on the screen.
start new run. muon crate missing appears again. Stephens check the muon crates.
reset M CRATE 5

21.15 M.J want to dump beam in 20 minutes.
21.45 Beam dump.
22.15 New filling finished. Start run 2183.
22.30 stephens checks the muon crate. Pause the run.
22.37 ~~restart~~. continue ~~and~~ "no trigger" message appears on TV. IPAS error occurs. ~~stop run + restart readout 2181~~. We found this is normal because stephens pull out the Camac crate wecan we could not pause the ~~run~~ run. we should have stopped the run.
22.38 Start new run.
23.20 Stop the run to check the muon crate again
23.31 Start run 2185

Re MUON Crate 1 I have tried two CAMAC modules and a different station in the CAMAC crate. This has not cured the fault. Sometimes it will run for ~ ½ hr and then stop. N.B the TV screen is not a reliable indicator that a MUON crate is missing.
V.D.

24.00 We found no muon signal was recorded and stopped the run.

LG ≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	Stat RUN	Stat EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

3/11
24.00 Yanagisawa, Diesburg on shift.
Since the muon chambers are not read out, Mr. Stephens shifts the CAMAC Modules back by one station.

0.18 Run 2186 started. Muon chambers are read out again. Actually even muon crate #1 is working

0.48 Muon Crate 5 "Interrupted" lights are not flashing. Reset doesn't help
0.52 Muon Crate 1 also missing. Reset → ok
Indication on Color TV MUON CRATE MISSING is coming and going
1.05 IBM down
1.11 Freigabe for new filling
1.50 New filling ready
1.52 Run 2187 started
CAMAC Modul of Muon crate 5 : Light diodes are not flashing
But crate it self looks ok. Read out light flashes there.
3.24 Muon Crate 1 not flashing. Reset for next run
3.28 Run stopped. Change Energy to 15.220 GeV
3.36 Run 2188 started. LG Barrel : Hit maps are noisy
5.15 Stops for new filling
6.35 New filling ready. Start 2189
LG Barrel hit maps are normal again

During all the shift ERROR 44 in 302 (TASK1) and MUON CRATE MISSING (on Colour TV) occured from time to time
8.00 MINOWA, HELM
8.40 Muon crate 5: power switched off, reset 18V brings LED's on CAMAC module to flashing again
9.34 " " 6 ~~reset~~ cures error
9.30 Energy changed to 15.230
9.40 Histograms checked, seems all O.K.
10.20 Beams dumped for new filling.
11.45 "No event" hang up stop the run 2192.
During Run 2193 V34 Cell 19 down, repaired by Heuer.
12.59 Mark J asked for beam dump and new filling
12.[illegible] Beams dumped for new filling.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC	ALL TRIGGER x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1GeV LG
2185	2.11	23 37	0 05	6.3	5.9		1908	2495	497	21	476	2029	2027	1746	1074	646
2186	3.11	0 18	1 07	6.7	5.3	-/5.3	2755	3183	718	30.4	687	2296	2293	2333	1552	771
2187	~~3.11~~ 4.52	1.52	3.29	9.5	9.3	2.3/7.1	5700	9720	1484	105	1379	14218	14208	7255	38 04	3181
2188	~~3.11~~ 8.36	3.36	5.15	6.2	6.3	2.5/6.1	5829	6977	1517	60.6	1456	6630	6623	5199	3231	1857
2189	3.11.	6.40	8:05	10.1	10.1	3.2/7.4	5091	9757	1325	105	1220	16403	16393	7316	3596	3490
2190	3.11	8:07	9:29	6.4	6.8		4866	6915	1266	60.0	1206	5952	5945	5201	2853	2351
2191	3.11	9.33	10.23	4.8	5.0	2.1/5.8	2985	3541	777	29.4	747	2360	2357	2769	1600	1195
2192	3.11	11.09	11.45	7.5	6.7		2046	3924	593	37.8	495	4809	4805	3083	1341	1755
2193	3.11	11.48	12.58	5.9	5.5		4090	4776	1065	40.8	1024	3987	3982	3733	2042	1705
2194	~~3.11~~ 4.11	13.59	15.40	8.3	8.3	2.4/6.5	5877	9781	1530	123	1407	14083	14073	7063	3556	3289
2195	3.11	15.44	16.42	5.0	5.1		3413	4114	889	39	850	3414	3410	2955	1898	978
2196	3.11	16.43	17.23	4.9	5.1		2364	2516	616	26	590	1752	1749	1841	1288	555
2197	3.11	17.25	17.48	4.2	4.3		1322	1262	344	10.7	334	839	838	963	656	302
2198	mistake - very short: no events															
2199	3.11	18.37	19.34	8.7	8.8		3366	6323	876	66.7	809	10951	10944	4786	2447	2138
2200	"	19.36	20.43	7.1	7.3		3995	5577	1039	70.5	969	7464	4459	4156	2380	1632
2201	"	20.45	21.17	5.8	5.9		1928	2349	502	21.1	481	2212	2210	1734	1117	602
2202	"	22.34	22:46	7.4	7.7		677	2321	176	43.2	133	3691	3689	2023	560	1377
2203	"															
2204	"	22.54	23.09	7.0	7.2		863	2611	224	36.7	187	4548	~~4545~~	2213	738	1373
2205	"	23.18	0.44	6.5	6.7		5088	5553	1324	53.1	1271	2942	2936	4315	2802	1399
2206	4.11	1.35	3.10	9.6	9.8	2.8/7.0	5351	9756	1392	92.2	1299	6065	6056	7451	3682	3369
2207	"	3.11	4.22	7.1	7.3		4248	5640	1105	48.3	1056	3348	3343	4366	2472	1757
2208	Junk (1 event)															
2209	"	6.07	7.52	8.9	9.0		6282	9751	1633	89.4	1544	7028	7018	7561	4038	3194
2210	"	7.52	8 10	6.0	6.1		~~1941~~ 896	1091	233	9.6	223.4	749.2	748.2	833	554	279
2211	"	8 13	8 45	5.5	5.7		1843	1858	479	16.7	462.8	1970	1968	1456	953	438
2213	"	11 08	19 03	8.3	8.4		3133	4956	815	45.5	770	7416	5411	3682	2183	1382
2214	"	19 04	13 14	6.3	6.4		4179	4704	1087	39.5	104.8	4187	4182	3165	2417	1070
2215	"	13:32	13:43	4.9	5.0		166	4738	166 ~~2.16~~	4.7	161	451	450	480	330	123
2216	"	~~14.43~~	15 41	9.4	9.4		1649	3057	429	27.7	401.7	3028	3025	2184	1931	841
2217	"	15 42	17.15	8.3	8.3		7471	9328	1945	84.9	1860	7311	7302	6710	4350	2092
2218	"	17 50	19.43	~~8.9~~	~~8.2~~		6883	9796	1791	84.4	1706	4586	7576	6932	4359	2291
2219	"	19.46	20.05	5.8	6.0		1145	1216	297	9.5	288	722	771	886	~~835~~	244
2220	"	21.13	23.02	8.2	8.2		6522	8347	1697	70.6	1626	8050	8042	6256	3971	2103

LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	SLdt RUN	SLdt EXP	IBM/TAPE	B.P.	BHABHA	MULTI HADRON	NMR	ENERGY	
182	471	1.40	2.67	8.03	IBM	1.2	36	1	2.64440	15.210	
264	533	1.10	3.02	11.05	IBM	1.2	53	1	"	"	New filling
688	1734	1.73	9.84	20.89	IBM	1.8	136	6	2.64440	15.210	
561	1228	1.20	6.38	6.98	IBM	1.6	97	3	2.6459	15.220	New energy
707	1701	1.90	9.67	16.65	IBM	2.1	163	4	2.6461	"	New filling
505	1165	1.36	6.62	2327	IBM	1.4	106	4	2.6459	"	
223	539	1.03	3.08	3.08	IBM	1.3	37	2	2.6477	15.230	New energy Energy in event headers wrong for first ~1300 events
242	546	1.52	3.11	6.19	IBM	1.5	44	3	"	15.230	New filling "no events" hang up
357	687	0.96	3.92	10.11	IBM	1.4	56	1	"	"	
759	1934	1.88	11.06	21.17	IBM	2.0	161	5	2.6477	15.230	New filling
324	824	1.37	4.68	4.68	IBM	1.5	58	3	.....	15.240	New energy
209	440	1.07	2.53	7.21	IBM		44	2		"	
91	210	0.91	1.21	8.42	IBM		17	1		"	
						2.1				"	New Filling
410	1037	1.76	5.93	14.35	IBM	2.1	73	1		"	
420	997	1.43	5.7	20.05	IBM	1.6	80	4			
191	411	1.20	2.3	22.35	"	1.5	34 ~~36~~	2		"	
144	138	1.10	0.7	0.7	"	2.5	17	0	2.59918	14.950	color TV stopped working — still does not work. (High background due to this 15-20%)
					"						
194	195	1.22	1.06	1.76	"	2.5	16	0	"		Colour TV working
410	803	0.87	4.43	6.19	"	1.3	67	4	"	"	
748	1526	1.57	8.39	14.58	IBM	1.5	131	4	"	14.950	New filling
441	829	1.08	4.58	19.16	"	1.4	59	3	"	"	beam dumped
						1.5			2.6009	14.960	New Energy
748	1433	1.25	7.87	7.87	IBM		104	6	"	"	
83	143	0,89	0,80	8,67	"	1.4	9	2	"	"	
143	259	0,77	1,42	10,09	"		20	1	"	"	5 dumps
~~352~~	~~826~~	~~1.53~~	4.87	14.96	"	2.0	66	5	2.6008	"	stopped due to error 0044
312	771	1.02	4.24	19.20	"	"	41	3	"	"	
50	83	0.71	0.46	19.66	"	"	8	2		"	
219	636	2,12	3,49	23,15	"	1.8	58	5	"	"	
762	1855	1.37	10.25		"		161	4	26026	14.970	
771	2083	1.67	11.49	21.74	"	1.5	174	7	"	14.970	
100	234	1.14	1.31	23.05	"		18	0	"	"	
678	1410	1.19	7.79	7.79		1.5	115	1	2.6044	14.980	N.E

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPRUNE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF Ø

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16.41 Run 2195 stopped to see if we can reduce noise on Pb-glass system.
16.42 Run 2196 started. Appears to be cleaner.
17.23 Run 2196 stopped, started to lose events for unknown reason.
17.24 Run 2197 started
Mark J phoned want to do an overlapping point at 15.250 GeV, ie after ≥20 nb⁻¹ at 15.24 should dump beam in ~ 30 mins time; then they suggest going down to 14.99. All change!
17.46 Run 2197 ended for new filling.
MJ changed their minds — want to go down to 14.950 after 15.24
19.34 Run 2199 stopped — no events being read? — [IF HAPPENS AGAIN TRY "RESTART" It did & RESTART worked.]
19.35 Run 2200 started
20.43 Stopped RUN 2200, not accepting events, 'REST' did not work this time.
20.44 Run 2201 started; getting intermittent μ-crate missing — this became permanent, reset no 7, OK.
21.17 Run 2201 stopped. Start new filling new energy.
21:46 New filling at 14.95 GeV is ready but BP = 3.5-4.0 too high to risk ID. PKR investigating.
22:14 No obvious cause. Still BP=3.5-4. PKR tried all the collimators with no improvements.
22:16 ^ suddenly Came down to BP=2.8 3TOF/TØ ~ 19→17 %. Tasso and Pluto also have bad beam.
Contact Heuer. He is coming in. He suggests not to turn on ID yet.
Tasso has same problem — thought to be due to 'spontaneous' beam losses.
22.34 Decided to start, Heuer thinks that there are definite beam losses still, as evidenced from ID display; beam lost upwards. Max. Anode current ID: ~4 μA
Run 2202 stopped — colour TV display disappears, flashes ON/OFF, restarted OK.
22.50 PKR says, they have used another file for this filling. They can try to run the old file on the present filling, to provide eventually like conditions. I phone the other experiments for agreements. It is agreed to change the optics at 23.10.
23.15 PKR change beam optics, 3TOF/TØ ~ 3%, BP ~ 1.6; changes clearly worked.

4.11.

0.00 KOBAYASHI MATSUMURA on shift
0.30 MARK-J asks our luminosity. MARK-J and PLUTO have lower luminosity than before. (Ours becomes ~30% lower.) So they want new filling in ~20 min.
0.45 Beams dumped.
1.30 New filling was done (E_b = 14.950, B.P. = 1.50)
1.35 This time the luminosity is high again. ($\mathcal{L} \sim 2\times10^{30}$ cm⁻² sec⁻¹ at the beginning of the run.) ($I_+ = 9.6^{-9}$, $I_- = 9.8^{-9}$ A)
2.30 ID trips
3.50 Mark-J phoned to ask our luminosity. They wanted to dump beam for a new filling and change energy (They have $\int \mathcal{L}dt$ > 20 nb⁻¹. PLUTO also). But we have only ~17 nb⁻¹ at this moment. So I asked them for 30 min. They agreed.

LG≥4 GeV	LUMI	<L> 10^{30} cm⁻² sec⁻¹	Slat RUN	Slat EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

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4.23 Beams dumped
5.30 PKR had some problems with computer. Now they have started to inject beams.
5.40 Color TV was down "spontaneously". made test run (Run 2208), but no use. EXIT and RESTART. OK.
8.12 Data taking stopped. Start new run. Status already after stopping run: Useless!
8.00 Olsson shift
8.15 Mark J: PKR has their optimization expert on shift and he wants to optimize. Beams decay rapidly now. We agree that trying is worthwhile, although only 20 hours to data taking stops.
8.45 Beams dumped, Totsuka on shift.
19.03 With light on, after adjusting no events ok. DAS-STAT 5 not possible, command always interrupted by IDHS error ok.
13.14 Beams to be dumped, NF requested.
13.15 Beams to be kept 10 min max. up again!
14.45 **NF started up again. Run 2215 by mistake started again. The run number did not increase. The run stopped after 600 events. (This happened in IBM dialogue, calling attention. Detector noise.)**
14:30 "The muon crate is missing. ch 8 was reset.
16.00 Stephens / Dittmann
17.05 Mark J request to dump beam in 10 mins NB clock on PETRA status TV in about 15 mins okay.
17.15 Beam off for new fill
17.50 Fried a dead V34 in Ring 3. Call Heinzelmann

Got a new formula from TOTSUKA: $\sigma_{ee} = 15.5 \cdot \left(\frac{15}{E_b}\right)^2$
This includes Endcap-, Barrel-Bhabhas and gg. Perfect agreement again (maybe this time the agreement is real).

21.00 NF. When starting the run we got IBM BUSY and IBM DISC OVERFLOW. After a few seconds both messages were gone, and data-taking started.

23.00 Looking at a raw-data-dump to understand μ-chambers z-coordinate we find
1) all TAGGING-chambers are always read out (~1000 words extra) since ~1 week
2) MU-chamber bank is screwed at the end. Some junk is following after the good data. (even from RUN-SUMMARY)

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS ACC.	ALL TRIGGER $\times 10^6$	TΦ REJECT $\times 10^6$	TΦ ACCEPT $\times 10^6$	T1 ACCEPT + POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 LG
2221	4.11	2350	0134	9.3	9.7		6251	9805	1626	1046	1522	7630	7620	7070	4129	2631
2222	05.11	0135	0147	6.4	6.7		704	912	184	7.4	176	624	623	659	418	203
2223	〃	0228	0344	10.4	10.7		4554	9807	1185	91.9	1093	9938	9928	7473	4132	2856
2224	〃	0344	0433	7.7	7.9		2886	4323	751	36.3	715	3938	3933	3230	2005	1073
2225	〃	0503	0620	10.5	10.6		4505	~~9760~~ 4505	1172	92.6	1074	11059	11049	7424	4020	2895
2226	〃	0621	0708	7.6	7.6		2814	4271	732	34.9	695	4417	4412	3204	1928	1145

run 2227 to 2255 are LG-TEST-RUNS and went to IBM by mistake

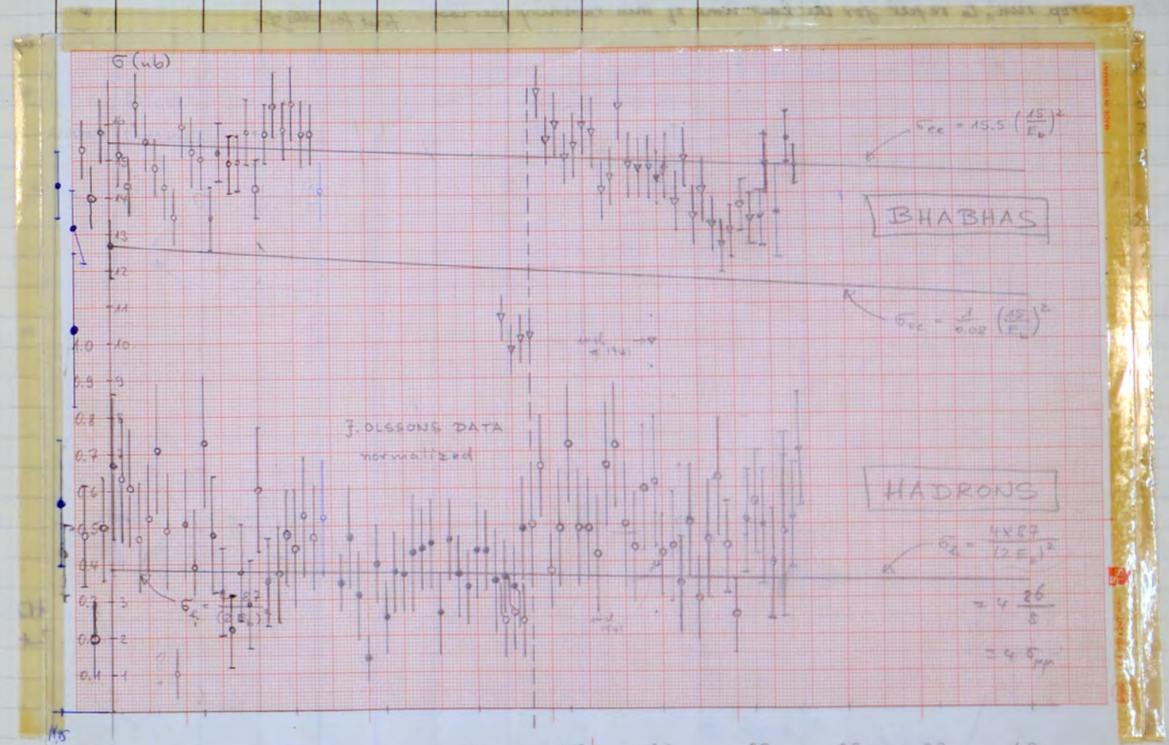
2289–2291 Cosmics with magnet on trigger TOF ON "OR"

2292 is junk

2293 } Pedestruns, 7.11.79 ~~8000~~ 20 K

2294 }

LG≥4 GeV	LUMI	$\langle L \rangle$ $10^{30}\,cm^{-2}sec^{-1}$	$\int dtL$ RUN	$\int dtL$ Exp	IBM/TAPE	B.P	BHABHA	MULTI HADRON	NMR	ENERGY	
742	1950	1.72	10.74	18.53	IBM	1.4	135	2	2.6044	14.98	
83	170	1.32	0.93	19.46	〃		22	1		〃	
670	1621	1.97	8.97	8.97	〃	2.0	141	4	2.6061	14.99	New energy
328	764	1.46	4.22	13.19	〃	1.5	64	0	〃	〃	
720	1590	1.94	8.75	2194	〃	2.1	142	7	〃	〃	
366	780	1.37	3.85	2579	〃	–	58 pol	2			



RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1GeV·LG

00:00 5/11/79 Heintzelmann / Watanabe on shift.
lead glass very clean. Also no spurious triggers in LG ≥ 4GeV, according to the histogram.
01:34 End run 2221 at 10000 events.
01:38 "Muon crate missing" #6. cured.
01:47 Stop run 2222 to refill and to get 14.99 GeV.
02:27 New fill and energy ready. The TV luminocity out of the scale. currents 10.4 & 10.7, the highest obtained so far?
02:25 V34 (22.3) repaired (s.p. 117) of PETRA
04:31 Stop run 2224 to refill for the last time of this running period. ~~first few cells of~~
05:02 New filling ready. Slightly too high background. BP = 2.1V ~~Coll #1~~ Ring 1 seems to be picking up.
05:24 V34 (22.3) again dead. this time -6V missing
05:56 ID trip.
06:15 "μ crate missing" #3 cured.
07:08 The end of runs of this period. Keep the magnets on for Xe Test.

14:30 Start Cosmic test,
Switch trigger disc to settings from page 61.

TOF on "OR"
Trigger is $2TOF_{coll}^{0} \times 2TOF_{rad}^{23} \times \overline{\geq 5 TOF}$

6-11-79
16:00 Mount "dangerous" DMA again after having changed some IC's. Still some problems + occasionally with T2-readout. Leave it in for further tests. R. Eichler

10.11.79 Change trigger back to normal (from cosmics)
Insert 6 dB in the last 6 TOF counters in front of the ADC.
Clock on histogram, that connection is good and pulseheight about half of the rest.

16:00 Increased Exp. # to 8 (D.C.)

10.11.79
16:15 Tagging Ehtr Supplies now provided by Lecroy Camac Controlled System.

LG ≥ 4 GeV	LUMI	$\langle L \rangle$ $10^{30}\,cm^{-2}sec^{-1}$	$\int$Lat RUN	$\int$Lat Exp	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

11. 11. 79

New Run Period 11.11. to 26.11.79

Plans for Sunday 11.11.79 7-15h Optimization of Luminosity
15-23h Study of beam polarization by machine people, single beam
-7h a monday

Experiment 8 Run 2295 Test run for computer.

H. Krehbiel + H. Riesberg on shift bud. G. Hughes, R. Eichler and Beate Naroska working XT" 2773

11:00 Mr. Feist says that in PKR they read $L = 1.4 \times 10^{29}$ for JADE
Beam Energy is 6.000 GeV, $I^+ = 2.3$, $I^- = 2.4$ mA. Our Magnet is still off.

We try to make a Run with Lumi-Trigger only.
On Trigger box: TOF from OR to AND
and DC-inhibits of other triggers taken away. Restored Postpone Copla + ≥5
Observation: With computer on the Luminosity rate is only half of the normal rate. Therefore we stop the run.

12:45 We have a new filling, but Magnet not yet switched on, not to interrupt the Luminosity measurement series of PKR.

Counter Rates. Magnet	off	on	Collimators open
Lumi	23	24	
LG > 4	8	10	
Togg(-2)·Togg(+2)·LG>2	0	0	
2 TOF · LG > 1 GeV	200.9×10^3	112.2×10^3	
$2TOF_{coll} \cdot \overline{\geq 5 TOF}$	30.2×10^3	49.9×10^3	
3 TOF · Matrix	831×10^3	534.6×10^3	
3 TOF	948×10^3	729×10^3	
Time	38	39	
SM2 · SP2	23	23	
To acc	8.899×10^6	7.342×10^6	
To rej	1.201×10^6	2.113×10^6	
T_1 rej	7.688×10^6	5.828×10^6	
T_1 acc	31	31	
All accepted	31	31	
All Trigger	10^7	10^7	

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & LG

12⁴⁰ Magnet and Compensating Magnets on
7000A 750A , 750A.

Collimators are out
Beam pipe rate 2.0 – 2.5 Volts
Before J switch on the Quadrupoles the beams are lost.
14³⁰ Still problems with filling
15⁴⁵ Announcement from PKR : They have finished Luminosity measurements ! They will start ~~now~~ now polarization measurements
15³⁵ To save energy I run the magnet current down and set the Compensating Magnets to 50A
15.45 Petra Status: Magnets off, Deline & Rossmanith went into the ring installing the polarimeter. Afterwards there will ~~be~~ be electrons only. Experiment shifts start tomorrow (7⁰⁰) 10⁰⁰. (Information from physical presence in PKR)

16⁰⁰ Yamaguisawa + Murphy.

17¹⁵ Main control room says: they will have stable electron beam at 11 GeV for the next 2 shifts, with refills once or twice per shift. Electron current is 3.9 ma, energy 11.2 GeV.
I reduce delay in trigger (centre unit, bottom crate, card 7) from 43 ns to zero. This must be reset for 2-beam running.

Inner detector high voltage trips off as soon as it is fully on. Hr. Riesberg is coming.
Beampipe counter current is 0.4 V.

18⁴⁰ Riesberg resets his current trip level.
The lead glass > 4 GeV rate is enormous. ~~[illegible]~~.

22²⁵ Beam lost.
23⁵¹ Stable beam.

12.11.79

0.00 Watanabe, Narode
We set up triggers
ask PKR for permission to turn on magnet.
Take a few events.
1.00 Then PKR asks to turn off magnet again to make their measurements consistent
so we are not sure whether it is sensible to take one beam data without field we don't wish to. Anyway we can't turn on the ID.

LG ≥ 4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	∫Lat RUN	∫Lat Exp	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

So we turn everything off.

12.11.79

7⁰⁰ – 11⁰⁰ Access time. Jet chamber pulser runs (not to IBM)

8⁰⁰ Mac Cann + Heinzelmann on shift

~ 11⁰⁰ Petra starts injection at 6 GeV
12⁰⁰ regulation of compensation coil (right) repaired
compensation coils and magnet powered

13.20 Beams coming on : Fixed attenuator taken out (B. Naroska)
~~Magnet current ~ 7,500 A~~

13.30 Beams off.
13.39 Wellaue beams again. Muon Crate 8 no response – had to be reset manually.
17⁻⁰ OL8 * 61 taken out, because of overcurrent in crate (wires 488 – 495)

17²⁰ PKR claims beams OK, but have terrible backgrounds, improvement ~~with~~ by bumps steering (asymmetrisch beide vertical)

16⁰⁰ Yamaguisawa, Test on shift

17⁴⁵ background OK start Run

17⁵⁰ background condition yet again terrible (PKR claims to have nothing changed) vertical Q-value has drifted

18²⁰ Threshold for LG trigger set to 3.7 GeV (from 4.0 GeV)

19⁰⁵ I.D. tripped due to high backgrounds which soon went away.

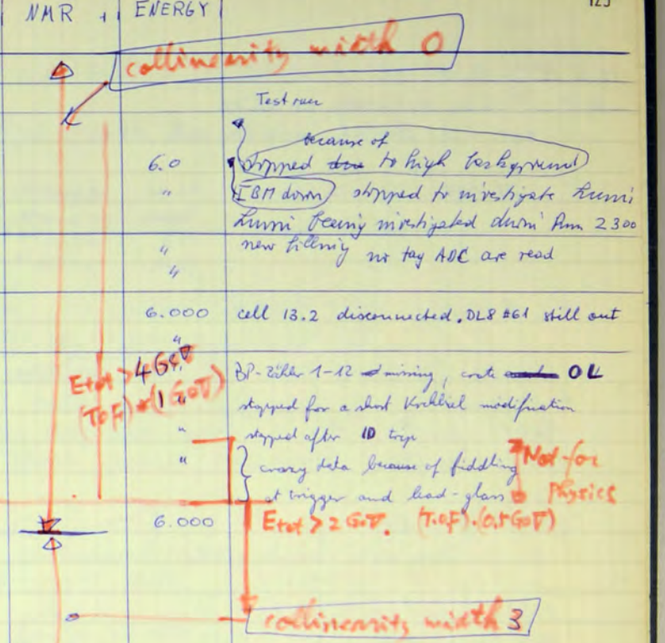
21⁰⁰ noticed, that our on line lumi is factor of ~ 3 smaller than the one of the other experiment. Gerd H. is investigating

23⁰⁰ new filling / again terrible background at the beginning /

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 $\geq$2 TOF $\geq$1 GeV·LG
EXPERIMENT 8																
2295	11.11.73	$\times 10^{23}$	$\times 10^{30}$				16	15								
2297	12.11	17^{45}	18^{00}	2.8	2.3		467	2453	120	108	12	72	70	385	17	376
2298	"	18^{05}	18^{11}	2.7	2.3		573	1062	133	22	111	396	395	187	123	77
2299	"	18^{33}	20^{38}	2.1	2.0		6324	3519	1645	71	1573	4708	4704	2517	1569	1033
2300	"	21^{35}	21^{50}	ignore, we forgot to put the chamber high voltage on												
2301	"	23^{05}		2.0	2.7		1531	532	388	3	384	388	388	338	308	70
2302	"	2359	01^{28}	2.6	1.9		5273	1864	1372	28.1	1344	1300	1298	1213	915	327
2304	13.11	07^{39}	950	2.9	3.0		7699	5641	2003	42	1961	12407?	12401?	4075	2752	1209
2305	"	959	1154	2.3	2.5	$4.8 \cdot 10^{-3}$ $1.0 \cdot 10^{-3}$	6685	4102	1733	36	1703	8923	8919	3081	2229	779
2306	"	12^{47}	13^{02}	3.0	2.8		779	1104	203	12	190	1478	1477	939	274	646
2307	"	13^{02}	13^{23}	3.0	2.8		1497	1765	330	23	367	2726	2724	1400	566	833
2308	"	13^{32}	13^{34}	2.9	2.6		52	52	14	0.4	13	92	92	43	44	37
2309	"															
2310	"															
2311	13.11	1444	15^{45}	2.6	2.4		3627	3667	943	190	753	2969	2966	2683	827	1954
2312	13.11	1549	1606	2.4	2.2		925	1814	2406	156 ~~250~~	225	4017	4015	1511		705
2313 ~ 2316				Junk runs in trying to get IBM link on tape unit working												
2317	13.11	17.47		3.0	3.2		3412	7032	888	64.2	823.	8984 ~~8948~~	8977	5998	3594	3702
2318	13.11	18.45	19.21	3.0	3.0		1960	9098	510	28.8	481	5101	5097	3339	2071	1975
2319	13.11	20:20		3.1	3.2		558	758	145	48	140	427	426	285	463	282 ~~287~~
2320	13.11	20:40		3.0	3.1		8139	9821 ~~10002~~	2117	57.	2058	4920	4910	9133	~~2765~~ 1722	3740 ~~3839~~
2321	13.11	23:00	0:30	2.5	2.6		5473	6386	1424	29.8	1394	2625	2619	4677	3839	2453
2322	14/11/73	6^{18}	7^{35}	2.3	2.9		4421	9815	1151	64.0	1087	16972	185	8209	5140	4191
2323	"	7^{36}	906	2.1	2.8		5816	9824 ~~10002~~	1383	745	1308	16744	16734	8039	5473	3994?
2324	"	908	936	~~1.7~~	~~2.2~~		1588	2702	413	32	381	3952	3949	2164	1492	1047
2325	"	938	10^{52}	1.7	2.2		4364	7997	1136	50	1085	10317	10309	6120	4165	3254
2326 + 2327				technical test-runs; no physics												
2328	14.11.73	14^{24}	15:43	2.3	2.9		3984	9811	1036	119	917	18299	1512	8440	5075	4253
2329	14.11.73	15^{49}	16:44	2.4	2.7		3671	3671	412	29.	423	7691	7687	3012	2106	1227

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 $\geq$2 TOF $\geq$1 GeV·LG

LG $\geq$4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	$\int$Ldt Run	$\int$Ldt Exp	IBM/TAPE	B.P.	BHABHA	MULTI HADRON	NMR	ENERGY
					IBM					
20	2	0			"					
861	19	0.04	0.02	0.02	"	1.0	4	243		6.0
767	241	0.04	0.23	0.25	"	1.0	61	90		"
					"					
92	63	0.04	0.06	0.31	"		17	2		"
393	283	0.05	0.28	0.59	"		38	1		"
659	868	0.11	0.84	1.43	"	~~2.7~~ 2.6	103	5		6.000
470	570	0.08	0.56	1.99	"		79	4		"
85	83	0.11	0.09	2.08	"	(2.5)	13	1		
142	149	0.10	0.15	2.23	"	2.3	24	3		
4	5	0.09	0.0	2.23	"	2.2	1	0		"
						2.2				"
~~3902~~	294	0.08	0.29	2.52	IBM		38	0		6.000
~~2495~~	87	0.08	0.08	2.60	IBM		8	0		
~~7693~~	156	~		~	"		52	4		
—	208	0.10	0.20	2.80	IBM		22	1		
—	43	~~0.08~~ 0.07	0.07	2.85	"		15	0		
	948	0.11	0.92	3.75	"		112	3		
72571	527	0.10	0.52	4.27	"		71	2		
108276	574	0.13	0.56	4.83	"		73	1		
107224	596	0.11	0.58	5.41	"	0.8	73	2		
28391	179	0.12	0.19	5.60	"	0.6	17	0		
85490	526	0.12	0.51	6.11	"	"	55	3		
104212	463	0.11	0.45	6.56	IBM & TAPE		50	0		
—	266	0.14	0.24	6.80	IBM		20	0		



Test run

because of ~~stopped due to high background~~

IBM down stopped to investigate lumi lumi seems misadjusted down from 2300

new filling no HV ADC are read

cell 13.2 disconnected. DL8 #61 still out

BP-Zähler 1-12 ~~mining~~ ~~code~~ OL

stopped for a short Kalibrat. modification

stopped after 10 trig

wrong data because of fiddling with trigger and lead-glass

Not for Physics

~~lumi HV parts off~~

beam lost

~~lumi HV parts off~~

good run

beam dumped

new filling

beam lost

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1 GeV-LG

13.11.1979 0

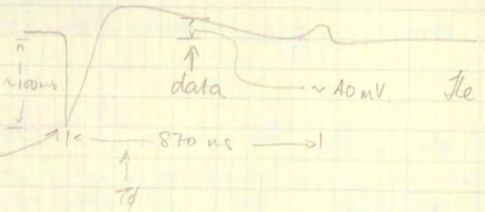
0^{00} Eichler Watanabe on shift
run 2302 started. very low rate 0.8 Hz

0^{35} call PKR and ask lumi

Pluto	0.6×10^{29}
Tasso	0.9×10^{29}
MJ	0.5×10^{29}
Jade	1.1×10^{29} . But on TV and from scalers calculation 0.56×10^{29}

Run # 2302 Lumi Thresholds reset.
The Luminosity rate as measured with the computer active is about 1/3 of the rate with the computer inactive (manual) ie 2280 processor enabled = 1/3 disabled. This was traced to a shift in the d.c. output level on the Lenian Sum outputs of the 9082 ADC's. The Tagg/Lumi discrimin ator thresholds were reset to ~~account~~ allow for this

Lenia Sum o/p



The Nominal 80 mV discrim threshold is made into a 120 mV effective threshold by this phenomenon. The gate pulse Height is now very big (in absolute terms) and also very large relative to the 66eV Stable GA

0^{15} IBM down for 99 secs.
1^{20} Mark J asks for a new filling, scalers dumped
Change HV-checking program. Take out the message: HV-read error, error in TOF-Hiproc till the problem is sorted out.
2^{20} New filling ready. ID. trip. can not reset the alarm. Drumm is coming.
3^{15} Also Wagner is coming.
3^{32} Mark-J wants to go back to old bump setting from the next filling, because Pluto and Mark J see X2 down in luminocity with this bump setting. TASSO apparently does not seem to be affected.
3^{54} Lost beam.

LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	Stat RUN	Stat Exp	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

13.11.79

4^{44} Cell 13.2 of Innes Detector disconnected, since there is a defect in the HV cable or HV feed through (first guess). A.W.
PETRA is having a problem in accumulating e^+.

Switch on all wires in Cell 13.2 = #37 in T2-trigger

07^{35} Finally New filling ready, but BP = 6~7 V!! PKR forgot about collimators. chamber currents look reasonable. BP current 2 V.

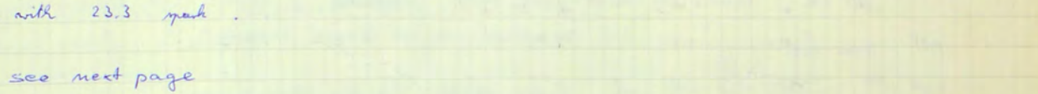
luminosities measured by

Pluto	1.3×10^{29}
Tasso	$1.7 \cdot 10^{29}$
MJ	$1.5 \cdot 10^{29}$
Jade	$1.3 \cdot 10^{29}$ on line 1.0×10^{29}

PKR

8^{00} (8^{45}) Dittmann, Drumm on shift

No collimators at 6 GeV.
11^{15} ID-trip with spark at all 23.3 .
12^{00} N.F. DL8 # 61 back to work by Matsumura. Nothing changed. It just works!
Still DL8 Problems. 12^{30}, all o.k.
12^{40} Find BP counters 1-12 missing. Crate with discriminators in OVERLOAD and no alarm! Power off/on cures the problem. How long?
13^{35} Krehl/Eid ~~installs~~ installs a new device for overriding T1 reject for 1-10 msec after CAMAC clear or Z. 1 CAMAC module in the Scaler-Trigger-Crate. It contains:



13^{35} ID-trip with 23.3 spark .

13^{35} – 14^{40} see next page

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 GeV·LG

15⁰⁰ From run 2311 the following important change:

① Total energy threshold lowed to 2 GeV
② Charged particle trigger (T1OF) * (0.5 GeV) instead of 1.0 GeV
③ Tag. bad/glass trigger (Tag) (1 GeV)
④ After reading out one event, a dead time of 3 msec ~~is~~ installed by Krebsel in ~~on~~ this box. This dead time ~~inhibit T1 clear~~ reject T1 trigger during this time and ~~while~~ gate-clear sequence continue during this time. However scalers continue to count. ~~The result is that~~ Scaler therefore count spurious T1's, which come in this 3 msec and do not trigger the Nord.

All lead glass threshold histogram look clean. at this moment Onito

15⁵⁰ RESET WIDTH OF COLL MATRIX TO 3, now cosmic rate is more or less normal.

16.00 GODDARD & ORITO on shift

16³⁵ Tagg Chambers readout limit reset from 7 to 6 at end run # 2313

16³⁰ – 17²⁵ ZBM down. Nord Tape unit does not write; error 451.

17 30 ID trips on ANODE current. reset.

18 12 Run 2317, luminosity trigger counting a factor 5 too low.
Found HV was switch off. Back in the middle of Run 2317

19⁰⁰ "TAG HW power off" error message. Checked the meters in front of the power supplies All OK. Luminosity counting all right. ~~High~~ A HV power supply Rad bank changed but the address was not changed. ~~wrong~~

19²⁵ Beam lost

20³⁰–20⁴⁰ Lumi HV still not good. Hughes reloaded the HV setting program

LG ≥ 4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	∫Lat RUN	∫Lat Exp	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

or above 27 °C

→ If digital temperature indicator for the pressure vessel in the Rücksack gets below 20 degrees, call Wagner. ←

21.30 Left layer 4 side wall 2 (michael side) in chamber disconnected as they introduce noise into the chamber – that layer. All other layers of that side wall left in. Layer 4 chambers in other side wall & shield & roof left in & OK Fred Krebsel

0⁰⁰ Tagg/Lumi Pb-Glass hi-V voltages reset to nominal values before Run # 2322
0⁰⁰ 14 H. MINOWA & HAIDT on shift [All runs from 2295 to 2321 have Lumi EM7 problems] GH
0¹⁵ End of filling
4 h PKR says: new filling, but bad conditions. PKR checked that collimators are o.k.
BP between 5 and 10 V varying, unstable. PKR tries to improve. PKR got an improvement for a few minutes, then MARK J's conditions became worse. PLUTO & TASSO are satisfied. PKR this compromise between MARK J and JADE.
PKR new filling
5⁵⁵ PKR with new filling ready. BP 8 ± 1 Volt
We get in contact with MARK J and ask PKR to improve the beam conditions for JADE
6 ¹⁵ After change BP < 1 Volt. Start run 2322
TV screen "MUON CRATE MISSING", reset #1 and #0
7 ²⁰ Next run after 10000 events.

8⁰⁰ Coords & Nozaki on shift
9.06 stop run # 2328
To remove the message "Muon crate missing" message, run is reset.
10⁰⁵ PETRA-magnets will be switched off: Thursday, Nov. 15, from 6³⁰–9⁰⁰ h ← (*)
10 ²⁰ Message "Muon Chamber missing" comes on now and then
10⁵⁵ beams lost; ~~became~~ trouble came from HERA
11⁰⁰ Tagg Chamber Limit Scalers reset from 6 to 9
14 ¹⁰ beams ready; background much to high; beam lost again
14 ²⁸ beams ready again
15⁰⁰ occasional error 701 of CAMAC-task or 702 or 707 more than 10 times. ? see next page.

up to Run 2328 Nhad = 32 ∫Ldt = 6.3/nb K = 0.51

16 ¹⁸ PAGE-FAULT IN 34323 AT 102601 comes on console (this is in YIEH)
STOP Run, EXIT, RT 2DAS helped

TAPE UNIT WORKING AGAIN

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF ≥ 1 GeV-LG

16⁰⁰ Pearce, Onuto

From run 2318 to 2326, 12 hadrons for 3.1 nb^{-1} $\sigma \simeq 3.1$ nb, $\sigma_{\mu\mu} = \frac{86\,nb}{5} = 0.6$ nb at $\sqrt{s}=12$

$$R = \frac{3.1}{0.6} \simeq 6, \quad \text{Right order of magnitude.}$$ S. Onuto

17³⁰ Beams lost
Problem with PIA. Cannot get protons injected.

19⁰⁰ i) HADRON definition in N50 changed: upper energy limit introduced
now: $E_{beam}/3 < E_{LG} < 4/3\, E_{beam}$
This cut should remove most of the COSMIC and BEAM-LOSS Background
(This is checked to work at 15 GeV, I don't know how it works at 6 GeV)

ii) RUN-SUMMARY changed: T1 ACCEPT rates (like 'LG>4') now taken from events (not from scalers)

20³⁰ Stable beams attained. Restart running.

~~22³⁰~~ G. Hughes } and Haidt on shift
23 ⁵⁵
0 ⁴⁵ We ask PKR to improve the background, which was done successfully. Then start run.
MUON CRATE MISSING #1 reset
At Start Run # 2334 Limit gating reset to reduce ghost effects, and Tagging triggers reinstated.

∫Lat fin Run # 2322 to # 2333 = 4.23 nb^{-1} Σhadrons = 11 Σ e⁺e⁻ = 490

$\frac{\text{hadrons}}{\text{nb}^{-1}} = 2.57$ if $R_{30\,GeV} = R_{12\,GeV}$ then expect 2.5

$\frac{\text{bhabhas}}{\text{nb}^{-1}} = 114.7$ from formulae dated page 119 expect 96.0

3⁵⁹ Inner detector alarm: address 034 anode 52.7
4²¹ New filling (run 2336)
5¹⁷ Inner detector alarm: address 044 anode 52.8
6¹⁷ PKR switches off magnets as announced before (page 129)
9³⁰ Power supply for compensating coil (right) off by Richard

8.00 Goddard & Nozaki on shift

LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	∫Lat RUN	∫Lat Exp	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

11.50 beam is ready.
12.00 Pearce comes, Goddard goes, (where he's gone, noone knows) I wonder if THE CHIEF knows?
Run 2340 started [BAD RUN ??? - SEE NEXT LINE]
12¹⁵ Notice ½ of beam pipe counters are off. NIM crate turned out to be off. Reset crate and start new run
12²³ Start run 2341 – all beam pipe counters now present.
Note Problem with beam pipe counters could also have been present on run 2339.

13¹² Run 2341 ended.
13¹² Run 2342 started. Rate 5 Hz, dead time 20% !! Beam pipe counts shows 20% and oscillating – PKR must be fiddling.
13¹⁹ JOAS thinks that no run is in progress, so we stop run 2342 officially.
13¹⁷ start run 2343 Rates back to normal, 1.4 Hz.
DL8 problem – error 44. Hewar investigates. IBM link down. Stop run.
14⁰⁰ start run 2344
14¹⁵ M.ū called us, they want to dump new filling in 20 minutes. V34
New dead cell found in I.D. Wires 416–432. Matsumura finds amplifier down. Brunon comes to ~~check~~ fix it.
14.47 Stop run, just before the beam dumps.

I.D. amplifier has now been repaired and replaced. V34
PLEASE CHECK WIRE MAP ON FIRST RUN OF NEW FILLING

15.30 New filling
15.40 start run
Jet chamber wire map shows ~~4~~ two dead cells only.
16.00 P. Murphy, G. Weber on shift
17.30 Run 2345 stopped because Colour TV display stopped (trouble with Nord 10 Cards comes and resets).
20.44 get message on col. TV: Data not written
20.50 End run 2347. No printout comes. TV screen says 3210 events. But events display gives last event no. 2825.
21.25 ~~Re~~ New Filling. Start new run, but get run # "2347" (old run number) on col. TV. Stop after 91 sec
21.28 Restart ~~start~~: Now run # 2348 O.K.
22.03 MARKJ calls: Jenni so bad, that a new filling is desirable. We think that is was unnecessary to fill at 20.50 but agree to try another time.
22.25 New filling finished, start run.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	Tθ REJECT x10⁶	Tθ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ≥1 GeV·LG
132																
2330	NOV 14	16:23		2.3	2.1		4073	8023	1059	58	1002	15862	15854	8625	4784	2638
2331	"	20:24		2.6	2.4		4566	9813	1188	73	1114	23936	7149	8455	5862	3248
2332	"	21:44	23:17	2.2	2.3		5503	9824	1431	70	1360	24502	7715	8282	6387	3502
2333	15/11/79		0:24	1.8	1.8		3889		1011	48	963	15061	15054	5288	4156	1487
2334	"	0:47	2:26	2.8	2.8		5891	9810	1533	74	1459	19666	28797	8114	5938	2672
2335	"	2:27	4:19	2.6	2.7		6547	9848	1703	60	1642	18921	2135	7254	6051	1504
2336	"	4:31	6:31	2.6	2.9		6974	9814	1814	70	1774	23730	6943	8139	6867	1604
2337	"	6:51	6:57	2.6	2.9		266	317	69	2	67	665	664	263	137	49
2339	"	11:50		1.3			756	1092	196.6	6.6	190	1342	1341 ~~985~~	885	682	319
~~2340~~	"	~~12:00~~	~~12:5~~	~~2.3~~	~~3.1~~											
2340	15/11/79	12:00	12:20	2.3	3.1		1018	1603	265.1	9.88	255.2	2.33×10^6	2324	1297	932	527
2341	15/11/79	12:20	13:12				2806	6301	730.7	~~670.8~~ 59.9	670.8	7886	7880	5233	2732	3102
2342	15/11/79	13:12	13:17				217	1102 ?	52.6	10.6	46.1	1588	1587	981	324	758
2343	15/11/79	13:17	13:49	1.9	2.7		1746	5714	452.6	85.1	369.5	8509	8504	4751	1937	3194
2344	15/11/79	14:00	14:48	1.9	2.7		2845	7637	741	68	673.0	12686	12678	6708	3377	4163
2345	15/11/79	15:38	17:30	2.4	2.4		6618	9091	1724	49	1674	8814	8805	6866	5231	3066
2346	15/11/79	17:34	19:55	2.3	2.4	1.3/48	8435	~~10002~~ 9827	2097	50.2	2147	8131	8122	7199	5955	2722
2347	15/11/79	19:56	20:47	1.9	2.0		2908	3141	758	19	738	2484	2481	2331	1971	802
2348	15/11/79	21:24	21:27	2.5	3.1		91	175	23.7	1.0	22.7	146	146	138	96	75
2348	15/11/79	21:28	22:14	2.5	3.1	1.3/47	2723	3898	708	23.9	684	3674	3670	3083	2138	1576
2349	"	22:25	0:28	2.9	2.9		7280	~~10002~~ 9804	1894	~~57~~	1837	9971	9961	7411	5629	3130
2350	16/11/79	0:39	2:47	2.6	2.60	1.3/48	7601	9826	1977	50.3	1927	8712	8703	7432	5896	3219
2351	"	2:48	3:57	1.9	2.1		4107	4993	1068	25.2	1043	3789	3783	3793	2990	1814
2352	16/11/79	08:07	07:44	2.8	2.8		5674	9822	1476	56.5	1419	10178	10168	7864	5301	4366
2353	"	09:44	09:55	2.5	2.3		588	873	153	4.8	148	933	932	681	518	341
~~2354~~	~~16/11/79~~	~~10:00~~		~~2.6~~	~~2.4~~		~~588~~	~~873~~	~~153~~	~~4.8~~	~~148~~	~~933~~	~~932~~	~~681~~	~~518~~	~~341~~
2354	16/11/79	10:00	12:01	2.6	2.4			7069	1839.7	122	1718	9582	9573	7564	5524	3793
2355	16/11/79	12:02	14:05	2.1	2.1		2251	9813	1887	56.8	1831	7941	7931	7530	5697	3824
2356	16/11/79	14:06	14:41	1.7	1.8		2095	2388	545	30.7	515	1832	1829	1842	1456	862
~~2356~~	~~16/11/79~~	~~"~~														
~~2357~~																
2358	17/11/79	15:00	15:08	2.8	2.9		434	998	113	8.9	104	856	855	835	416	591
2359	"	15:13	16:59	2.8	2.9		6330	9822	1647	67.7	1579	8971	8961	7624	5370	4132
2360	"	17:07	17:32	2.4	2.4		1425	2177	371	13.3	358	1849	1846	1666	1201	953

LG≥4 GeV	LUMI	⟨L⟩ 10^{30} cm⁻²sec⁻¹	∫Ldt Run	∫Ldt Exp	IBM/TAPE	BP	e⁺e⁻	Radron	NMR	Energy	Comments
	510	0.12	0.50	7.30	IBM		59	2			
904	471	0.10	0.49	7.77	IBM		52	1			
1063	476	0.08	0.47	8.24	"		56	2		6.000	
746	299	0.08	0.30	8.54	"		35	1 (-1)		6.000	
1112	590	0.10	0.60	9.14	"		68	2 -1		6.000	
1058	559	0.09	0.56	9.70	"		61	1			
1129	537	0.09	0.55	10.25	"		57	2 -1			
38	16	0.06	0.02	10.27	"		0	0		6.000	
126	77	.10	0.08	10.35	IBM		11	0		6.0/beam	Stopped due to noisy lead glass channels. Beam pipe counter problem :- ½ missing. Possibly run 2337 affected also.
			~~0.11~~								run 2340
200	105	.10	0.11	10.46	IBM		16	0		6.0/beam	
653	262	.10	.27	10.73	IBM		27	1		6.0/beam	
57	13	.08	.02	10.75	IBM		0	0		"	Forced trig run - somehow it stopped itself !
376	128	.08	.13	10.88	IBM		14	0		6.0/beam	IBM hang up stop run to look at PLB's
698	225	.08	.23	11.11	IBM		22	1		6.0 GeV	
1312	882	.13	.87	11.98	IBM	0.5	89	2		6	Refilling
1646	975	.12	.97	12.95	"	04	114	8		"	Stopped (eg. Nord trouble
523	286	0.10	0.29	13.24	"	04	29	0		"	Nord trouble; beams dumped. on request of MARK J
25	9	0.10	001	13.25	"		1	0		6	New filling Stopped because of old trouble see p. 137
518	217	008	0.22	1347	"	0.6	25	1		"	Beams dumped on request of MARK J
1452	897	0.12	0.90	14.37	"	0.5	92	2		"	New filling Normal End
1499	892	0.12	0.90	15.27	IBM	0.45	89	3		"	normal end
799	400	0.10	0.40	15.67		0.4	21	3		"	New filling
1247	711	0.12	0.71	16.38	IBM		74	4		"	
124	67	0.12	0.07	16.45	IBM	0.7	8	4			No events .... error
~~124~~	~~67~~	~~0.12~~	~~0.07~~	~~16.45~~	~~IBM~~		~~8~~	~~4~~		"	No events ---- error
1474	782	0.11	0.79	1724	IBM		100	3		"	
1554	725	0.10	0.74	17.98	"		86	4			
325	170	0.08	0.17	18.15	"		16	1			
108	57	0.13	0.06	18.21	IBM	0.5	5	0			New filling "10 events - hang up"
1437	758	0.12	0.76	18.97	"	0.5	86	0			
306	159	0.11	0.16	19.13	"	0.5	17	0			

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1 GeV·LG

16.11.79

0⁰⁰ K. Stephens and H. Riesberg on shift
~~At end of 2349 (10000 events) automatic print out did not happen.~~
3.56 End Run 2351 for refilling
5.15 Mark J call. PWR have injector problem — No trigger. They are trying to find it.
6.30 Injection Trigger is working again. They hope to start filling in about 1/4 h
08 06 FOSTER / MINOWA. HERE
08 07 Start Run 2352
08 42 End Run 2352
09 44 Start Run 2353
09 55 End Run 2353 Nord error.
10.00 Start Run 2354
11 47 FF & lunch JH here.
12 03 Mcrate 4 missing. but we soon found it.
12 01 End Run 2354
12 02 start Run 2355
12 30 Regular display doesn't work. Herr Dittman suggests we restart at the beginning of the next run. Error message on printer is: YBISP: STRANGE ENTRY CODES: 8 142...
All other functions, including NORD 50 HISTOGRAMS, seem ok. ⇒ cured
14 19 Mark J request refill at 14 40.
14 57 Got "muon crate missing" warning. All lamps and flashing but occasionally stopped showing continuous red light. Warning disappeared!
14 43 End run 2356 for beam dumps refill.
15 00 Start run 2358 (2357 aborted after level)
15 12 Start run 2358 ("No events. No trigger" hang up. couldn't get a status info. before stop.)
15 13 restart ZDAS and start run 2359.
15 45 ½ beam pipe counter not on. Reset NIM crate at top in rack 3. Will next shift please change power supplies on this crate when beams are dumped.
@16:00 Kawabata, M. Prosser
20.05 Inner detectors high voltage were switched off by Alarm which came from cell 23 of R3.

[NOTE: The tagging switch in rack 9 now activates tagging chambers in addition to tagging Pb Glass & Scintillators. Please switch on after clean beam conditions have been established from beam pipe counters ✓ Hodo]

LG≥4 GeV	LUMI	<L> 10^{30} cm²sec⁻¹	∫Lat RUN	∫Lat EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

21:13 New filling.
00⁰⁰ DRUMM & HEDGECOCK ON SHIFT. 17-11-79.
04⁰⁰ NOTED THAT MUON CRATE MISSING FLASHES FROM TIME TO TIME.
04⁴⁵ New filling, Background (BP) fluctuating
4⁵¹ BP is OK, we start data taking.
5⁰⁵ ID trip with cell 23.3 spark.
5¹³ we get no more triggers and restart 2nd run; probably after T0 trigger adjustment
5²⁹ no more triggers
5⁴² display is always busy. We restart ZDAS. OK.
A quiet shift with some sleep.

8⁰⁰ Prosper & Minowa
8²⁰⁻²⁵ Nord jammed — got no triggers — restarted (i.e. STOP? EXIT etc.), new run 2373.
8³⁰ ... no triggers again — pressed start button on K.'s box. all OK!
8⁴⁵ ID trip with cell 23/R3
10:26 ...: no triggers — run stopped. — start new run. (re-create this one over)
restart ZDAS. and start Run 2374.
10:45 MARK-J requests new fill at 11:00
Mem crate missing — crate 1 — brate end on start board cable at crate 2 end.
Crate 1 O.K. then crate 5 missing — press reset — O.K. then.
11:48 ... no events ... hang up again, (after PAUSE/CONTINUE)
restart ZDAS and start Run 2376.

[NOTE: Please add following tagging histograms to those monitored once per shift:
51, 52, 53, 54, 55, 56 use "display by numbers" option.
See JOAS file for typical patterns MM]

13:26 ERROR MESSAGE on PRINTER "ERROR 24 IN 34761 AT 15 l RING VIOLATION".
CONTINUED THE RUN.

14:50 no events hangup after Pause/continue
restart ZDAS and start Run 2378
16:00 MATSUURA, O'NEIL on shift (shift change)
16.39 Making histograms. Make 1st Trigger 1 output. Nord Hangs. Teletype

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF ≥ 1 GeV LG
2361	16/11	17:34	19:25	2.3	2.3		6648	9819	1730	53.3	1677	8360	8350	7629	5444	4228
2362	16/11	19:42	21:51	1.9	2.0		7212	9819	1876	51.7	1825	7924	7914	7658	5808	3936
2363	"	21:58	22:55	1.6	1.6		3385	4470	884	22.7	858	3551	3547	3494	2616	1868
2364	16/11	23:12	00:29	2.7	2.6		4508	9816	1173	82.76	1090	11351	11352	8256	4682	5731
2365	17.11	00.33	02:00	2.6	2.6		5181	9817	1347	59.37	1288	11024	11014	7870	4971	4561
2366	"	02.01	03 43	2.2	2.3	1.3/10^{-3} 9.7/10^{-3}	6110	9827	1590	55.16	1534	10357	10.347	7744	5345	4157
2367	"	03.44	04.32	1.9	2.0		2841	4103	739	23.4	715	4079	4075	3136	2230	1688
2368	"	04.53	05.13	2.8	3.0		994	2734	258	21.8	236	2983	2983	2291	1183	1570
2369	"	05 21	05 29	2.7	2.8		391	883	107	6.7	95	979	978	714	421	474
2370	"	05.32	05.42	2.7	2.8		528	1121	137	8.1	129	1232	1231	854	522	589
2371	"	0544	7.22	2.6	2.7		5867	9820	1527	76.8	1450	11054	11044	7812	5218	4326
2372	"	7.23	8.19	2.3	2.4		3145	4696	818	34.2	784	4547	4542	3578	2550	1961
2373	"	8.24	10.27				6770	8879	1761	67.0	1695	7728	7720	6668	5028	3388
2374	17.11	10.27	10.59	1.8	1.8		1894	2336	493	39.7	453		1681	1698	1285	910
2375	12.11	11 18	11 49	2.8	2.8		1622	2661	422	20.8	401	2342	2340	1749	1394	710
2376	17.11	11 51	13 55	2.5	2.5		7404	9811	1925	74.9	1850	8865	8856	7100	5437	3182
2377	17.11	13 55	14 49	2.3	2.3		3147	4022	819	29.3	790	3244	3240	3001	2292	1540
2378	"	14 54	16 38	2.1	2.1		6130	7453	1595	86.4	1509	5273	5265	5519	4273	2808
2379	"	16 43	17 19	1.8	1.8	1.3/10^{-3}	2140	2412	557	30.8	526	1637	1635	1798	1450	854
2380	17.11	17 36	19 07	2.9	2.9	1.4/10^{-3}	5444	8118	1417	71.9	1345	8336	8328	6411	4604	3160
2381	"	19 12	19 14	2.4	2.5		62	60	16.2	0.4	15.8	78.3	78.2	41	36	4
2382	"	19 16	20 31	2.4	2.5		4459	5972	1160	39.4	1120	5956	5950	4572	3455	2121
2383	"	20 33	22 45	2.1	2.2		7698	9207	2003	68.2	1935	8097	8090	6896	5591	2914
2384	17.11	23 05	23 33	2.9	2.8	1.4/10^{-3}	1648	3455	429	21.8	408	3701	3698	2844	1730	1671
2385	17/11	23 37	01 33	2.7	2.7		6937	9820	1805	555	1749	10431	10421	7398	5555	3369
2386	18/11	01 34	03 41	2.2	2.3		7500	9817	1951	531	1898	9308	9299	7466	5747	3435
2387	18/11	03 41	04 38	1.8	1.9		3348	3893	870	208	849	3654	3650	2938	2355	1259
2388	18/11	05:01	06 52	2.8	3.0		6336	9813	1647	61.9	1585	11931	11921	7758	5571	3566
2389	18/11	06 53	09 08	2.4	2.5		7526	9815	1958	564	1901	11,034	11025	7292	5718	2821
2390	18/11	09.09		2.0	1.9		389	508	101	2.7	98	501	500	392	294	207
2391	"	09.49		3.0	2.6		1477	4610	384.6	50	334.5	3461	3456 4145	4145	1668	3299

LG $\geq$ 4 GeV	LUMI	$\langle L \rangle$	$\int Ldt$ RUN	$\int Ldt$ EXP	IBM/TAPE	BP	BHABHA	HADRON	NMR	ENERGY	
1490	696	0.11	0.70	19.83	IBM	0.5	70	7		6 GeV	
1507	655	0.09	0.66	20.49	IBM	0.5	60	0		"	
703	372	0.08	0.28	20.77	IBM	0.5	32	1		"	
1012	551	0.12	0.56	21.33	IBM	0.7	53	1		6 GEV.	
1337	606	0.12	0.63	21.96	IBM	0.7	72	3		6 GEV	
1392	688	0.11	0.68	22.64	IBM	0.7	75	1		6 GEV	
683	284	0.10	0.29	22.93	"	0.7	32	4		"	
253	144	0.14	0.14	23.07	"	1.0	14	1		"	Stopped due to "no trigger" situation.
107	52	0.13	0.05	23.12	"	1.0	7	0		"	STOPPED DUE TO "NO TRIGGER" SITUATION.
135	73	0.13	0.07	23.19	"	0.8	9	0		"	RESTARTED NEW RUN WITH "DISPLAY BUSY" INDICATED.
1282	725	0.12	0.73	23.92	"	0.8	76	0		"	
710	369	0.12	0.37	24.29	"	0.6	40	0		"	"no events ..." hang up
1468	728	0.11	0.72	25.01	"	0.5	73	0		"	"no events ..." "
444	196	0.10	0.19	25.20	"	0.5	16	0		6 GeV	MARK J asked for more filling
551	273	0.16	0.26	25.46	"	0.75	29	0		"	new beams. "no events ... "hangup after cont. Peak
1661	1047	0.14	1.04	26.50	"	0.6	102	1		"	
647	369	0.12	0.37	26.87	"	0.5	29	2		"	"no events hangup"
1249	651	0.11	0.65	27.52	"	0.5	79	0		"	Stopped by Mark beams.
409	206	0.10	0.21	27.73	"	0.5	26	0		"	
1130	575	0.11	0.57	28.30	"	0.4	74	1		"	Stopped to Reload NORD1
8	11	0.17	0.01	28.31	"	0.4	1	0		"	Stopped for want of color TV.
905	494	0.11	0.49	28.80	"	0.4	43	0		"	Stopped for Ring vibration Repair.
1526	784	0.10	0.79	29.59	"	0.3	94	1		"	
402	203	0.13	0.21	29.30	"	1.2	29	3!			
1537	878	0.13	0.88	30.18	IBM	0.8	76	3		6 GeV	ended normally after 10000 events
1521	831	0.11	0.83	31.01	IBM	0.6 V	68	3		"	ended normally after 10000 events. Beams dumped.
635	317	0.09	0.32	31.33	"	0.5 V	32	3			
1291	730	0.12	0.74	32.07	IBM	0.7 V	75	3		6 GeV	ended normally after 10000 events
1757	761	0.10	0.75	32.82	"	0.6 V	76	3		"	
82	39	0.09	0.04	32.86	"	0.6 V	3	0 !		"	
349	119	0.09	0.13	32.99	"	1.5	12	0		6 GeV	beams too noisy to continue profitably.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 GeV·LG

message is: 16:37.35 Error 13 in 34323 At 102601: Page Fault for non Demand. Page No. 137

16.40 Stop Run 2378

16.43 We succeed in starting Run 2379 following procedure on the yellow Punch card and <u>without</u> going to Exit, Esc, etc. Right at the beginning teletype sends, " 16.43.23 Error 24 in 34761 at 15: Ring violation". and we briefly get "muon crate missing". Then run goes on normally. Continue making histograms for old run.

~16.45 Muon crate missing. This time deliberate, Muon boys have taken it down. Will last ~ 0.5 hr.

We keep getting "IBM busy" all the time but never for very long. ~ 5 sec at a time.

17.19. Stop Run 2379 for a new filling.

17.36. Going again. We again got: 17.36.12 Error 24 in 34761 at 15 Ring violation. Otherwise normal start.

~19.00 B. Naroska calls to petition for priority time. Mention Ring ~~error~~ violation at beginning of every run all afternoon and evening. She thinks this is fairly serious. Stop Run 2380. Reload Nord. Message still comes (at start of Run 2381), No color TV. Go through manual procedure. Start Run 2382. Message comes again. Color TV ok now.

Call Herrn Cords. Do some checks as directed. Problem is routine ΣvoLTS. Not too serious. Herr Cords will come by later.

20.30 Herr Cords comes. Stop Run 2382. Fixes Ring violation problem. Continue with Run 2383

LG≥4 GeV	LUMI	<L> 10^{30} cm²sec⁻¹	∫Lat RUN	∫Lat Exp	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

22.15 Jet chamber trip off. High voltage sparking 23R3. This we are allowed to reset.

23.00 New filling. Pretty hot. 3TOF/TØ ACC ~ 7.5% but Σbp only 1.2 v. Instructions say 5% AND/OR (which?) Σbp ~ 1.8v. Decide to accept full responsibility for destruction of jet chamber and forward tagging. Start Run 2384. How valiant!

23.20 Muon gathers note it on-line. O.K.

23.30 Pause run to raise attenuator settings. Keep getting stupid JDAS ERROR 44. ⊗ No Triggers. I dunno. Stop Run. Start new Run 2385. All OK.

18.11.79

0°° Ball + Heinzelmann on shift
Since run 2381 we have 5-10% "unidentified" events. From display inspection mainly cosmics.

1³⁴ Stop run 2385 start 2386
Histograms for run 2385 all look ok.

03.40 Stop run 2386 - ended normally after 10K events. Start run 2387

04.38 End run 2387. Beams dumped.

05.01 Stable beams; start run 2388

05.18 Trigger box gets into accidental stop giving 'NO TRIGGERS' message. Restart from trigger box

05.19 — happens again.

05.20 - and again

06.53 Run 2388 ended normally after 10K events. Start Run 2389.
2388 is 5th run in succession with 3 bachanal events flagged! Seems a bit suspicious. Is the counter stuck?

07.27 Trigger box stops again - ~~this~~ this time it was attenuator needed adjusting.

07.50 Inner detector trip. Noted + reset OK.

0800 Hassard and Suda on shift

0820 • L.G. threshold is changed (30mV → 25mV)

0855 Mark J want refill at 0915. We agree.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗	LG≥4 GeV	LUMI	<L> 10^{30} cm²sec⁻¹	Slat RUN	Slat Exp	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

18.11.79

0915 stop run 2390. We have 3 hadronic events. Like the last 5 runs.
0935 PKR say beams are ready and BP current < 10 so we start to switch things on. While winding up inner detector, we notice BP current suddenly high and fluctuating wildly (average 30, amplitude ≈15) So we turn off ID + LG (tagging) PKR say they haven't put our collimators in (and haven't for several runs now). We ask them to do so.
0949 BP now averaging 14, still fluctuating but never above 20. So we start #2391
0952 µ crate 6 missing. Reset.
1000 Mark J wants dump the beam because of low luminosity and high background counts. We agree.
1015 Dumpped beam and fill again
1102 L.G. threshold is changed (25mV → 30mV) (after refill of Run 2392)
1318 µ-Crate is missing. Reset (Crate #3)
1607 Stop Run 2395 since barrel 2 hitmap noisy. This could be due to incorrect time pedestals which are reset at run start. The new run appears to have the same barrel hitmap.
16.18. Mark J wants to dump the beam at 16.30. We agree

16.00 Krehbiel + Nozarko on shift
16.30 Stop run 2396 due to dump of the beam.
17.25 new filling is ready but BP current is fluctuating around 1.5 V ± 5V.
3TOF/All ≈ 9 %
We call PKR. They are still adjusting the beam.
They want to do new filling.
17.55 New filling ready. clean beam 3TOF/All = 4% BP ≈ 0.6 V.
I.D. 3 times alarm occurs (x anode current 2x 7.1 high voltage alarms) after it became normal.
18:00 New Proms filled to µ-crates 2,3,4,5,6,7,8,9,10. Now have new Proms in all 14 crates A. Hass/AHS.
19.00 Stop run since re-trigger signal appears on display, after pause.
20.00 There must be a trap in the Display-Event-select. When I tried to change the selection criteria while "DISPLAY SELECTING EVENT." & I got the repeated message "Too quick; I'll wait another 20 sec. on which it did not respond to F-Buttons, but somehow I managed to stop the run!
20.05 Pause → restart → no trigger. IDAS ERROR 00044.
20.38 Several IDAS ERROR 000044 Sub 000302 Task 1
21.40 Instantaneous Deadtime suddenly going up. and down again. (up to >20%) without doing anything. Possible source: IBM Busy
22.10 I.D. alarm. Stop run 2401

22.15 start run 2402
23.19 Stop run, beam dump.
23.37 New filling ready. 3TOF/All = 3% BP = 0.7V

14.11.79
0000 Kobayashi, Warming on shift
1132 run 2404 stopped because LG pedestals were bad
1400 run paused, attenuator switched, run continued, IDAS Error came frequently and no events for 2 seconds ⇒ run stopped, restart
1443 muon crate #2 missing, also #13 missing, reactivated by reset
~~of crate 13 in the counting house the bottom lamp is flickering and not permanently lit, as all the others are~~
1452 new filling announced for 1550
1500 very quick new filling
1705 muon crate 6,7 missing, reactivated, then 11 missing, reset, now all ok

0800 Foster + Steffen on shift
0850 New fill but beam unstable — also Mark J, JASSO PKR getting a part in.
0906 Beam quieter now — start run 2412. See previous page?
0915 PKR call. Their collimator IN while should be OUT ∴ they move it OUT. Backgrounds now better, !!!??
0935 'µ-crate missing' - warnings shall be ignored. Crate 6 has been out of µ system for 50 minutes.
1025 'µ-crate missing' warnings no longer ignorable.
1035 End run 2412. (all histograms taken)
1039 start run 2413.
1210 Stop run. New filling
Run summary printout is incomplete. No advice found how to print it again; nobody reachable from the online gang.
1252 Petra refilled.
1257 Start run 2414. BP monitor was 0.6
1307 All histograms OK after 1000 events. Get frequent IDAS error 00044 sub error 000701 Task 1
Now getting sub error 401, 403. (board 4 crate 1, 3) will stop run if gets more frequent.
⇒ Call Eichler if new filling requested (806)
~~1438~~ Start
1420 Run 2413 ended normally
1428 Run 2416 started
1440 Ignore all µ crate missing for next few minutes (
1454 More IDAS 00044 errors sub errors 701, 401, 702.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF $\otimes$ ≥ 1 GeV LG	LG ≥ 4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int$Lat RUN	$\int$Lat Exp	IBM/TAPE	B.P	BHABHA	MULTI HADRON	NMR	ENERGY	
2392	18.11	10.48	12:18	2.8	2.8		5343	9819 4532	1391	63.3	1328	7758.2	7788.3	7767	4706	4865											
2393	"	12:18	13:16	2,3	2,2		3413	4344	887	24.6	863	3324	3320	3226	2626	1481											
2394	"	13:20	15:37	2.2	2.1		8198	9821	2132	49.6	2082	5958	5948	7183	5833	3577											
2395	"	15:37	16:07	1.8	1.7		1760	2059	457	9.8	447	1063	1061	1536	1267	751											
2396	"	16:08	16:29	1.8	1.7		1286	1861	334	8.6	325	734	732	981	810.	485											
2398	"	17:53	18:43	2.8	2.7		3317	5242	863	50	812	3926	3921	3927	2742	2297											
2399	"	18.57	19.58	2.2	2.2		3654	5027	957	27	923	3616	3611	3716	2814	2061											
2400	"	20:00	20:05	2.2	2.2		245	327	63	1.5	62	229	229	222	181	126											
2401	"	20:06	22:07	1.9	1.9		7183	8969	1869	61	1808	6120	6112	6670	5293	3408											
2402	"	22:13	23:19	1.6	1.6		3420 4501	4501	1020	33	987	2894	2890	3344	2911	1693											
2403	"	23:31	19.11 1:26	3.0	3.0	$1.4 \cdot 10^{-9}$	6757	9803	1758	55	1703	9323	9313	7551	5565	3788											
2404	19.11	1:26	1:32	2.5	2.5		300	432	78	2	76	351	351	322	253	151											
2405	"	1.32	2.20	2.5	2.5		2722	3703	708	19	688	3020	3017	2784	2147	1388											
2406	"	2.20	3.38	2.3	2.3		4627	6067	1204	32	1172	4557	4551	4493	3450	2382											
2407	"	3.40	4.49	2.0	2.0		4130	5292	1092	26	1045	3540	3535	3891	3099	1964											
2408	"	5.00	6.45	3.2	3.2		6797	8781	1613	66	1547	8586	8576	7513	5248	4192											
2409	"	6.45	6.50	2.4	2.5		299	401	78	2	75	340	339	289	215	155											
2410	"	6.50	7.28	2.4	2.5		2204	3322	573	20	552	2885	2882	2613	1853	1408											
2411	"	7.28		2.2	2.3		1858	2740	483	16	468	2374	2371	2157	1610	1227											
2412	"	9.06		2.4	2.6		5217	9377	1358	87	1271	9268	9259	7654	4764	47,15											
2413	"	10.39	12.10	2.0	2.4		5361	7284	1395	92	1303	5915	5908	5659	4167	3166											
2414	"	12.56	14.20	2.6	2.6		5391	9802	1404	84	1320	7024	7014 7824	7924	5110	4545											
2415	"	14.28	16.22	2.2	2.3		6799	9814	1772	76	1696	6455	6446	7756	5918	3745											
2416	"	16.24	16.28	1.6	1.9		236	338	61.5	1.6	59.9	198	197	264	218	131											
2417	"	19.09	20.49	2.6	2.5		5892	9819	1535	95	1440	6780	6770	8058	5508	4154											
2418	"	21.02	22.59	2.0	2.1		6984	9819	1819	53	1767	5398	5388	7647	6109	3832											
2419	"	22.59	23.28	1.7	1.7		1712	2251	446	11.8	434	1147	1145	1779	1435	889											
2420	20.11	0 17	0 18	2.5	2.6		0	0	0	0	0	0	0	0	19	17											
2421	"	0 30	0 33	2.5	2.6		196	620	51	43	46	217	216	534	237	457											
2422	"	0 36	1.58	2.5	2.6		4849	9824	1262	80	1211	4820	4811	8171	5086	5626											
2423	"	2:01	2:19	2.5	2.6		1035	1813	2694	10	259	908	906	1448	998	1087											
2424	"	4.44	5:38	2.7	2.6		3202	9829	833	80	753	5043	5034	8652	3508	7439											
2425	"	5:37	6.52	2.7	2.6		4385	10002	1141	96	1085	5651	5641	8158	4250	6508											
2426	"	6.52	7.49	2.7	2.6		3358	6607	874.5	38	836	3680	3674	5364	3059	4195											
2427	"	7.49	8.10	2.7	2.6		1264	2474	328	12	316	1261	1259	2050	1170	1653											

LG ≥ 4 Geo	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec	$\int$Lat RUN	$\int$Lat Exp	IBM/Tape	B.P	Bhaba	Multi hadron	NMR	Beam Energy	
1405	650	0.12	0.66	33.65	IBM	0,6-0,7 mD	62	2		6 Gev	new fill
687	420	0.12	0.42	34.07	"	"	39	0		"	stop Run because of warning "no event"
1729	909	0.11	0.90	34.97	"	"	108	2		"	
361	162	0.09	0.16	35.13	"	.5~.6	22	1		"	stop run since we found a lot of noisy block in LG Barrel 2
698	119	0.09	0.12	35.25	"	0.6	20	1		"	stop run due to beam dump.
779	389	0.11	0.38	35.63	"	0.6	53	1		"	New filling
870	433	0.12	0.43	36.06	IBM	0.5	42	1		"	Stop probably by wrong trial & error to get out of a loop
60	25	0.11	0.03	36.07	"	0.5	6	0		"	Short run. Hangup
1453	748	0.10	0.74	36.83	"	0.6	77	1		"	see comment 21.40
807	350	0.09	0.35	37.38	"		35	1		"	beam dump
1404	856	0.13	0.85	38.23	IBM	0.5	117	1		"	New filling
72	37	0.12	0.04	38.27	"		6	0		"	bad LG pedestals
609	310	0.11	0.31	38.58	"	"	42	3		"	
1028	512	0.11	0.51	39.09	"	"	45	2		"	
995	407	0.10	0.41	39.50	"		42	2		"	beam dump.
1481	771	0.12	0.77	40.27	"	"	82	2		"	~~LG noisy, restart the run~~ new filling
76	36	0.13	0.04	40.31	"		2	0		"	LG noisy. restart the run
499	209	0.10	0.21	40.52	"		22	0		"	
388	152	0.08	0.15	40.67	"		10	0		"	beam dumped
1238	476	0.09	0.49	41.16	"		46	2		"	~~end run at~~
1118	468	.09	.47	41.63	"		55	4		"	
1200	605	.10	.5	42.13	"	0.6	75	1		"	New filling
1385	662	.10	.67	42.80	"		61	1		"	normal end
49	25	.11	.03	42.83	"		4	0		"	new filling
1164	565	.10	.58	43.41	"	1	64	2		"	T3-trigger read out
1521	651	.09	.65	44.06	"	.5	59	3		"	Peter took off the adjust collimators
337	136	.08	.14	44.20		.5-1	20	0		"	P.L.R. suggest we continue to run because ~~the~~ key beam profiles with e+ beam at present.
6	1	0	0	44.2	IBM	0.5	0	0		"	forget it.
61	18	0.09	0.02	44.22	Tape F1101	0.5	1	0		"	to tape F1 101
1199	448	0.10	0.47	44.69	Tape F1101	0.5	52	1		"	" " " "
267	104	0.10	0.10	44.79	IBM		13	2		"	
852	316	0.10	0.33	45.12	IBM	0.5	27	0		"	
1170	495	0.12	0.51	45.63	IBM	0.4	76	0		"	
886	355	0.11	0.36	45.99	IBM	0.4	40	3		"	
312	110	0.09	0.12	46.11	"	0.4	14	0		"	

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 Cal·LG

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16.00 Totsuka / Stephens on Shift

A. Macbeth. Return to data taking (all crates # 5 and 6. AL = 0.1 L = 0.1) Crate 16 off duty SCC. at 16.30.

16.10 Ask for new filling after Run 2415. Other users agree to this. Finish R2415 before 16.30. In start short run (AL = 0.1 L = 0.09)

16:45 T3-trigger is now read out in every event ~~in~~ (normal start = F1)

19.09 Start run BP N 1.0 Rate fluctuating between 0.5 → 1.3

Run 2415: Trend crate #3 of LG-ADC was noisy. / Totsuka.
HV error in LG-PS.

19.45 More JDAS errors followed by STOP RUN? YES or NO restarts OK with no

20.30 All 14 μ crates now operational.

22:30 after (pauses and continue) the displays "L" and "SL" disappeared. they appeared after 5 min.

23.30 Now filling.

00^00 Eisenhassard on Shift.

00^16 Run 2420.

00^22 Run stopped. IBM-module has to be reloaded, which will take ≈ ½ hour. machine was down.

00^27 ID trip. No R light on (not even ZR1 or ZR3) so call warning. There's no problem.

00^29 Run 2421, writing to tape

00^33 No triggers - box on accidental stop. See DAS-STAT-5 in RUN BOOK.

00^36 Run 2422, writing to tape.

00^54 Trigger 2 input and Trigger 2 output have uncharacteristic spikes in bits 172, 177, 179, 180, 181, 182 and 31, 33, 84, 85, 86, 177, 179, 180, 181, 182 respectively. See run sheets. They're not disabled (as Ricardo) Checking histograms reveals dead cells in ID!

02 15 power pack for V34 #21 #22 was dead, has been replaced
→ triggers and wire map okay now. Since T2 seems to have been superefficient in the dead cells in ring 3 probably no events have been lost.
The power pack has been down since run 2414!

LG ≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	Stat RUN	Stat Exp	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

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20.11.79.

1 51 IBM OK now. Run 2423 will be on it.

1 58 Run 2422 stopped at 10002 events. Run 2423 started to IBM. We want a new filling at 02.20 and there are no objections.

2^20 Run 2423 stopped for new filling, ~~the~~ loop currents for 10 min. to optimize ~~the~~ magnets.

4^44 Run 2424 finally started.

5^22 ~~8~~ -12V fuse gone in V34 No. 4.4. wires 880-886 dead. Planned Hedgecock will come in early.

8^00 McCann, Helen Hedgecock card error before run 2428.
Run 2428 stopped. Every ~30 sec error 44, suberror 404, 401, 403, 701, 405, 706, 701, ... recorded.

9^50 LG Thresholds checked, are O.K. but histograms for LG thresh. 1-3 peak in channel 0.
Called Orito. → for 25 mV, Kobayashi suggested to go to +30 mV values that improves the error rate and the threshold histograms.

DVM values for LG Threshold

1	716	~~705~~ 715	for 30 mV	725
2	491	~~505~~ 490		505
3	641	640		690
4	521	470		520 for 35 mV

set at 10^55

The DLS readout errors almost disappeared. LG thresholds and trigger bit histograms now look normal.
Mind: LG-thresholds are very sensitive!

16.00. Kobayashi, King on shift.

16.30. New beam. Tasso confirm that it is very noisy. Decide to start run 2435 anyway.

16.35. Beam much better now (B.P = 0.8).

18.30 ID trips

18.35. Muon system gives missing response in CRATE 9. Pressing crate 9 reset button does the trick.

20.00 when Pause/continue combination used ~~for~~ while setting attenuator the ZREAD "TOF BANK WRONG LENGTH" come up. WHY? (RUN 2436).
Run continued normally though.

00^00 BARTEL & HEDGECOCK ON SHIFT.

0^47 Stop run 2439 ask for new filling

1^25 filling ready, very noisy on BP.
PWR will run in attenuators that improves a lot

1^57 PAUSE/continue causes a JDAS Error 44

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1 GeV
2428	20.11.	8.29	8.42	2.8	2.9		808	3209	210	33	177	1293	1290	2805	935	2471
2429	"	8.43	9.21	2.8	2.8	50/44	2234	5664	581	107	474	2579	2574	4759	2038	4038
2430	"	9.22	10.37	2.6	2.7		4148	9809	1079	434	644	4075	4064	7647	—	—
2431	"	10.40	11.09	2.1	2.2		~~1760~~	2690	~~457~~	19	438	2072	2069	1895	983	673
2432	"	11.38	11.52	2.6	2.6		717	1551	189	39	149	1100	1099	1159	556	786
2433	"	12.02	13.30	2.4	2.5		6442	9803	1676	69.9	1606	7963	7953	7546	4701	3924
2434	"	13.52	15.44	1.9	2.1	51/13	~~6477~~ ~~7560~~	7608	1686	51.9	1686	6031	6023	5722	4289	2454
2435	"	16.34	14.39	2.7	2.9		3861	5259	1005	~~56.9~~ ~~955.5~~	948.5	5720	5715	4008	2962	1753
2436	"	17.40	20.19	2.3	2.6		8764	9815	−1961 Ⓧ	957.1	−2018 Ⓧ	10098	10088	7333	6103	23777
2437	"	20.19	20.37	1.8	2.0		1039	1084	270	5.5	264	990	989	775	704	208
2438	"	20.56	23.00	2.8	2.8		7320	8990	1905.49	55.15	1850.33	11694	11685.7	6948.	5583	2317
2439	"	23.02	00 47	2.0	2.3		6245	6504	1625	35.42	1590	6638	6632	4810	4063	1444
2440	21/11	07 11	1 51	2.8	2.8		2229	3423	580	22.1	558	4767	4764	2657	2022	1008
2441	"	1 53	3 31	2.8	2.8		5824	6877	1516	39.47	1476	8156	8150	5031	4256	1471
2442	"	3 32	05 19	2.0	2.2		6283	6618	1635	39.23	1596	7241	7234	4922	4222	1464
2443	"	05 48	07 45	2.7	2.7		6945	9815	1808	62.41	1746	13974	13964	7754	5796	3067
2444	"	07 46	09 43	2.1	2.2	48/1.3	6931	7994	1804	45.3	1759	9515	9507	6013	4896	2089
2445	"	10.12	12.11	2.6	2.6		7125	9808	1854	60.3	1794	13099	13089	7658	5804	3057
2446	"	12.16	14.20	2.1	2.1		6712	8302	1747	50.7	1696	10427	10419	6419	5258	2138
2447	"	1503	15.59	2.7	2.8		3771	5362	826	412	785	8558	8552	4283	3007	1862
2448	"	16.01	16.43	2.4	2.5		2357	3255	613	29.4	584	5106	5103	2589	1999	1092
2449	"	16.43	18.49	2.3	2.3		7465	9830	1942	639	1879	13837	13827	7671	6016	2875
2450	"	18.49	19.00	1.8	1.9		603	763	157	4.4	152	972	972	597	484	220
2451	"	19.29	19.45	2.6	2.8		981	2050	255	15.9	239	3868	3866	1678	1115	777
2452	"	19.45	21.21	2.5	2.7		5662	7331	1468	68.9	1418	13825	13817	5631	4732	1333
2453	"	21.46	0.00	2.0	2.1		7784	8576	2029	512	1577	13284	13285	6348	5573	1376
2454	22/11	0.15	0.41	2.8	2.8		1453	4626	378	43.5	334	10389	10384	3996	1951	1858
2455	"	0.42	3.02	2.4	2.7	43/1.6	7671	9823	1986	86.9	1909	18077	1290 (??)	7520	6286	1855
2456	"	3.03	5.00	1.9	2.1		6927	7843	1802.5	46.0	1756.5	11351	11343	5846	5090	1263
2457	"	5.16	5.25	2.8	2.8		492	1061	127.6	7.7	120.0	2342	2341	860	630	262
2458	"	5.28	5.48	2.6	2.6		1169	1707	309.6	11.3	298.2	3318.2	3316.5	1306	1083	350
2459	"	5.51	8.00	2.5	2.5		7707	9820	2006	64.2	1942	17715	9278	7480	6262	1738
2460	"	8.01	8.34	2.0	2.0		1995	2458	519	15.7	503	3813	3811	1890	1500	571
2461	"	8.34	9.59	1.8	1.9		5049	6103	1314	494	1264	8301	8295	4805	3858	1784

LG≥4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int L$dt RUN	$\int L$dt Exp	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY	
268	82	0.11	0.09	46.20	IBM	0.8	11	0		6.0	new filling
593	217	0.10	0.22	46.42	IBM		29	2		6.0	trouble with LG Knobbs → ALL readout
—	259	0.07	0.28	46.70	"		31	1		6.0	
487	133	0.10	0.18	46.88	"	0.5	23	2		6.0	good running conditions
203	65	0.09	0.06	46.94	IBM	0.5	6	0		6.0	new filling
1302	678	0.10	0.68	47.62	"	0.5-1.0	79	3		6.0	
1200	596	0.09	0.60	48.22	"	0.5-1.0	64	5		6.0	
709	438	0.11	0.43	48.65	"	0.8	53	0		6.0	new filling
1514	939	0.10	0.93	49.58	"		79	3		"	overflow ??
183	103	0.10	0.10	49.68	"		11	0		"	
1246	773	0.11	0.78	50.46	IBM		71	2		"	new filling
1033	660	0.10	0.65	51.11	"		83	3		"	STOPPED FOR NEW FILLING.
528	202	0.09	0.20	51.31	"	.8	16	0		"	RUN STOPPED WHEN "NO TRIGGER" INDICATED
1133	634	0.11	0.62	51.93	"	.6	67	2		"	" " " " " "
1035	645	0.10	0.64	52.57	"	0.5	72	3		"	ID TRIPPED. NEW FILLING CALLED FOR.
1293	755	0.11	0.76	53.33	"	0.6	91	3		"	new filling
1285	691	0.10	0.69	54.02	"	0.7	79	4		"	
1377	763	0.11	0.77	54.79	"	1.0	87	3		"	new filling
1257	624	0.09	0.62	55.41	"		75	2		"	
685	359	0.11	0.36	55.77	"		40	0		"	New filling
406	256	0.11	0.25	56.02	"	0.8	23	2		"	
1415	729	0.10	0.73	56.75	"		82	1		"	
111	54	0.09	0.05	56.80	"		4	0		"	
232	94	0.10	0.10	56.90	"	1.5	14	0		"	New filling
1135	616	0.11	0.62	57.52	"		70	1		"	
1452	755	0.10	0.76	58.28	"	0.6	68	2 (1 common)		"	
439	137	0.09	0.14	58.42	"		17	1		"	new filling
1482	812	0.11	0.81	59.23	"	1.0	94	4		"	
1359	634	0.09	0.64	59.87	"		71	1		"	
137	58	0.12	0.06	59.93	"	1.5	6	0		"	
254	123	0.10	0.12	60.05	"		13	0		"	Run stopped because of "NO TRIGGER" + TOF ERROR after a PAUSE to adjust attenuator.
1513	800	0.10	0.81	60.86	"	0.6-0.8	110	3		"	
381	183	0.09	0.18	61.04	"		23	2		"	LG trouble again.
867	431	0.09	0.43	61.47	"	.6	48	4		"	Start a new run due to noisy LG.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 Cell·LG

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2⁰⁰ μ-crate missing #6
5¹⁸ ID-trip — TR1
Stop # 2442 ask for new filling
5⁴⁰ filling ready very noisy
PKR does some orbit corrections it gets better
5⁴⁸ Start Run 2443
8⁰⁰ Clarke, Helm

Muon-trigger T3	Disabled μ-numbers (missing or too noisy)	μ-crate #
	1-21	1
The readout started at 19/11 Run # 2417.	50, 87, 91	2
T3 is always processed but does not yet	94-114, 131	3
enter the trigger logics.	174, 178	4
	187-194, 203, 236	5
	195-202, 254	6
	259-266, 308	7
	444, 454, 478, 502, 526	11
	267-274, 407, 408	8
	455, 479, 483, 503, 527	12
	329, 422, 425	9
	550, 574, 598, 622	13
	345, 388, 394	10
	551, 575, 599, 623	14

12²⁰ TASSO asks for beam steering. ID switched off for 5 min.
12¹⁵ ID tripped while switching on.
1⁵³⁰ ID " R3 Cell 23.
16⁰⁰ no events Error 44 subError 0000 → run stopped.
16⁰⁰ Marseille, Ahrens
16²³ ID tripped R3, cell 23 (again)

17.30 Tagging subcontext of N50-HISTOGRAMS extended with extra command for tagging histograms to replace DISPLAY-BY-NOS 51, 52 etc. This will only take effect when ZDAS SYSTEMS rebuilt. HEM
18.40 Asked for new filling at 19.00
19.05 Above modification made and tested. HEM

LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	∫Lat RUN	∫Lat Exp	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

19.25 New filling ready
We now should have $N_{HAD} = \frac{R \downarrow 4.86}{144 \uparrow 5} \cdot \frac{\int L \downarrow}{57} = 138$ hadrons
21.20 Run 2452 stopped to install a new set of tagging Pb-glass EHT's.
Beginning with Run 2453 : New set of tagging Pb-glass EHT's

22.11.79

0⁰⁰ Barry Kiley + Albrecht Wagner on shift.
1⁰⁵ - 1¹⁸ IBM down
Run 2455. No of T2 Rejects in Run Summary seem very peculiar.
5²⁶ ID-trip due to overcurrent (small beam loss)
7³⁰ Check of histograms : ok

8⁰⁰ Tatsuka and O'Neill on Duty.
8²⁰ Run 2460 LG ADC crate #3 - noisy.
Stop this run and started a new run - OK. LG are clean.
10⁰⁰ new filling (asked for)

10⁴⁵ New filling available. It's hot as the hinges of hell Σbp 2 with jumps up to 4. Σ3TOF/T0 accept 20%. Messen kommt nicht in Frage. Call PKR and complain. They say steering won't help; there's nothing they can do. Erfahrungsgemäß the background comes down in ~ 1 hr. PKR says we had some problem yesterday. Only thing in the log is from the nightshift before last. Orbit corrections did help and they didn't wait an hour!

10⁵⁸ Σ3TOF/T0 accept ~ 16%. Σbp now usually between 1.5 and 2. Succeed in turning on. rate ~ 3.4 Hz at the beginning

12¹³ I'm fiddling around looking at histograms. White light comes on. I go back to main, Pause, decrease attenuator and continue. For my trouble I get an insolent JDAS ERROR 000044 (OCT) SubError 000205 (OCT) TASK 1, then 3 subError 0 s, then the question whether I want to terminate run. Do I have a

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TΦ REJECT $\times 10^6$	TΦ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF Φ
2462	22.11.	10.59	12.13	2.6	2.7		4136	8359	1077	83.8	993	13841	13832	6995	4279	3632
2463	"	12.17	14.15	2.2	2.3		6960	9807	1812	70.1	1742	14257	14247	7705	5646	3083
2464	"	14.14	14.30	1.8	1.9		846	1062	220	6.6	214	1430	1429	818	613	330
2465	"	14.29	16.19	1.7	1.8		6529	7664	1699	46.9	1652	9863	9855	6044	4875	2091
2466	"	17.28	17.54	2.3	2.7		1529	4043	398	66.6	331	5806	5802	3256	1407	2044
2467	"	18.22	18.59	2.6	2.7		2054	4409	534	58.6	475	6164	6159	3563	1767	2017
2468	"	19.00	19.21	2.3	2.4		1254	1695	324	11.8	312	3436	3434	1360	1129	327
2469	"	19.20	21.41	1.9	1.9		8377	9823	-2114	63.0	2117	18003	1216	7785	6508	1928
2470	"	21.42	21.57	1.7	1.9		882	946	230	5.9	224	1585	1583	758	656	171
2471	"	22.27	23.30	2.2	2.3		3628	6641	944	52.3	893	13050	13043	5443	3590	2199
2472	"	23.31	0.32				3602	4594	937	35.4	902	8791	8786	3654	2899	1040
2473	23.11.	0.34	0.47	2.0	2.1		~~3602~~ 794	~~4544~~ 919	206	17	189	1604	1603	729	604	181
2474	23/11	00:52	01:06	1.9	2.0		854	967	222	6.1	216	1758	1758	760	625	220
2475	"	01:10	01:28	1.9	2.0		1033	~~1104~~ 1104	268	6.8	262	1963	1962	847	715	220
2476	"	2.03	2.29	2.7	2.4		1518	3096	394	23.7	371	5448	5445	2553	1505	1200
2477	"	2.29	2.44	2.5	2.3		815	1211	212	8.2	204	2307	2303	943	724	290
2478	"	2.45	04:58	2.4	2.2		7972	9540	2072	60.4	2012	16954	1694	7499	6278	1770
2479	"	5.54	7.00	2.6	2.7		3900	6976	1014	53.3	961	13433	13426	5698	3675	2301
2480	"	7.00	9:21	2.2	2.4		8382	10002	-2112	83.6	2118	17771	984 ~~3~~	7646	6458	1745
2481	"	9:22	10:00	1.7	1.8		2241	2673	585	15.8	569	3736	3733	2121	1721	718
2482	"	10:43	12:21	2.6	2.5		9795	9795	1512	128.3	1384	17527	746	8614	5273	3244
2483			matching!	no	IBM	link!										
2484	"	12:47	13:31	2.0	2.0		2576	3151	670	20.5	650	5334	5330	2445	2041	576
2485	"	13:51	13:57	2.8	2.5		316	856	82	22.7	9.5	2001	2000	740	470	295
2486	"	14:31	14:46	2.5	2.7		846	2813	220	34	186	4486	4483	2431	954	1499
2487	"	14.53	15:23	2.3	2.6		1775	3221	4620	25.9	4360	6996	6982	2655	1791	945
2488	"	15:29	17:20	2.1	2.4		6640	8954	1729	70.6	1658	16150	16141	7193	5569	2379
2489	"	18.50	20.31	2.6	2.8		6018	9809	1566	77.6	1488	18759	1972	8020	5816	2979
2490	"	20.31	22.18	2.1	2.3		6314	7833	1643	53.3	1589	14490	14482	6190	5093	1560
2491	"	22.44	0.28	2.6	3.0		6158	9819	1603	76.1	1527	23035	6288	8057	6234	2292
2492	24.11.	0:28	1.15	2.1	2.4		2764	3587	720	25.4	694	7630	7627	2905	2439	667
2493	"	04 16	5:19	2.3	2.4		3754	9792	937	102.5	875	29352	12545	8226	5100	3229
2494	"	5.20		1.9	2.1		3584	8368	933	78.8	854	28671	11885	7095	5093	1971
2495	"	8.23	9.18	2.1	2.6		2904	9808	7555	191	564	27066	10279	8540	3954	4281
2496	"	9.18	9.53	1.7	2.2	22/57	1834	6362	477	60.9	417	20308	3524	5600	3042	2250

RUN	DATE	START	STOP	LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	$\int$Ldt Run	$\int$Ldt Exp	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY	
2462	22.11.	10.59	12.13	907	410	0.10	0.42	61.89	IBM	1.5	48	4		6.000	new filling
2463	"	12.17	14.15	1339	683	0.10	0.68	62.57	"		99	1		"	
2464	"	14.14	14.30	158	77	0.09	0.08	62.66	"	0.6	7	2			LG too noisy. run restarted
2465	"	14.29	16.19	1098	507	0.08	0.51	63.17	"	0.6	61	1		6.000	still noisy
2466	"	17.28	17.54	548	129	0.09	0.14	63.31	"	1.0	12	0		"	adjusted PS-gle threshold to 17.45
2467	"	18.22	18.59	396	192	0.10	0.20	63.51	"	1-1.5	13	0		6.000	beam dumped on request of PSER
2468	"	19.00	19.21	213	122	0.10	0.12	63.63	"	1+	5	2		"	Run end JDAS insolence after reducing attenuator
2469	"	19.20	21.41	1312	726	0.09	0.73	64.36	"	0.7	20	4		"	Run end - Pb glass pedestals look like they drifted.
2470	"	21.42	21.57	124	69	0.08	0.07	64.43	"		12	0		"	Stopped and locked for new filling.
2471	"	22.27	23.30	689	361	0.10	0.37	64.80	"	2.0	40	2		6.000	Run stopped because of Nord hangup
2472	"	23.31	0.32	602	326	.09	.33	65.13	"		33	1		"	Run stopped, because display progr overwritten
2473	23.11.	0.34	0.47	122	68	0.09	0.07	65.20	"	0.6	6	1		"	Stopped to try to fix display problem
2474	23/11	00:52	01:06	132	75	0.09	0.07	65.27	"	0.6	5	0		"	Stopped again to try to fix display problem.
2475	"	01:10	01:28	162	95	0.09	0.09	65.36	"	0.6	9	1		"	Stopped for new filling
2476	"	2.03	2.29	299	152	.10	.16	65.52	"	1.-2.	24	1		6.000	
2477	"	2.29	2.44	139	88	.11	.09	65.61	"	~1.	4	0		"	Stopped because PAUSE did'nt work for a V. switch.
2478	"	2.45	04:58	1282	742	0.09	0.74	66.35	"	~1.	102	5		"	Stopped for new filling
2479	"	5.54	7.00	443	395	.10	.40	66.75	"	1.-2.	43	0		6.000	
2480	"	7.00	9:21	1919	742	0.09	0.74	67.49	"	~1.	76	1		6.000	
2481	"	9:22	10:00	384	165	0.07	0.17	67.66	"	~1.	20	0		6.000	Stopped for new filling
2482	"	10:43	12:21	1472	545	0.14	0.56	68.22	"	~2.	68	2		"	
2483			matching!	no	IBM	link!									
2484	"	12:47	13:31	423	214	0.09	0.22	68.44	TAPE	~1.5	27	2		"	Stopped for new filling
2485	"	13:51	13:57	76	11	0.05	0.01	68.45	IBM		—	—			no beam crossing!!!
2486	"	14:31	14:46	202	85	0.09	0.10	68.54	IBM	1-2	7	0			IBM hang up!
2487	"	14.53	15:23	325	173	0.10	0.17	68.71	TAPE	~1.3	20	0		"	
2488	"	15:29	17:20	1154	597	0.09	0.61	70.32	IBM		69	2		"	Stopped for new filling
2489	"	18.50	20.31	1119	669	0.11	0.67	70.99	IBM	~1.2	57	0		"	
2490	"	20.31	22.18	1058	583	0.09	0.58	71.57	"		60	1			
2491	"	22.44	0.28	1177	628	0.11	0.68	72.25	IBM	1~2	~~71~~	2		6.000	New filling
2492	24.11.	0:28	1.15	419	262	0.09	0.26	72.51	"	0.8	26	3 (1 cosm)		"	
2493	"	04 16	5:19	1039	350	0.10	0.36	72.87	"	.8	33	1		"	N.F.
2494	"	5.20		875	287	0.08	0.30	73.17	"	2.2	34	3		"	
2495	"	8.23	9.18	900	176	0.09	0.25	73.42	"	4.0	25	1		"	N.F.
2496	"	9.18	9.53	595	106	0.06	0.11	73.53	"	4.0	7	1		"	~~Beam test~~ IDtripat 953 followed by Loss of beam

← this run did not arrive at the IH

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 ToF & ≥1 Cal. LG

choice? STOP run 2462. START 2463. Experts please comment.

22.11.79 16.00

to Run 7813 ✗ JDAS ERROR 51 SUBERROR 272 TASK 7

16.00 Marshall/Weber (Peterson) on shift

16.19 busy beams, start new fill

17.20 New fill ready but BP = 6V — never seen it so hot. e⁺ beam fading rapidly whereas e⁻ stable. PKR disagree, say both stable

Start when BP down to 2V.

17.54 Stop run 2466 on request of PKR because of un-equal filling and short life-time of e⁺ beam resulting in low luminosity and lots of background.

18.14 Filling finished. Inner Detector trips as soon as switched on ⇒ Coll Magnets ⇒ conclusion: Spurious trip Reset Inner Detector. Start Run 2467 at 18.23

21.57 Stop run 2470 for new filling because luminosity too low. Other Expts. agree

22.27 Filling finished. Start new run, after inner detector trip.

23.11.79 0.00 Ball, Hems

0.34 Run stopped, because display shows influence by Khomeini (looks like a series of arabian letters). Reload JDAS doesn't help, we will restart the NORD during next filling period. Histograms are ok.

0.40 IBM very often busy ⇒ I call the people and complain ⇒ Blackwern is working at the terminal

0.50 We look at histograms. Try out the new '1st 6 tagging hists' option. This worked successfully at 13.36 yesterday (Run 2463). However, now, we see 1st 4 hists ok, but in place of 'tagging timing map', we have 'BP multiplicity', and there is no hist. 6.
We suspect that the subversion which has affected the event display may have spread!
Stop run ~~2474~~ 2473. Reload NORD + restart JDAS. Start run 2474. The problem remains.
Ring D. Lords, and he gives us a possible recipe to fix things. Stop run 2474. Try recipe. Start run 2475. Problem still there. Ken Lords reckons it's not too serious, and he will fix in the morning. Save a copy of the event display hiero-graphics for HEM/DC etc.

LG ≥ 4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm⁻²sec⁻¹	∫Lat RUN	∫Lat EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

1.50 New beams available, we have to wait a few minutes before starting the new run, because BP-ctrs show 2-3 V

2.00 Start new Run

2.15 All histograms checked, ok
Why is the voltage for the light diodes (prob. TOF and BF) on?

2.45 F2 = Dance didn't work as expected during ~~sto~~ switching the akumulator ⇒ Stop and start new run

5.00 request new filling

5.45 New beams available, but BP-ctrs show 2-4 V.

5.55 Start Run.

6.15 Check histograms; they look quite o.k.

8.00 MATSUMURA, Petersen

8.40 e⁺ Linac II trouble New filling not possible

8.40 switched off the power of the LED for the TOF. I don't know what and why they switched on ??

9.40 The Event display hiero-graphics otherwise known as the Ayatollah's latest outburst is certainly a new one! Its as if the graphics terminal has stopped accepting vectors which cannot be true cos the histograms work (well most of them do!). I can only suggest something (!) has corrupted YEDISP & I will try reloading during next fill. Meanwhile I suggest the O/P is sent to the CIA poste Haste.

Concerning the IST-6-TAC-HISTS - I observed this yesterday but havn't a clue either.
What was the DC recipe tried on previous puse @ 0.40 which did not work?? H.EM

9.50 The Histogram subversion is now understood. (and corrected).

10.20 Event display Ok after Reloading YEDISP.
YCLRTV altered because SL calculation was a factor 2 too low.

10:30 Some changes to Camac readout
1) all BP-TDC and adc's are shifted one slot to the left (need right most slot for Lam-grader)
2) The chamber currents are now read out in every event if readout bit for jet-chamber is on. RAE
I also belief that the frequent JDAS error 44 suberror 6 after JDAS 44 suberror 205 should not come any more !?

Run 2482 ⇐ the first 10000 events the rate of the BP counter 14 is missing in the trigger

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 ToF & ≥1 Conv. LG

11.60 Now the event display fails because it doesn't like the new Jetchamber current bank! EVCONV in YLEDISP has been modified & will be loaded soon.

12.30 Event display fixed. Also YLIST for new bank name.

N50 Histogram program has *NEW* facility at its top level -

FIL:STD - HISTOGRAMS will run through the trigger, counters, Jetchamber, Muon Filter and tagging system histograms and if the Gouldis ON it will AUTOMATICALLY make HARDCOPY.*
~~Note that Dead Glass histograms cannot be done since they~~
~~mostly need CMAC-YLCOM~~
H.EM

* we only need the automatic Histogram filing machine in addition! Thanks to HEM for this nice option AW

16.00 Kobayashi & Coord
17.20 new filling
18.20 PETRA loses e^+ as soon as separators are switched off; they say that they have to find new Q-values (!?); new filling available at 18.45
22.55 asked PKR for new filling in 15 min.
00.00 Olsson, Waicdt on shift
00.55 asked for new filling at 1:10 (drift in luminosity)
3:00 e^+ are lost as soon as separators are switched off after injection (for ~ 2 hours now...)
3.25 NF at last, but dirty beams, BP comb reading
3:40 high e^+-beams: asked PKR for a new filling
3.55 NF again. High background but getting better. Waiting
5:10 EHT of tagging drift chambers turned down from +2 kV to +1 kV because of too high chamber currents, especially on -z (some μA) (probably due to dirty beams)
↳ not in use from now on! HH (until 25.11., 1:20)
5.20 ~~5.25~~ ID tripped
5:30 -.- again
5:33 -.- third time
5:38 PKR optimized beams on request, beam-pipe-counter current ~ 2 V
6:25 asked for new filling in 5 min.
7.20 beams ready, look terrible, PKR proposes to wait for several minutes to see the beams developping & probably stabilizing (hopefully!).

} PKR had changed something, beam-pipe-counter-current suddenly up to ~4.8 V, jumping up and down

LG ≥ 4 GeV	LUMI	$\langle L \rangle$ $10^{30}\,cm^{-2}sec^{-1}$	∫Lat RUN	∫Lat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

7.40 Hopelers. dump beams & try again ..

24.11.79 8.00 G. Webes + A Wagner on shift
NF ready, very bad beam conditions (4-6V BP comb)
8.23 ID trip due to over current
9.10 " " " " " " Bad beam conditions. Neumann and Kose experts to come in to improve machine conditions.
9.13 Continue run 2495
9.24 ID trip due to 23R3 during run 2496
9.53 " " " " over current. Stop run 2496. Kose + Neumann arrive in PKR. Try to improve beam conditions, beams lost.
12.35 For the last 2.5 hours the PKR has tried to optimize the beam orbit, still no beams.
12.48 beams again, low currents (2 × 1.9 mA) as a start. Conditions are beautiful now:
no visible chamber current, beampipe < 0.5 V, trigger rate ≤ 1 Hz
T1(accept + postpone) - rate has decreased from 20 kHz to 600 Hz!
Luminosity: $AL = .09 \cdot 10^{30}$ $SL = 5.31 \cdot 10^{28}$
13.07 PKR want to fill again, after optimization of injection. the first of these runs never arrived at the IBM
→ The last 2 runs have run # 2496! We do not know why. There were problems at end of last run. We had to get the run summary with „RUN 5 ~~EE~~".
14.48 The beam since 13.07, Neumann, having adjusted the orbit (together with Kose), is trying to get injection optimized (Kose left at about 1300). According to PKR, e^- injection is already optimized, now ~~e lasts to be~~ e^+ injection has to be adjusted.
16.12 Adjustment of machine and injection finished, very good conditions: 2 × 3 mA only 0.4 ~~mA~~ V on B.P.
Note: If conditions get bad, go to PKR and make sure a competent machine physicist is there, or called in! f.(e).

16.00 Dittmann, Kawabata on shift

PAGE-FAULT in YIBM AT 102 601 after waiting for IBM (~2 min) at run start.

Rate after N.F. was only 0.8 Hz. LG threshold was found at 1 GeV.
all LG-thresholds adjusted to +30 mV values. Now the rate is 1.1 Hz

18.20 KOCH calling: the luminosity is too low. In fact it is 0.8 and was 1.1×10^{30}
KOCH wants to go back to old orbit. PKR wants to do some tests: beams lost.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPULSE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF & ≥ 1 GeV LG
2496	24.11	12.48	13.07	1.9	1.9		1123	896	292	4.6	287	366.3	365.5	615	585	95
2497	"	16.16		3.0	3.0		JUNK - run									
2498	"	16.18	18.18	"	"		7096	6847	1846	60	1786	4733.9	4127.1	4999	4310 ~~7648~~	1649
2499	"	19.15	21.30	2.9	3.0		8101	8826	2408	61.7	2046	4762.9	4760	7064	5579	3645
2500	"		no run - summary													
2501	25.11	22:11	0:20	2.2	2.3		7698	7018	2003	37.2	1966	3398	3341	4437	4318	1679
2502	"	0:48	0.57	2.7	2.6		937	967	166	~~1.5~~	161	322	321	696	530	437
2503	"	1:02	3:30	2.6	2.7		8988	10000	overflow	51.6	overflow	3886	3876	6887	5735	3313
2504	"	3:31	5:01	2.1	2.2		~~3364~~	5568	1394	1366	29	1889	1884	3981	3365	1918
2505	"	5:18	5:48	2.8	2.7		1431	1939	372	362	10	712	710	149	1118	894
2506	"		waiting													
2507	"	6:06	7:56	2.7	2.8		6533	7587	1700	39.9	1660	3065	3058	5304	4358	2651
2508	"	7:58	9.45	2.3	2.4		6300	6769	1640	34.4	1605	2385	2379	4846	4066	2482
2509	"	10,14	11.22	2.9	2.9		3973	4913	1034	27,3	1007	1984	1979	3682	2847	2188
2510	"	11.23	11.54	2.6	2.7		1817	2052	473	11.4	461	826	824	1522	1215	844
2511	"	12.05	14.25	2.8	2.9		8403	9815	2186	54.5	2132	3947	3938	7246	5802	4031
2512	"	14.26	15.14	2.3	2.3		2848	2934	741	14.8	726	1103	1100	2168	1796	1141
2513	"	15.41	17:51	2.9	3.0		7711	9811	2005	53.7	1952	3949	3940	6979	5398	3965
2514	"	17.53 ~~58~~	18:10	2.4	2.3		991	1158	257	6.1	251	424	423	828	666	460
2515	"	18:11	19:24	2.3	2.3		4281	4941	1112	26.5 ~~1086~~	1086	1802	1797	3627	2972	1915
2516	"	19.44	21:51	2.0	3.0		7521	9819	1955	56.9	1898	4065	4056	6987	5310	4098
2517	"	21:51	0.14	2.5	2.5		8483	9825	ovf	~~ovf~~ 51.1	3684	~~3675~~ ovf	~~7035~~ 3675	~~7035~~ 7035	~~5750~~ 5750	~~3863~~ 3863
2518	26.11	0.15	1.01	2.0	2.0		2694	2977	700	15.0	685	986	983	2118	1751	1155
2519	26.11	1.20	1.27	2.8	2.8		295	423	77	7	~~0.78~~	175	~~342~~ 175	~~229~~ 342	~~223~~ 223	223
2520	26.11	5^{20}	7.04	2.7	2.9		6041	5808	1572	35	1537	2457	2451	4109	3585	1467

End of 1979 shifts

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPULSE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF & ≥ 1 GeV LG
2521	3.12.79	18^{19}	18^{58}	-	-		2299	9815	2.85	0.33	2.53	9817				
2522	- " -	19^{00}	19^{15}				910	3939	1.47	0.29	1.20	3940				
2523	- " -	19^{40}	20^{50}				4103	10372	4.78	0.58	4.22	10374				
2524	- " -	21^{06}	22^{13}				3926	9831	4.10	0.27	3.84	9853				
2525	"	22^{16}	23^{22}				3865	9795	3.69	0.25	3.45	9797				
2526	"	23^{23}	0^{29}				3879	9797	3.63	0.21	3.42	9799				

LG ≥ 4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int$Ldt Run	$\int$Ldt Exp	IBM/ Tape	B.P. Rate	Ne Bhabha	Ne Hadrons	NMR	(MeV) ENERGY	
178	102	.09	0.10	73.63	IBM	.3	14	0		6000	Warning! Run# 2496 appears 2 times!
						.4					Filling finished at 16.12
1282	579	0.08	0.57	74.20	IBM	"	63	3			became lost
1637	1121	0.14	1.11	75.31	IBM	0.5	134	5		6000	
											good run, but 2TOF×T2 without LG
1322	758	0.10	0.75	76.06	IBM		79	1		6000	
147	87	~~0.01~~ 0.13	0.09	76.15	"	.1	13	0		"	
1799	1132	0.13	1.12	77.27	"	0.5	134	2		6000	
1037	570	0.10	0.11	77.82	"	0.1	71	1			
1118	219	0.15	0.21	78.03	"	"	17	1			beam lost
1393	854	0.13	0.84	78.87	"	0.5	114	3		6000	
1272	648	0.10	0.64	79.51	"	"	85	2		6000	new filling
842	374	.09	.37	79.88	"	.5	34	0		6000	
366	164	.03	0.16	80.04	"	"	18	0		"	new filling
1742	828	.10	.83	80.87	"	.5	88	2		6000	clystron frequency changed from 62→63 MHz
529	236	.08	.24	81.11	"	"	25	0		"	new filling
1773	1062	0.14	1.06	82.17	IBM	0.5	106	6		6000	
219	111	0.11	0.11	82.28	"	0.11	10	0		"	Stop the run because L.G. pedestal looks funny.
885	397	0.09	0.40	82.68	"	"	44	2		"	lost e+
1724	1103	0.15	1.09	83.77	"	0.14	128	5		"	good luminosity!
~~1755~~ 1753	1035	0.12	1.03	84.80	"		126	3		"	
570	288	0.11	0.29	85.09	"		38	2		"	LG noisy.
55	27	0.09	0.03	85.12	"	0.5	3	0		"	e+ lost.
1188	511	0.08	0.51	85.63	"		39	3		"	end of this run.

						IBM					cosmics B=0 whole matrix
						IBM					" "
						IBM				10 trig (7.1) at end of run	cosmics, B = 4.5 KG, BP TOF matrix = B
						IBM					$U_p = U_p$(nom) + 200 V
											" " " " - 200 V
										10 trig (25.1) at end of run	" " " BP TOF matrix = B
						IBM					U_p = normal
						IBM					" "

WARNING: If you don't answer: "Transfer to IBM ?" with YES the run number is not incremented and run summary not printed. S.C.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 ToF & ≥ 1 GeV LG

24/11/79

19^{10} N.E. ready Wonders happen: Excellent beam conditions ~~—~~ BP ~ 0.5 and record $\mathcal{L} \sim 1.5 \times 10^{29}$

PKR says it is the same orbit as last filling, but they don't know why the luminosity went up by a factor of 2.

21^{40} - 22^{10} I ~~devoted~~ ½ h of data taking to get some idea about time spent in the data-aquisition system (last chance before shutdown).

A) CAMAC READING TIME:

From each run summary one can get it:

$$\text{CAMAC reading time} = \frac{\text{T0 reject} \times 4\,\mu\text{sec}}{\text{N events}} \sim 0.025 \text{ sec}$$

B) TIME in N10 and N50:

Since N10 and N50 work 'buffered' the easy method above cannot be applied. In principle one needs for each T0 a good event to measure the time spent in N10 and N50. The highest rate I could get was ~ 10 Hz by switching off the LG > 1 GeV in the Trigger AND switch. I checked the events: they have something in the chambers and the average length is ~ 2000 words. Other trigger manipulations I could think of would give a completely different sort of events than normal.

The measurements: (normalised to 13×10^6 T0$_{in}$)

program configuration	sec	events	T0, reject $\cdot 10^6$	dead time	$\frac{T0 \times 4 \cdot 10^{-6}}{\text{N events}}$
ZDAS0, no N50, data not written [1]	50	507	2.80	22%	0.022
ZDAS1, N50DUMMY, data not written	51	555	3.11	22%	0.022
" " , data written to IBM [2]	49	522	3.27	25%	0.025
ZDAS1, data not written, N50DAR, no flags [3]	50	517	2.91	22%	0.022
" " " counters + histograms	50	448	4.05	29%	0.036
" " " counters + hists + + lead glass	50	438	4.21	32%	0.038
" " " counters + histograms + lead gl. + 2-Vertex	50	400	5.14	37%	0.051
" " " counters + histograms + lead gl. + 2-vol spektr.	50	393	5.48	42%	0.055

1) the CAMAC reading time seems to be now 22 msec, compared to 25 ms mentioned under 1).

2) It was made sure that TASSO and PLUTO were running, also the DORIS experiments

3) 'N50DAR, no flags' means full new data check and copy to local commons

LG ≥ 4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int$Lat RUN	$\int$Lat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

25.11.79

01:20 Tagging chambers found to have the HV set at 1kV instead of 2kV - Reset to 2kV on Ortec power supplies DCP (since 24.11., 5:20 because of bad beam-conditions, see page 154, SW)

8^{00} Coords, Steve

8^{40} "muon crate missing" is flashing on and off ← thats ok! Unless it persists for more than ~ 2 min.

8^{47} ID tripped 23.3

9.^{50} New GRAPH-LIB installed. This should be faster than previous version especially for points (e.g. inner detector hits). Event & histogram displays re-linked and tested. Please keep an eye on the displays in case of shortened vectors - my tests are ok though. Original version still under OLDGRAPH-LIB

10^{12} New beams available, histograms after two evts. ok

11^{40} Klystron-frequency changed: 62 kHz → 63.5 kHz some improvement of luminosity but luminosity still too low; therefore new filling requested.

16^{20} Yamaguchi and Suda on shift.

After the new filling (from Run#2513), Luminosity is relatively good ($\mathcal{L} \sim 0.14 \div 0.16$)

17 01 Morning on TV. 2kV wrong → ~~measure HV~~

That was the pedestal stuff! when run starts

pedestal CRT1 CH 846 > 500

" CRT 2 CH 633 > 500 HV = 14/06 (should be 14/80) 7 volts lower

17:53 Run#2514, LG. pedestal will be not correct value. → Stop the run and restarted. (ok)

19:22 e^+ beam is lost → new fill.

26.11.79 0^{00} Totenko, Felst on shift

20.01 new filling ½ e^+ lost

30.01 — " —

problems with magnet power supply

4^{10} new filling, but lost after 5 min

5^{20} new filling ready

7^{10} end of this experiment.

27/11/79 11:30 Tagging chambers and TDCs switched off. TDC CRATE CONTROLLERS REMOVED

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 $\geq$2 TOF & COLL.LG

3.12.79 Cosmic ray runs for ID-test and calibration.

1) changes in trigger & timing

① ADC BP 5.3 → 3.7 delays
TOF 5.82 → 1.48

LATCHES BP 7.9 → 7.82
TOF 7.87 → 7.35

② change cabling of beam pipe counters (H. Krelbiel)

③ TDC start: replace cable delay by delay box

④ Trigger: all T1 postpones switched off

F8, 71610B
Default: no
Source: 2
override: 0

2) Runs

BP * TOF (matrix)
coplanarity matrix

Run	events	Up (Fluke)	mean A*A Ped. subtr	width	width	magnet	rate	
2521	9800	2465 V	230 cnts	3	24	off	4-5 Hz	
2522	3939	2465 V		3	24	off		
2523	10370	2665V	430 cnts	3	13	on	2-3 Hz	ID Trip (7.1) last events w/o ID info
2524	9831	2265V*	110 cnts	3	13	on	2.2 Hz	
2525	9795	2465 V	230 cnts	3	13	on	2.5 Hz	U_{trip} (23.3) at 2355 (= 3240 without ID)
2526	9737	2465 V		3	13	on	2.5 Hz	
2527	9812	2465 V		3	13	on	2.5 Hz	
2528	6594	2465 V		3	13	on	2.5 Hz	Mod50 hang up, restart (with new run)
2529	~~15002~~ 14709	2465 V		3	13	on	2.5 Hz	
2530	19618	2465 V		3	13	off	2.5 Hz	
2531	19559	"		3	13	off	2.5 Hz	
2532	3388	"		3	13	off	2.5 Hz	
2562	18984	"		"	"	off	2.5 Hz	ID 23R3 at end of run
2566	6442	"		"	"	off	2.5 Hz	

* cannot go further down in voltage, since ID becomes very inefficient (especially for large drift distances).

LG $\geq$4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	$\int$Lat RUN	$\int$Lat EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

4.12

8.50 Stop cosmic runs and switch off HT's

19.10 Switch on BP+TOF-high voltage, ID-high voltage

19.50 ID. TOF. BP histograms are all right.

F8 ↓
71610B ↓
Dx. Trigg No
Tr. Source 2
Tr. Dc Overide 0

21.17 Stop Run due to ID alarm.
21.48 Restart run # 2566
21.56 IBM busy
22.00 IBM Linked successfully.

RUN	DATE	START	STOP	I⁺	I⁻	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER ×10⁶	T0 REJECT ×10⁶	T0 ACCEPT ×10⁶	T1 ACCEPT + POSTPONE ×10³	T2 REJECT ×10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 GeV LG	LG ≥4 GeV	LUMI	⟨L⟩ 10³⁰ cm⁻² sec⁻¹	∫Ldt RUN	∫Ldt EXP.	IBM/TAPE	B.P.	BHABHA	MULTI HADRON	NMR	ENERGY	REMARKS
162																											163
2527	4.12.79	0²⁹	1³³				3878	9812	4.07	0.45	3.63	9815										IBM					Cosmics, B=4.5 KG, BP TOF matrix=13, Up=normal
2528	"	1³⁵	2¹⁸				2591	6594	2.33	0.13	2.20	6584										IBM				stand so hang up instead of run run	"
2529	"	2²³	4⁰⁵				5815	14708	5.33	0.33	5.01	14711										IBM				~~stand so hang up~~ run	"
2530	"	4¹⁰	6²⁰				7820	19618	7.65	0.42	7.24	19619										IBM					Cosmics, B=0 KG, "
2531	"	6²⁰	8³³				7682	19559	8.10	0.60	7.52	19559										IBM					"
2532	"	8³⁴	856				~~3312~~ 7883	3388	1.51	0.08	1.43	3312										IBM					"
2533 ~	~~2561~~ ~~2576~~	XeLamp Calib. (LEAD GLASS) OUTPUT TO M.T. NO IBM LINK																									
2562	4.12.	19.07	21:17				7707	18984	13.8	.897	12.9	18963										IBM				2.5 Hz	Cosmics, B=0 KG, BP TF matrix=13, Up=normal
2563-2565	problems in starting the program																										
2566	4.12.	21:49	22:38				2935	6444	3.8	.714	3.14	6444										IBM				"	"
2570	22.1.80	Pulser runs (Kern) ← 2573-2660 LEAD GLASS (Xe-Lamp) TEST Runs (Mikowa) ... Tape																				tape					
2663	4.2.80	ID-Pulser runs (Kern)																				tape					
2664	"	"																				tape					
2665	"	"																				tape					
2666	"	"																				tape					
2669-2682	Lead glass test (Xe-lamp) runs (Mikowa)																					Tape					
2718-2732	TOF CAL RUNS to IBM																					IBM					Delay 42-154 nsec
2733 → 2740	Muon+T3 runs to Tape (Hassard)																					Tape					
2741	~~2740~~ 22.1.80	Cosmic Runs to Tape (Hassard)																				Tape					

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 $\geq$2 ToF & LG

16 Feb 1980.

Found no Tϕ signal even with 5mA in the PETRA ring. Seems that the cable is disconnected inside the interlock.

S. Orito

16. Feb. 1980. 19^{00}
I went with a man from PKR into the area and connected the Tϕ cable up.
21^{20} Tϕ signal seems reasonable with 3.8 mA e^- in petra.

21. Feb 1980. 8^{00}
8^{45} PKR plan to optimize machine condition till 11^{00}, and then one hour access to Tasso area. At noon, they will try to get stable beam conditions for the luminosity.

Bartel at PKR → Orito

~13^{30} 21. Feb. 1980
Magnet tripped off from (7600A ← ?!)
Please never go over 7000A with the magnet current.
The tripp-off of the magnet disrupt the lead glass counter gains.

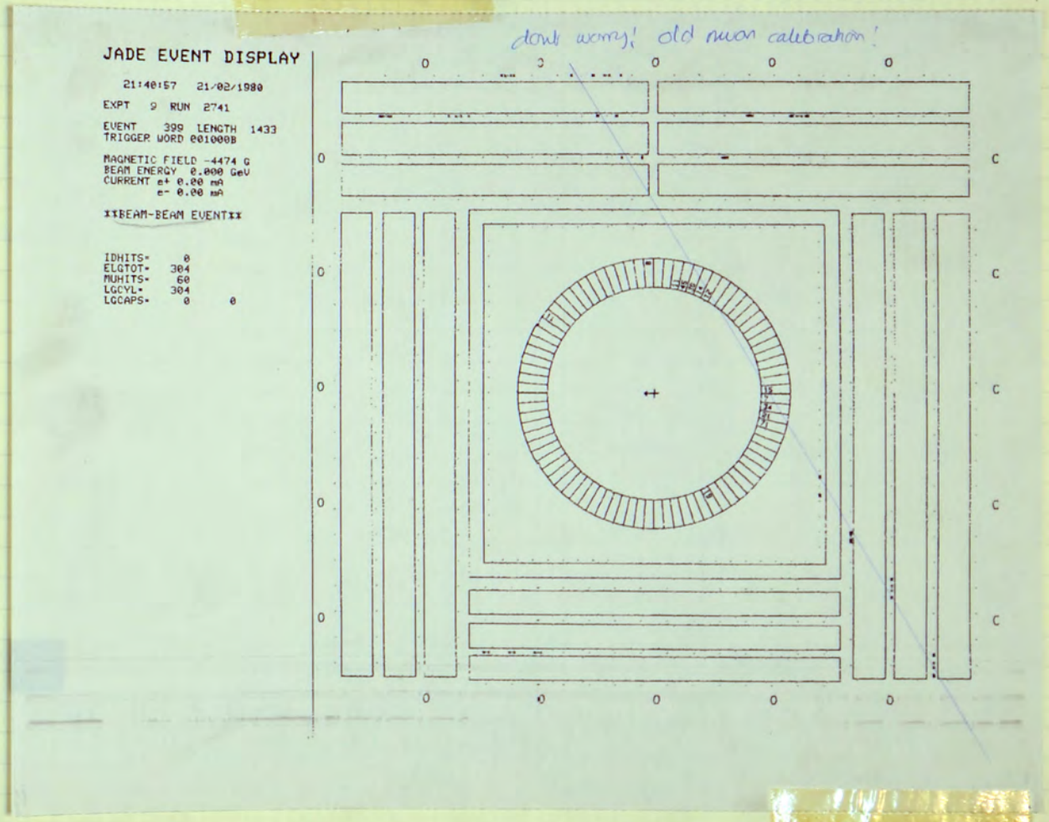
21.2.80 20^{00} Due to wrong wiring of one HV-cable at the Tank of the Inner-Detector inside the Endplug we have to run without Cells 13.3 and 13.4 until the next ~5 day maintenance period (Probably at Easter). The question is, what to do with the T2 trigger:
- either set switches for 13.3 and 13.4 to permanent on on Rucksack. This can lead to a rather high trigger rate at T2 level.
- or ignore hole in trigger efficiency and try to correct in Monte Carlo.

A Wagner

LG$\geq$4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int$Lat RUN	$\int$Lat EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

19^{00} – 21^{50}
Lead glass counter tests, the timings are OK within ~10 nsec. L.G. total energy threshold set to 1, 2, & 2.5 GeV. Tested by simulated Tϕ trigger from a delayed prepulse and T1 by 1 GeV total energy from cosmic rays. Everything seems OK.
The figure below, is a cosmic ray μ event. Histograms in Nord 50 funny.

21^{45} Komamiya, Mirowa, Orito



RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ⊗ ≥1 GeV·LG

LG ≥4 GeV	LUMI	$\langle L \rangle$ $10^{30}\,cm^{-2}sec^{-1}$	$\int Lat$ RUN	$\int Lat$ EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

22/2/80
1°°
PDi, KSt

Major changes in N50-Program since 11/79

- 'N50S'-bank = bank # 16 is now added to the event. This bank contains on-line analysis results. It enables the event display to show the z-vertex.

- P. Steffens newest z-vertex routine implemented.

- On-line event reject studies started. You will sometimes find the message 'REJECT EVENT' on the event display. It says this event is a candidate to be rejected. At the moment each event is transferred to the IBM - nothing is rejected.

- Fractional histogramming implemented. The range is 0 - 100 % of events. The fraction may be changed by entering on T9
  - (F11) : N50-DIALOG
  - (F03) : ANALYSIS FLAGS
  - 10, RETURN
  - new percentage, RETURN
  - RETURN
  - (F1) : BACK-TO-MAIN

  Default value is 100 %. Trigger, Lumi, and Results histograms are always filled with 100 %.

3¹⁵ Two beams there 3.2 × 3.5 mA at 16.000 GeV
BP rate 2.0
3 TOF 10 k / sec

I use: $\mathcal{L} = SMZ \cdot SPZ \times 5 \cdot 10^{27} \times (E\,[GeV])^2 = SMZ \cdot SPZ \cdot 1.28 \cdot 10^{30}$

3²⁰ When reading scalers, beams lost (Sonderausfall)
I think we had 80/280 SMZ·SPZ/sec ⇒ $\mathcal{L} \sim 0.4 \cdot 10^{30}$ not so bad
PKR claims they saw also $\sim 4 \cdot 10^{29}$.

07.15 Henning Wriedt plowed to see Pau "things" were going. Kommt nicht (oder es war mein Doppelgänger) WW
07.30 Albrecht Wagner " " " " " " "
0800 - On-to-t GCD & KRD
1041 - stable beams, BP ~2.5 V.
10 52 Lumi entinto SMZ·SPZ = 60/160 (sec⁻¹) ∴ $\mathcal{L} \sim 1.28 \times 10^{30} \times 60/160 \approx .49 \times 10^{30}$
11 56 " " " 405/732 ∴ $\mathcal{L} \sim 1.28 \times 10^{30} \times 405/732 \approx .71 \times 10^{30}$ V.V.
12⁰⁰ 16 GeV 4.2 mA e⁻, 4.2 mA e⁺, 2 bunch each
collimator movement
HPA 40 → 28 HRI 40 → 28, HLO 40 → 30, HLI 40 → 26
Beam pipe counter rate went down from ~18 to ~7.
15.11 16.5 GeV again
~~1600 Beams are lost, 1645 Bruno joins,~~
17⁰⁰ Start of Run 2752. Collimators at CELLO are moved and tested for some time.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 $\geq$2 TOF & $\geq$1 GeV LG
168																
Run	date	start	stop	I^+	I^-	Vac	Time	Nord Evts. Acc.	Sel Trigg $\times 10^6$	T0 reject $\times 10^6$	T0 Accept $\times 10^6$	T1 Accept + postpone $\times 10^3$	T2 reject $\times 10^3$	T2 Accept	T2 collin	T2 $\geq$2 TOF & $\geq$1 GeV. LG
2745	22.2.80			3.9	3.7	16.0 GeV						Test run to ZBM				
2746	22.2.80											"				
2747	"			3.5	3.5							"				
												"				
												"		↓ no apparent problem		
2748	22.2.80					16.5 GeV						"				
2749	22.2.80					17.0 GeV						"				
2750				5.5	5.7	16.5 GeV	? 17.5	?				"				
2751	22.2.80	16.09	16.19	3.9	3.7		309	591	80.5	4.8	75.8	624.7	624	417	199	248
2752	"	17.06	17.21	5.6	5.7		939	3082	260	132	128	3771	3767	2680	413	2290
2753	"	17.33		4.7	4.8		577	1991	150	27.6	122.5	2568	2565	1719	376	1337
2754	"		1805	5.6	5.7		1015	2338	264	68	196	2797	2793	1892	497	1426
2755	"	18.11	19.36	3.8	3.9		1683	7529	1218	86	1133	8042	8031	5608	2456	3235
2756	22.2.80	19.50	20.06	2.4	2.5		731	828	190	10	179	2349	2348	569	278	202
2757	"	20.07	20.36	2.4	2.5		1492	1355	388	19	369	2125	2123	889	677	234
2758	"	21.12	21.27	5.8	5.9		850	1756	204	22	181		7634	1260		
2760	"	22.55	0.04	4.7	4.7		4122	5297	1072	110	962	9481	9473	3722	2028	1763
2761	23.2.80	00.05	0.35	4.7	4.7	16.5 GeV		2111	457	21.6	436	2820	2817	1456	630	553
2762	"	1.12	3.06	5.9	5.8	"	"	9790	1774	113	1661	18127	1335	6826	3767	3133
2763	"	3.07	3.44	3.7	3.7	"		2644	570	26	544	3278	3274	1794	1207	646
2764	"	5.51	6.11	6.2	6.2	"		9145	288	14	274	5741	3738	926	666	13
2765	"	6.11	6.13	5.7	5.7	"		189	20	1.3	19	357	357	81	44	40
2766	"	07.00	08.34	5.4	4.9			9787	1467	122	1344	30073		6987 13350	3267	3759
2767	"	08.35	08.55	5.4	4.9			1579	301	17.8	283	3462	3459	1066	643	472
2770		13.08	13.11	5.4	4.9			33	4.2	0.25	4.25	13.6	13.6	0	0	0
2771		13.12	13.17	5.4	4.9			420	66.2	4.8	61.4	994	994	319	133	197
2772																
2773		13.35	13.53	4.6	5.1			1940	277	24.1	253	3060	3057	1395	570	844
2774	23/2/8	19.30	19.55	5.7	5.7		1446	3165	376	387	337	6606	6601	2349	901	1473
2775		20.00	20.30	5.1	5.2		1688	3542	439	378	401	6566	6561	2604	1080	1566
2776	23.2.80	23.16	0.42	5.7	6.6		5170	7847	1345.6	95.3	1250.3	25619	6830	5173	2788	2414
2777	24.2.80	0.45	2.01				4529	5552	1178.3	67.1	1111.2	11473	11464	3617	2764	1894

RUN	LG≥4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int L dt$ RUN	$\int L dt$ Exp	IBM/TAPE	B.P	BHABHA	MULTI HADRON	NMR	ENERGY
LG≥6GeV		Lumi	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int L dt$ Run	$\int L dt$ Exp	IBM Tape	B.p	BHABHA	Multi Hadron	NMR	Energy
	51	25	0.56	0.17	0.17	IBM	0.6	1	0		16.56V Beam lost, stop run
	155	62	0.50	0.50	0.67	IBM	1.3	5	2		stopped because of too high dead time (event display hang up)
	122	49	0.65	0.38	1.05	"	1.1	2	0		program reloaded
	134	61	0.48	0.49	1.54	"	0.8	5	1		~~Stop because energy too low~~
	652	237	0.40	1.89	2.43	"	0.8	21	1		Stop. Try to increase energy to 17.4 GeV
	73	11	0.13	0.09	2.52	"	1.0	2	0	17.4 ?	
	160	12	0.08	0.12	2.64	"	"	2	0	17.4	stop because beams will be dumped
	180	104	0.90	0.77	3.41	"				16.5	next fill ⇐ Run 2758: sep. A2 ~~no points written~~
	472	295	0.56	2.29	5.70	TAPE	0.8	31	1		⇐ beam lost due to RF-trouble, TAPE F11 127
	197	102	0.94	0.78	6.48	IBM	0	12	4		we want bigger currents.
	808	541	0.61	4.51	10.63	IBM.	1.1	62	2		
	239	117	0.40	0.89	11.52	IBM	0.9	15	0		
	3	127	0.86	0.96	12.48	IBM	0.3	1	0		LG set at too low voltage.
	12	9	0.66	0.07	12.55	IBM	0.2	2	0		
	715	640	0.87	4.88	17.43	"	0.5	65	1		
	129	99	0.64	0.74	18.17	"	0.4	11	0	"	kick for new fill. Beams dumped.
	20	12	0.53	0.09			0.4	~~23~~ 3	0		— TOF counters NOT SWITCHED ON.
	29	16	0.51	0.13	18.3		0.4	2	1		~~NORD crash~~. — problems with logging LG.
											NORD crash — no run summary.
	142	129	0.92	0.98	19.28		0.6	16	0		beams lost.
	192	211		1.60	20.88	IBM		22	1		
	263	221		0.97	21.85	IBM		27	0		⊙ trigger cell 9.4 lost
	592	670	0.98	5.08	26.93	IBM	0,6	73	1		
	479	350	0.59	2.66	29.59	IBM	0,6	40	1		run stopped to give Orito the possibility of changing LG threshold

Exp. 9. begining.

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RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF & ≥ 1 GeV·LG

At 12^{20} started taking test data at 16 GeV

① Looking event display of Lumi-trigger, no indication of strong synchrotron radiation background.
The chamber looks quiet.

② with e^- and e^+ beams of ~35 mA Luminosity 0.5×10^{30} cm^{-2} sec^{-1}.
Dead time ~3% (TOF)·(LG>1GeV) ~ 6/sec → 2/sec accepted by T2, LG>4 ≈ 0.4/sec

③ Run the energy up in 500 MeV steps to see the background condition as function of energy.

Run	Ebeam	I^-	I^+	Beam Pipe Current collimators open	Beam Pipe Current collimators closed	IChamber Current	(kTOF)x (LG71)	T2 accepted	LG>4	Trigger rate	pt	event display observation: Lumi event	event display observation: (2TOF)·(LG71) event
2748	16.5	3.3	3.1	15	5	<0.5 μA				15 ~ 7/sec		<20 hits clean	
2749	17.0	3.0	2.9	20	6					13		clean	
2750	17.5	2.8	2.7			beam lost in going up with energy							

Luminosity $0.3 \sim 0.6 \times 10^{30}$ cm^{-2} sec^{-1}

→ no background problem till 17.0 GeV

17.4 GeV (relativ high energy)

Run 2757

JETU CURNT BANK	32767	33	0	0	0	0	0	97	1	0						
000020	000021	000002	000001	004003	004003	004000	004001	010021	010003	010000	010001	014022	014002	014001	014001	
020010	020022	020021	020003	024022	024022	024020	024003	030023	030023	030013	030021	034023	034023	034020	034020	
040022	040022	040020	040003	044022	044021	044003	044003	050021	050021	050003	050003	054020	054021	054003	054003	
060003	060000	060000	060000	064021	064003	064001	064002	070020	070020	070002	070002	074021	074022	074003	074002	
100000	100023	100003	100020	104023	104022	104020	104020	110023	110023	110020	110003	114023	114022	114002	114020	
120021	120021	120002	120002	124021	124021	124002	124002	130020	130021	130001	130002	134020	134021	134002	134002	
001700	001713	001630	001622	005673	005672	005650	005650	011703	011673	011651	011653	015673	015730	015673	015663	
021653	021663	021633	021632	025663	025712	025633	025630	031703	031700	031602	031603	035673	035643	035572	035602	
041652	041733	041650	041653	045650	045713	045631	045633	051710	051713	051650	051653	055713	055723	055653	055650	
061670	060000	060673	060701	065670	065651	065640	065640	071663	071662	071633	071633	075653	075733	075633	075632	
100000	101663	101623	101623	105711	105703	105631	105642	111720	111703	111653	111651	115732	115732	115643	115652	
121652	121672	121623	121610	125653	125653	125610	125613	131673	131701	131550	131543	135702	135663	135623	135622	

LG≥4 GeV	LUMI	<L> 10^{30} cm^{2}sec^{-1}	∫Ldt RUN	∫Ldt EXP	IBM TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

Run 2748 1^{40}

Just to study T3 trigger, a new trigger was installed that does not affect existing ones:
T1 postpone ≥ 2 TOF · LG>1 GeV .or. 2 ≤ TOF ≤ 5 collinear
T2 postpone ≥ 1 track (fast)
T3 accept ≥ 2 subtrigger 4 (muon that fires 4 out of 5 layers) Uchi

14.45 Modified HV 2+ 2770 → 2950
22+ 2800 → 2900

- chamber tripped
- chamber tripped
15.00 beams again at 16.5 GeV

84 94 P1 Riga

16^{00} Weber on shift 16^{45} Drumm joins
17^{00} Start of Run #2752
Collimators at CELLO are moved ~~moved~~ for quite some time. The collimators are in.
17^{30} according to Bartel wire comes from PKK: CELLO collim. adjusted. ~~now TASSO collim being adjusted~~
17.45 Zeller playing with plugs of T2
18.01 PKK starts playing with collimators w/ TASSO report.
18.34 Collimator adjustment finished.
19.36 Step to increase energy up to 17.4 GeV.
19.45 Increase of energy finished, collimators set.
21.14 Note: Since beginning of running period, there is trouble with T2 read-out

How to measure ID-chamber currents:
List 34,1, display banks → address; current = 0.3 μA in cell #9.

16.5 GeV

JETU CURNT BANK	32767	33	0	0	0	0	0	97	1	0						
000003	000002	000001	000000	004002	004002	004000	004000	010003	010001	010000	010000	014021	014000	014000	014001	
020022	020020	020003	020002	024021	024003	024002	024002	030021	030020	030012	030003	034021	034003	034002	034002	
040003	040003	040002	040002	044021	044003	044002	044002	050020	050003	050002	050002	054003	054003	054002	054002	
060003	060000	060000	060000	064020	064002	064001	064002	070020	070003	070002	070002	074020	074020	074002	074001	
100000	100003	100001	100002	104020	104003	104002	104001	110020	110020	110002	110001	114020	114003	114002	114002	
-96- 120020	120020	120002	120002	124020	124020	124002	124002	130020	130003	130002	130002	134002	134003	134003	134002	134001
001701	001713	001631	001623	005700	005673	005652	005651	011710	011673	011652	011653	015677	015731	015700	015663	
021651	021663	021633	021630	025663	025710	025630	025623	031700	031673	031577	031602	035672	035642	035570	035577	
041650	041730	041643	041650	045643	045713	045626	045632	051703	051710	051643	051652	055712	055717	055650	055643	
061670	060000	060673	060700	065670	065652	065637	065641	071663	071663	071637	071633	075657	075733	075637	075633	
100000	101672	101632	101630	105713	105710	105633	105642	111723	111710	111657	111653	115733	115733	115643	115653	
121651	121671	121622	121606	125652	125653	125610	125612	131673	131700	131550	131543	135702	135663	135623	135621	

cell 1-16 0.1 μA in cell 16.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF

2.8.84

Run 2758: Stopped because of beam loss, get ~~not~~ no event summary printed: ~~Tasso~~ Colours TV shows "no events written". Copy scales reading by hand.

21.59: New fill is finished since quite a while, but we get ~~no~~ I.D. - alarm as soon as we try to switch it on. After ~~no~~ I.D. trouble overcome: IBM-transfer does not work ⇒ Cords on telephone claims that "PADAC EXPU 1" does not work properly ⇒ try to call Rechmeller ⇒ promises to come in soon, links on tape in the beam line.

Run 2759: no events, no transfer

22.45: Rechmeller ⇒ promises to come in soon, links on tape in the beam line.

⇒ 22.50: the chain current unit in crate 3, board 2 gives continuously time-out. We disconnect the start calls.

00 00 Krehbiel + Hassard to get rid of YVOLTS error message on printer type @ ABORT YVOLTS on Tektronix #35. Eichler is the man to call if problem persists.

00 05 T3 is in - there seems to be no dead time introduced by ~~T~~ being there.

IBM problem associated with T6 channel on PADAC EXPU1 unit on NORD lower rack below GANDALF. When this light isn't on - write to tape and call CORDS.

00 45 Tagging histograms show dead chambers - wire map, timing map and mean hits/wire

01 00 Endwall chambers seem fine during injection - there's no need to lower voltages as originally feared.

1 12 Run 2762 - delay (5 min) due to wave on trigger. YVOLTS error again - aborted on unit 35.

1 29 MARK J say they have 17.5 nb^{-1} at 16.5 GeV. We have 7.41 nb^{-1}. We seem to have a problem. Tasso have about $\mathcal{L}$ nb^{-1}, Cello don't know. We have only 56% dead time.

3 40 We ask for a new filling. PKR dump before we switch off. Everything looks ok.

4 13 New fill looks ready but our Magnet trips off. It looks like a water pump has tripped. We call Robin Marshall - he suggests we ask PKR to reset. They send a man down. Pump fixed but when we run Magnet up it overshoots ~7000 to ~7604 then slowly comes down. By about ~7400 its got too warm (presumably) and it trips. This is consistently the case. (3 times). We warn PKR but last time it happened (4.38) was coincident with beam loss.

5 51 Start Run 2764 - Magnet finally set on 7000. We were not aware there are two magnet potentiometers - one to set current level (RAISE + LOWER buttons) - one to turn current on (operate)

Magnet ~~for~~ trouble probably ~~came~~ started by inadvertently switching off the "Feuchtigkeitsmeßgerät Magnet" ~~set~~. It was not made known that this had far-reaching consequences. Delay of trouble further caused by ~~not~~ missing description (or misleading inscriptions) on the magnet-remote-control box, and by the fact that the "Störung akzeptiert" button in the counting house didn't work. A call to Pillat helped. He also told me, that a description of the

Pillat: 6519247
Nardß: 805280

LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	∫Ldt RUN	∫Ldt EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

interlock system plus a turn-on guide was laying on the table in the power house. About 1 hour running was lost through this.

Herr Krehbiel,

Crate 3, board 2: chain-current unit gibt dauernd time-out. Logik ansonsten o.k.

die Auslese für den T2 Trigger ist defekt (vgl. Event display in R1 und R2). Die Bank in der Nord 10 stimmt mit dem Display überein.

Es werden 6 Segmente à 4 Worte ausgelesen

Fehler lag am Crate (ka Standard-Engineering). Leitungen für A1 und A2 waren nicht bis zur Station 1 durchgeführt sondern Lötstelle oder isolierte Leitung. Ich habe mit unseren Patch-Cords eine Verbindung hergestellt.

1) bit cell/wall R3
2) " " R2/R1
3) all tracks
4) first "

(A) Diese 4 sind ~~eine~~ jeweils gleich! R3 ist o.k., und da R3 lag mit den Tracks Kollinear ist, sah man diese auch. Es sieht so aus, als ob bei der Subadressen-Dekodierung das 2. bit (bzw. bit 1+2) hängt.

Rig's Crate #1 in branch 3, station 1 A = 1, ..., 16
2 A = 1, ..., 8.

Wir haben auf der Europa-karte die IC's 74LS14 u. 74LS138 ausgetauscht, ohne Erfolg. Man kann wahlweise lesen und sieht die Subadr. Leitungen gleich ansteuern. Schaltplan liegen bereit. Der Crate Controler lag es nicht.

(B) Zweitens ist in R3 die Zelle, 83 tot. Dort hatte ich den defekte Kabel gesteckt. Ein anderes Kabel ändert auch nichts. Ich weiß nicht mehr genau, wo damals der Grund für das Kabel-Anstecken lag. Vielleicht liegt es auch an der Karte. Grund: Eine Ader im Kabel ist "Enable Receivers". Diese muß im Sender (V34) nach Masse gezogen werden sonst sind die Receiver auf der Karte tot. Bei Zelle 83 tut es das nicht. Fehlender Kontakt in V34?

(C) Ich lasse die T3 Laufen mit 2 × subtrigger 4 (Rötliche Stufe) auf T2 postpone = 1 fast tracks. Die Rate beim Kopf die Totzeit nicht, sodaß vielleicht die Datenmenge (T3 acc. ≈ 11 acc.). Da wenn die [illegible] ~~Multiplexer~~ Multiplexer [illegible] are written) repair on Monday. They were ok before

No access should be allowed from now on, according to Mr. Felst.

12:10 Magnet trip. Pumps are ok. We manage to reset ok. to 6977

13:05 Stable beams. Start run 2770. TOF counters had not come on following some troubleshooting by BN

13:08 Start run 2771.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & >4 GeV LG

2.6nA

Run 2758: Stopped because of beam loss, get ~~at~~ us count summary printed: ~~Data~~ Colour TV shows. "us events written" Conv. scales reading by hand.

21.54 : Near Hall is
Run 2759: no events, no transfer — Switch it on, on telephon
22.45 : Rothwiller
⟹ 22.50 : the chain can
00⁰⁰ Kuehbiel to get Tektron
00⁰⁵ T3 on in IBM pict lower ro CORDS
00⁴⁵ Tagging
01⁰⁰ Nordwall co ongina
1¹² Run 2762 –
1²⁹ MarkJ say I Tasso have
3⁴⁰ We can for
4¹³ New fill to has happ they send Food to the and it tri terne ir
5⁵¹ start Run

ID-3-9424384

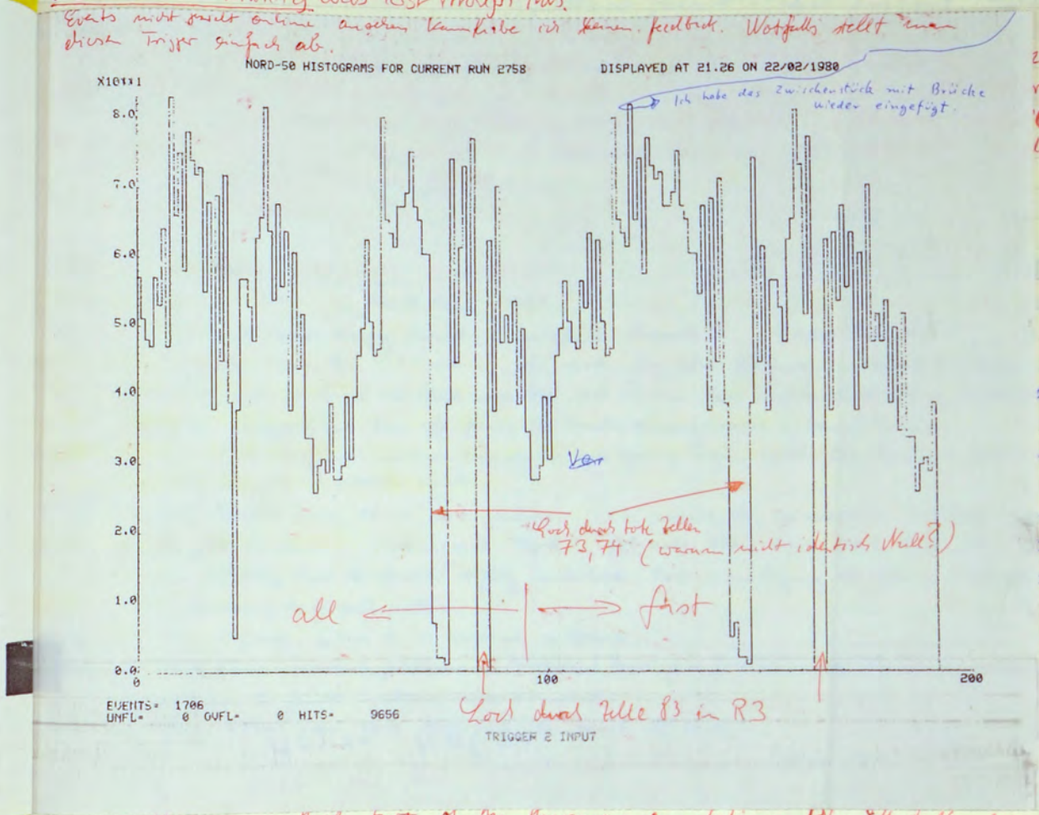
two magnet potentiometers – one to set current level (RAISE + LOWER buttons)
– one to turn current on (operate)

Magnet ~~for~~ trouble probably ~~cam~~ started by inadvertently switching off the "Feuchtigkeitsmeßgerät Magnet" ~~wit~~ It was not made known that this had far-reaching consequences. Delay of trouble further caused by ~~not~~: missing description (or misleading inscriptions) on the magnet-remote-control box, and by the fact that the "Störung akzeptiert" button in the counting house didn't work. A call to Pillat helped. He also told me, that a description of the

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LG≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	∫Lat RUN	∫Lat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

interlock system plus a turn-on guide was laying on the table in the power house.
About 1 hour running was lost through this.
Events nicht sofort online angezeigt. Kamplube ist keines feedback. Wotfalls stellt man einen Trigger einfach ab.



histograms.
n PKR - they
)
connect a

5 mm access.
till disconnected.
till present.
mputer problem
couldn't get
could not get
. Was not giving
hanged!

It seems that two of the Fermo-amplifiers (No. 24 + 16 are broken)
repair on Monday. They were ok before

No access should be allowed from now on, according to Mr. Felst.

12:10 Magnet trip. Pumps are OK. We manage to reset OK. to 6977
13:05 Stable beams Start run 2770. TOF counters had not come on following some troubleshooting by BN
13:08 Start run 2771.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF & ≥ 1 GeV LG

LG ≥ 4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int$Lat RUN	$\int$Lat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

Run 2758: Stopped because of beam loss, get ~~no~~ no event summary printed: ~~Colour~~ Colour TV shows "no events written" (new scales reset by hand).

21.54 : New fill in

Run 2759: no events, no transfer — Switch it on, on telephon

22.45 : Rothmüller

⟹ 22.50 : the chain w

00 00 Fuehrbiel to get Tektron

00 05 T3 on V IBM pr lower CORDS

00 45 Tagging

01 00 Nordwall on magn

1 12 Run 2762

1 29 Mark J say Tasso hav

4 40 We can fa

4 43 New fill ! has imp they send 7000 to 7 and it th tense it

5 51 start Run

two magnet potentiometers – one to set current level (RAISE + LOWER buttons)
– one to turn current on (operate)

Magnet ~~p~~-trouble probably ~~cam~~ started by inadvertently switching off the "Feuchtigkeitsmeßgerät Magnet" ~~will~~ It was not made known that this had far-reaching consequences. Delay of trouble further caused by ~~not~~: missing description (or misleading inscriptions) on the magnet-remote-control box, and by the fact that the "Störung akzeptiert" button in the counting house didn't work. A call to Pillat helped. He also told me, that a description of the

Pillat: 6519247
Nambø: 805280

Herzu Helm.

interlock system plus a turn-on guide was laying on the table in the power house.
About 1 hour running was lost through this.

Run 2764 had LG voltages incorrectly set. This was noticed by viewing histograms.
Run 2765 set correctly. We get 135 events before beam crashes. We inform PKR - they had it seen - and apparently a high frequency klystron is kaputt. (Sender ausfall)

06 41 Mark J ring - they want a 5 minute access after next run, to disconnect a HT cable. Thats ok by us.

07 00 Run 2766

08 00 Ball and Watanabe on shift

08 34 End run 2766, Start Run 2767.

08 55 Time out error every event crate 3 branch 2. – stop Run 2767.
currents down to ~3.5 mA, so ask for new filling. Mark J require 5 min access.
– CAMAC error is same as that reported at 22:50 last night, but start cable still disconnected.
Wagner suggests we turn off power to crate during access + new filling
Runs 2768, 2769 were wasted trying to get going again with the timeout error still present.
Wrote only the 13 pedestal events.

09 54 Both Mark J and CELLO took access. PKR unable to re-establish interlock – computer problem.

10 00 The plot thickens! – time out Mark J got into their area OK, but then couldn't get out !(?) They had to break safety interlock. PKR are trying to fix. Cello ~~he~~ could not get in because of the computer problem.

10 08 PKR estimate ½ hour to re-establish interlock.

10 30 Still have interlock problem. Wagner + Heuer fix problem with branch 2 crate 3. Was not giving HAM due to fault in chain current monitor.
Run 2770 was JETC test-run to check it out.

* One cable on the bumps measuring device was interchanged!
It seems that two of the thermo-amplifiers (No. 24 + 16 are broken)
repair on Monday. They were ok before

No access should be allowed from now on, according to Mr. Felst.

12 10 Magnet trip. Bumps are OK. We manage to reset OK. to 6977

13 05 Stable beams Start run 2770. TOF counters had not come on following some troubleshooting by BN

13 08 Start run 2771.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & $\times$ LG

LG≥4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm^{-2}sec^{-1}	$\int$Lat RUN	$\int$Lat EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

13:17. Stop run 2771 Naroska has found part of tagging LG has no volts on. — consequently incorrect luminosity info. However, we still get lumin. info from endcap, so decide to restart, while investigations continue

13:23 Start run 2772.

13:25 Tagging H.T. now on.

13:30 TOF + TAGG HV-System has severe readout problems Broken cable between the two TAGG-HV system sides and maybe others. We need crimping tool.
We set all voltages manually. The voltages are not checked by the computer, only Tokyo-leadglass counters are checked at run start and then every 30 minutes.
Please look at histogrammes to see if any counter is off !! R. Eichler.
I checked all TOF voltages they are ok. Tagging only 3 ~~mo~~ × 32 blocks can be checked. They are good.

13:50 Beam lost suddenly.

14:25 Magnet trip again. After resetting the interlocks in the power house next to this Hall, it tripped again at 3000A. Called Mr. Marshall. He suggested (also) to push reset buttons of the Hardware ~~next to magnet control~~ interlocks at the solenoid power control in the counting room.

15:58 No beam and magnet trip.

16.00 Heuer and Haidt on shift

Run 2774 in progress (not written to IBM) Proposal: not writing to IBM can be easily avoided by default = Yes

16 47 Magnet alarm - pump of cooling lake failed (area wide) - problem with copper circuit (Kupferkreislauf)

16 52 Beam lost due to HF failure

17 42 Problem with technical help solved - magnet 7000 A.

18 12 Magnet alarm (Sammelstörung)

19 32 Magnet ok. - PKR says : run can start

Run 2774 in progress

'Muon crate missing' message persistant - #12 and #11 reset

what problems?

We had several people here (from the workgroup and from K), who fixed the problem. But

19 55 Magnet alarm

20.00 Run 2775 in progress

20.30 Stop run because of inner detector alarm - Riesberg coming

22.14 Inform other experiments and ask for new filling

22.30 Investigation of ID alarm => breakdown in Ring 3, Segment 9. We have to disconnect the cell.

23.16 Run 2776 in progress

24.2.80

0.00 Dotwill, Warming on shift

2.00 Looking the J events (hadronic): some events have shower energy as low as ~~1~~ 6GeV. To obtain ~~100% efficiency~~ a high trigger efficiency (note the dead chamber cells) we decided to lower the lead glass threshold from LG 4. ~~to LG 3 GeV~~. Ortb.

2.10 Found somebody already set the lead glass thresholds lower as it was set on 22.2.80. Since the trigger rate has been small enough we keep the threshold as it is.

The setting now is

Channel 1 6.8 GeV
Channel 2 3.6 GeV - 3 T1 Accept;
Channel 3 1.8 GeV
Channel 4 0.8 GeV - 3 in coincidence with 2 TOF to T2 postpone

The trigger rate of T1 accept is still reasonable (~0.4/sec).
The scalar ("LG>4") counts much more due to spurious after an accepted event. These spurions are rejected by ~3 msec forced reject of T1 (at the end of the dead time) as always (since oct. 1979) and does not give a trigger.
In case of problem just increase the LG>4 GeV (channel 2) - from 3 GeV to a value not exceeding 4 GeV (see the note in front of the lead glass electronics).

7.20 message "muon crate missing" comes up very frequently, but in the crate all lamps are continuously flickering. So we can't locate the problem.
We postpone it to Mc Cann.

07:50 Tagging lead glass EHTs checked and found to be good. vdp

08.00 Watanabe & McCann on shift.

08.20 I.D. ring 3 ~~in~~ cell 23 sparked - reset. Immediately ~~the~~, ring 3 cell 17 sparked. Henzelmann coming. -> no obvious reason found Hzel
Ask for beam dump at 08:40, and start new filling. End run # 2781

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ≥1 EGL. LG	LG ≥4 GeV	LUMI	$\langle L \rangle$ $10^{30}\,cm^{-2}sec^{-1}$	$\int Ldt$ RUN	$\int Ldt$ EXP	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY	
2778	24-2-80	02:07	02:18				622	672	~~151·6~~	7·0	144·6	984	983	363	247	118	124	26	0,33	0,20	29,79	IBM	0,6	3	0		16,5	Beam lost
2779		04:38	04:54	5,9	6,0	1×10^{-6} 4×10^{-9}	943	1559	242	18·7	223·3	6088	6085·5	1006	519	495	130	135	1,09	1,02	30,81	IBM	0,6	9	0		16,5	Beam lost due to Sendcam fall
2780		06:41	07:15	4,8	4,1		5562	7837	~~1447~~	91·2	1356	23959	7170	4961	2870	2181	691	704	0,95	5,29	36,10	IBM	0,6	61	2		16.5	Normal ending
2781		07:15	08:22	4.4	3.8		3965	4813	1032	49·3	982·4	9251	9244	2980	1985	1145	486	320	0·61	2.41	38·51	IBM	0.6	38	0		16·5	Abnormal I.D. spark – but down to 5·5 mA/beam anyway, no 2782 due
2783																						TAPE 4						Tape # F11129. events probably o.k. to IBM/Lane
2784		IGNORE ID down.																										4 IGNORE. ID off.
2785		10:17	10:26	5.9	5.6		522	~~924~~ 722	136	12,9	122.9	5702	6700	544	286	303	72	84	1.12	0.58	39.09	4		10	1.1		16.5	4
2786																							total	551	15			4
2787		no data ignore.																										4
2788																												4
2789		10:54	11:12	5.1	4.9		935	3483	243	161	82.7	6566	6561	2425	179	2387	581	38	0.40	0.37	39.46	"		7	0		16.5	4 background too high
2790	24/2/80	20.46	21.30	4.4	5.4		2459	5826												1.81	41.67		0.9	29	0		16.5	Beam lost due to Sendcam fall
2791		22.26	23.30	6.1	6.8		3989	7840												5.29	46.96			75	1		16.5	
2792		23.35	0.09	5.0	5.5		1967	2702	511.9	83.1	128·8	9954	9950.	1722.	781	999	242	237	0.91	1.78	48.74	IBM		21	1		16·5.	I.D. tripped.
2793.	25-2-80	0 20	2 03	5·0	5·5		5574	6994	1450.	81·6	1368·7	17130	349(?)	4297	2445	1960.	648	553	0·75	4·18	52·92	"		63	3.		16·5.	
2794	25·2·80	3·15	4·24	7·1	6·7		4015	7828	1044	124·3	920 2	43154	9588	5159	1929	3269	630	709	1·33	5·36	58·28	"		67	3.		16·5	
2795.	"	4·28	4.55				1435	2160	373	37.1	336.2	~~8762~~ 8759	8759	1317	644	709	218	206	~~1,06~~ 1·03	1·83	59.81	"	1.	19	0		16.5	Beam lost
2796.	"						LOST. (RUN DECIDED TO END ITSELF AFTER 1 EVENT).																						
2797.	"	5·53	6·58	7·1	6·7		3831	7843	996·8	110·7	886.	3961	6042	5448.	1807	3652	608	582	1·16	4·43	64·24	"	1.0	65	0		16·5.	~~Stop off~~
2798.	"	6·58	8.11	5·6	5·1		4262	7679	1109	90,3	1019	23023	6239	5405	1965	3531	674	424	0.76	3.24	69.48	4		54	2		16,5	Stop after I.D. trip.
2802	"	8.21	8.59	4.2	3.9		1749	2783	455	33,5	422	5685	5681	1550	778	1232	238	121	0.53	0,93	70,41	4		12	2		16,5	I.D. trip at 8.28 cnt. at 8.30 see p. 179
2803	26/2/80	7·03	7·06	4·9	5·4		135	505	35	14·7	30·4	1485	1485	467	214	278	12	4	~~0.30~~ 0.04	0·04		"	1·5	~~80~~ 964	0 27		17·0	Probably garbage. Stop after I.D. trip + beam loss.
	26/2/80	8·03 – 2 short comments using T3 trigger Made by John Hassard: not written.																			70.41							
		Exp 10		E Beam = 17 GeV																								
2804	26/2/80	9.48	10:05	4.9	5.2		1038	3367	270	93,8	176.4	17647	917	3191	1708	1510	129	34	0.31	0.32	0.82	"	1.8	4	0	read from	17.0	stopped because "Hut 0 busy"
2805	"	10:42	11:25	4.5	5.0		715	2418	196	38.0	158	13709	13106	2193	1279	942	159	27	0.33	0.24	0.56	"	1.8	4	0	Master Lock	17.0	stopped by beam loss
2807	27/2/80	12:25	12:54	4.3	4.2		1696	4298	441	51,0	390	16057	16051	3019	978	2040	255	91	0.50	0.84	1.40	"		11	0	T3 acc. T3 rej.	17.0	
2808	"	12:54	14.17	7.7	3.4		2390	4255	622	44	578	11645	11640	2753	1181	1584	278	97	0.34	0.81	2.21	"		7	0	1123 1139	17.0	one dead cell now ok!!
2809	"	14:19	14:39	3.5	3.7		1196	1899	349	46	256	7720	7719	1053	500	561	113	39	0.28	0.31	2.52	"		1	0	492 457	17.0	

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF	LG≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	ΣLdt RUN	ΣLdt EXP	IBM TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

24.2.80

08:45 Heinzelmann here. He wanted to have the beams to do a quick check. Too bad. From now on, we should ask if the experts need the beams or not for diagnosis.

09:48 New filling ready. Heinzelmann requires ~10 min.

10:00 ID ready. but IBM is down. Whole things (AA, BB & CC) seem to be down.
Write to Tape Tape # F11129. RUN 2783. (Run 2782 was not there due to unsuccessfull IBM link.

10:10 Time out errors. Can't take data. (Caused by ID trip.

10:12 RUN 2784 too low trig rate. Noticed ID down. The cables to stop runs were disconnected, and the buzzer was switched off during the ID repair and forgot to turn on.
RUN 2785 does not proceed after 956 events. Try starting several runs with no avail.
Reloaded the system. Meanwhile Wagner & Heinzelmann investigate the Jet Chamber problem.

10:50 Finally start RUN 2789 rather smoothly. Oooops. Another ID trip. Experts still here.

10:55 Noticed that the beam pipe current is almost 4 v. Phoned ~~...~~ PKR. They will try changing Optics.
Since run 2789 cell 17.3 disconnected (10:45)

11:07 inner detector tripped (beams lost)

11:10 Turned out that Mark J had background problem and PKR & Mark J were adjusting vertical collimators. They did not inform us in advance.

11.30 TASSO requested access for 5 mins.

" There are no e^+ for time being. Linac 2 has problems.

" Testing with e^- beam only.

12.30 Now have e^+, but problems in getting the e^- current up.
PKR can give no indication of when there shall be useful beams.

13.50 Herr Weber at PKR – says that there is no possibility of stable beams for at least one hour. ~~The positron orbit~~ Positrons are being lost due to orbital problems.

16.00 Heinzelmann and Haidt on shift

17.54 Magnet alarm – pumps. R. Marshall coming, he cannot fix the fault – Pillat coming

19.45 New filling ready – Pillat solved the problem (contact problem) and runs the magnet up, at about 6000 A the magnet drops down again.

20.32 Magnet at 7000 A – Pillat revised a relais (bad contact)
Beam pipe warm at S2. Ask PKR to move collimators (vertical out): S2 → J2 → below 10. ok.!

20.46 Run 2790 in progress

21.30 PKR lost beam (Sonderausfall)

22.18 PKR ready with new filling – vertical collimators are out

23.35 Run 2792 in progress

CHECK FOR EACH NEW FILLING THAT VERTICAL COLLIMATORS ARE MOVED OUT (BY PKR)

0:00 Kawabata, King on shift.

Start run 2793 at 0:20. ID trips 4 times in first hour of shift. Resets OK every time
Data taking continues without a hitch. (apart from RUN 2796, which is non-existent).

6.10 Intermittent MUONCRATE missing messages have been present all night. However PRINTING RAW EVENTS failed to show up a missing crate. Camac Interface behaving normally for all crates also.

6.15. MUONCRATE 7 REALLY IS MISSING THIS TIME. Reset OK.

8.00 Kleinwächter and Weber on shift.

8.06 I.D. trip. run 2798 paused, continue at 8.09 : stop run because of NSO hang up.

8.13 " " reset, reload.

8.50 ~~Scout~~ I.D trips caused by beam loss

11:45 Yvolts checks now all voltages again RAE

12.40 Still no beam since 8.50. Repeatedly trouble with synchrotron (RF, vacuum)
PKR is not able to predict when there will be luminosity, by the time being.
There are 6.6 mA of electrons circulating at 7.0 GeV in PETRA.

12.50 PKR information: vacuum leak in PEST chamber, will take 2 days to fix

Note: From O'Neill to R. Eichler: NORD is sending data with wrong year, i.e. "1979" instead of "1980" this causes trouble with ~~data reduction~~ calibration. The situation is as follows:

runs with correct year	runs with "1979":
2570 – 2712	2713 – 2714
2718 – 2732	2745 – 2794 (3.15 o'clock today)

This wrong year should be only wrong in the first event (Run start Record)
From now on, it should be o.k. RAE

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1 GeV LG

180 25.2.80 Pearce/Totsuka

16:10 Interlock out for right area broken to do some repair.
16:35 Beam of multiplier 4A in tagging system exchanged. H.W.

Notice muon crate 13 is down – John Hassard investigates
The camac interface for this crate has its on-off light coupled to the middle "data-available" light. It appears to have no power if the run stops in a state where there's no data. It also needed resetting. → solved.

18 10 : PKR received the first e^- after repair of DESY.
19 30 : " started to inject.
20 30 : Synchrotron does not give particles to PETRA

21.50 Because of the increased number of dead cells in ID we propose to request only 1 track for the collinear trigger.
Please watch the rate (and dead time) when beam comes back.
Also the multiplicity in the T3 trigger was changed from 2 to 1.
T3 actually is

$$[2\,TOF_{coll}\cdot(NTOF \geq 4) + 2TOF \cdot LG_{1GeV}] \cdot [1\ track\ ID] \cdot [1\ muon]$$

(1 muon: 4 layers out of 5)

[Beate Naroska]

22.00 Muon readout problem solved – J. Hassard + Archie Macbeth.
22.00 PKR started to inject again.

24:00 Ball and Komamiya on shift.

26/02/80

0:30 PKR started to inject again (16.5 GeV) but the life time is too short.
They are starting the positron orbit

02:50 Magnet fluctuation warning, but no trip. Digital voltmeter reading only fluctuating by 1A about 7000A. Servo limit light is flickering on occasionally. Acknowledge error, and it goes away O.K. We need something to keep us awake, but decide there is no problem!

This is comp mag fluctuation not main magnet. A.M.

LG≥4 GeV	LUMI	$\langle L \rangle$ $10^{30}\,cm^{-2}sec^{-1}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM TAPE	B.P.	BHABHA	MULTI HADRON	NMR	ENERGY

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26.02.80

4:52 New filling 17 GeV. (17mA e^+, 1.7mA e^-)
PKR suggest we try to run, despite low currents, since they have no confidence that they can get beam again if we ask for re-fill. Tasso / Mark J / Delco want to try it, so we agree.
Vertical collimators were in, so have them moved out by PKR.
B.P. switched on. Shows ~ 8 V!

5:21 Still very dirty beam. TASSO have completed tests, so ask for beam dump + new fill.

6:18 New filling. 17 GeV! (5.4mA e^-, 5.9mA e^+)
B.P. counters show ~4V
PKR say they had to move vertical collimators in by 2mm from fully open. They don't want to move them out – but beam is so dirty that we can't switch on!

6:30 Phone PKR about b.g.
Get them to adjust orbit + collimators while we watch BP current.

06:50 Initially get BP down to 1.5V. + start Run 2803
– T1 accept rate too low – just investigating when ID trips. PKR say they've lost the beam. We got a lot of errors from VOLTS on TOF + TAG power supplies just before beam lost – not understood – they were all switched on.

07:50 No shower this shift to check trigger rates + dead-time, following modifications (P180).
08:50 Two short cosmic runs made to test muon camac. No problems, no data written. Finalised.

8.00 Petersen + Heinzelmann
9.35 Filling ready e^+ 4.9 e^- 5.2 mA start run 2804
9.44 ID trip Anode current
9.55 " " . Anode current threshold raised from 20 to 30μA
Deadtime 30–40% none of the triggers people can be reached
10.00 Dead 50 busy caused by Cords. Deadtime 2803 ~ 20%
10.10 TT-message TAG Power Supply many wrong channels ⎫ 10^{25} beam lost
11.15 One TAG power supply was switched off since yesterday (Runs 2803–2805 are affected, 2DC software channels 65–94). Switched on again.

11 35 triggers are now : $[2\,TOF_{coll}]$ (T1 postp.) $\cdot$ $[2\ tracks\ ID]$ (T2 acc) collinear trigger as before

in addition : $[2TOF_{coll}$ or $\geq 2TOF \cdot 1GeV] \cdot [1\ track\ ID] \cdot [1\ muon\ Level\ 4]$ (T1 postpone, T2 postpone, T3 acc) Muon trigger T3 below

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS.ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & >4 GeV LG

26.2.80 16⁰⁰ Darvill and Suda on shift

21.10 I believe the tagging chamber problem is now solved. One pair of cables had been interchanged in the counting room in rack 9, 4" crate down from the top, in hecroy linear fanout. A fast clear input had been interchanged with one output. - this also means no clear had been supplied to the three Lecroy 2366 A 16 fold Registers. Also I had a discriminator working as a freerunning oscillator. This cleared my digitisers before they could be read by the computer. We still have no beam and until then I cannot be certain that this is the whole solution, but I am fairly convinced. DeDarvill

27.2.80 00⁰⁰ Marshall & Komamiya on shift

Curiously no statement in log book why no beams since 10^{25} yesterday morning. Presume there must be a reason and that we are not just giving PETRA a test.

00²⁰ For the record: There are breakdown problems in a synchrotron RF transmitter which means DESY can only accelerate to 5 GeV - which is ok for DORIS, but not for PETRA. PKR reckon they will be working on it until about 02³⁰ at least.

When it is known that PETRA will be down for some time, it does not hurt to lower the main magnet current. (if you have courage to touch the controls). To do this, hold your finger on the "lower" button until the DVM1 falls to (say) 2000 A. It takes a few minutes for the current to fall but your aching finger will be rewarded by knowing you are saving DM 200 per hour, prolonging the life of the magnet and if you brought the current down slowly, keeping the LG gains stable. When it looks like injection may start, raise the current (slowly) to a maximum of 7000 A
Note, when the current is lowered, you will get a "1 MAGNET FLUCTUATION" warning on the colour display.

02¹⁵ PKR ask for Freigabe
03³⁰ Signs of life in PETRA
03¹⁰ - 05³⁰ "life" is struggling
05⁴⁵ PKR inform us of transmitter problems in PETRA (not synchrotron) which cause beam loss at 17 GeV - nothing before 07⁰⁰ and probably later.
08.00 MacBeth + Petersen
12.25 New filling P1 2.61 mA P3 2.82 mA start run 2807. Some tuning of ID voltages by Remenberg/Lennat for 1½ 5 minutes. Then stable.
P2 2.42 mA P4 2.44 mA
Event rate ~3.3 Hz ~25 Hz, Read time ~ 12.1% average after 3500 events. Looks OK.

LG≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	∫Ldt RUN	∫Ldt EXP	IBM TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

Got errors from YOGAS on tag power supplies. H. Wriedt called: one HV channel found to 0, fixed.
12.50 Run 2807 stopped, new run started.
12.54 After 3 minutes of this run ~~started~~ error messages concerning TOF/TAG power supplies. Caused by I had forgot to set switch back from "local" to "remote". Sorry HW
13.30 **STATUS of ID:** the following cells are dead: R1: 17
R2: 37
R3: 65, 66 / 73, 74 / 81, 82 /

Trigger set T
set T
not set 0

JADE EVENT DISPLAY

13:58:21 27/02/1980

EXPT 10 RUN 2808

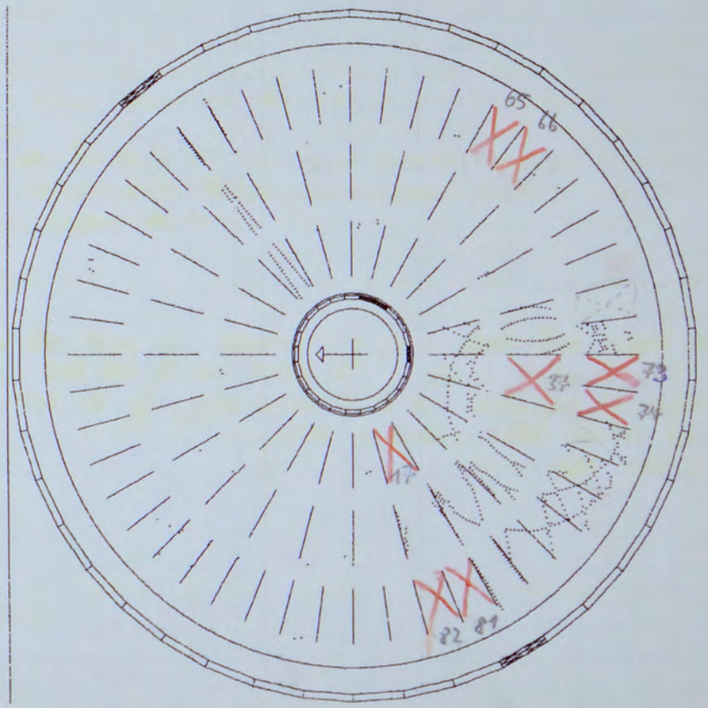
EVENT 2426 LENGTH 2649
TRIGGER WORD 000020B

MAGNETIC FIELD -4537 G
BEAM ENERGY 17.000 GeV
CURRENT e+ 3.80 mA
e- 3.40 mA

BEAM-GAS EVENT

Z-VERTEX 214 mm (3)

IDHITS= 290
ELGTOT= 138
MUHITS= 60
LQCYL= 133
LQCAPS= 0 5



RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1GeV·LG

LG≥4 GeV	LUMI	$\langle L \rangle$ 10^{30} cm⁻²sec⁻¹	$\int$Lat RUN	$\int$Lat EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

27.2.80

15:00 Discriminator thresholds of tagging runs 15–35 and 55–85 set to its nominal values of 20 mV (45 was already set to 20 mV). Before the settings (besides for 45) were 0 mV (as for the 6 GeV runs). JW

16:00 Murphy / Suda

16:00 RF trouble in Nord ring.

17:50 Synchrotron Vacuum Leak, until 23⁰⁰, no hope to get beam

28.2.80 0:00 Rieseberg and Komamiya on shift.

PKR says: In about half an hour beams for DORIS and about two hours later for PETRA

1³⁰ No injection in PETRA before 3 a.m. → Magnet current lowered to 2000 A

5⁰⁰ Vacuum of Synchrotron is good again, but now a septum magnet (between linac I or II and synchrotron) does not reach its value.

7³⁰ New message: "Störung Synchrotron. Wiederbeginn ca 10 Uhr"
Trouble with septum. PKR does not know more

In this shift the TV histograms were completely empty: **no** beams in the last 12 hours
In total we have had 3 hours of luminosity in the last 72 hours!

8⁰⁰ O'Neill, Ulrich

8:30 PETRA - maintenance will start now and last until 13:00 (it was originally planned to start at 12:00 today)
Main magnet and compensators set to low current

12:00 One tagging drift-chamber (-Z, Ø2) exchanged. One signal-cable for tagging Pb-glass changed:
D22 → cable 47 JW This did not cure the dead block (15:00 JW)

13:45 Magnet and compensators set to its nominal values after the PETRA magnets were switched on again

14:15 There are some interlock-problems in PETRA ...

14:30 No beams before 16:00

16⁰⁰ I could not leave without writing something in the book. L.O.N.-

16.00 Clarke / Helm

17³⁰ beam are back (17.0 GeV)

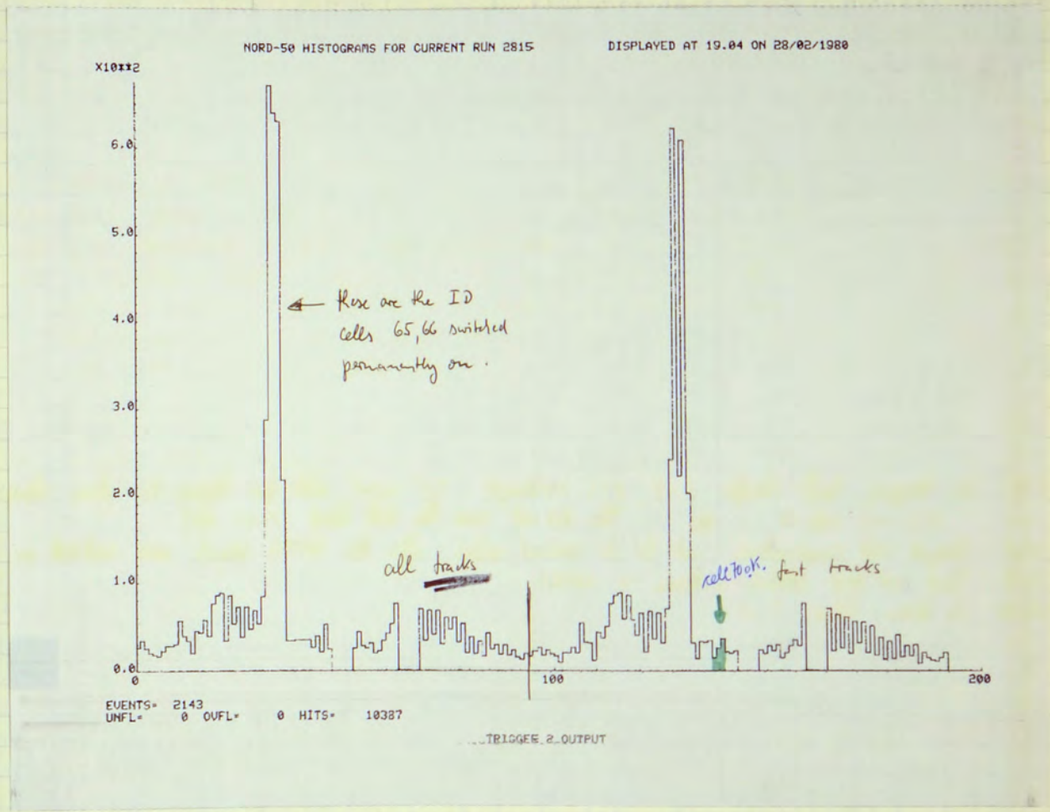
17⁴⁰ ID tripped. Unode data 31.2 address 104

18.30 Stopped run IBM busy — IBM Transfererror 53

18.36 IBM down - will be reloaded in ~5 mins.

Before run 2814 cells 65 and 66 for T2 trigger switched on.

18:50 One tagging HV-channel stopped working: #22 in mainframe 61 (this happened already some times during data taking in the last days, it occured always in mainframe 61, but I remember once in channel #23. I believe this is due to a faulty quad. Frau Manske could you please look into this if it happens again?) JW 5:10: #05 „ mfr. 61 showed same problems



Since T2 tracks are 50% in the region where cell 65,66 in R3 are set, we go back to the old status after run 2815, i.e. leave a hole in T2: mk 3117 5 ns → 2.0
double 15% to 8%
run 2815 2816

Orito has checked lead glass - verdict ok.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT POSTPONE $\times 10^3$	T2 REJECT $\times 10^3$	T2 ACCEPT	T2 COLLIN.	T2 ≥ 2 TOF & ≥ 1 GeV·LG
2813	28.2.	17.53	18.32	4.7	4.7			4422	547	116	467	—	1696	3004	—	—
2815	"	18.49	19.24	4.2	4.2		2406	5180	~~6387~~	84	463	12.1	120	3966	1313	2659
2816	"	19.26	20.44	3.9	3.9		4688	7779		139	1080	20.8	4102	4950	2065	3002
2817	29.2.	0.09	0.53	6.4	5.5		2499	7845	650	116	535	41.9	8342	5826	1266	4556
2818	"	0.55	1.30	5.8	5.0		2089	5300	543	66	477	27.1	10397	3678	1049	2661
2819	"	1.40	2.00	5.2	4.5		1311	2886	241	36	310	12.7	12701	1967	572	1407
2821	"	5.00	5.34	6.7	6.5		1653	6303	536	150	286	26.9	10198	4058	1201	2840
2822	"	5.42	6.30	5.8	5.7		2995	7505	780	98	682	41.8	8766	5161	1478	3774
2823		6.35	6.45	5.0	4.9		625	1881	46	4.2	41	1.9	1907	777	89	159
2824		7.12	8.00	4.6	4.5		2521	6942	6743	674	618	18.3	2547	3202	1238	2020
2825	"	9.53	10.24	6.1	5.2		1863	4729	5797	722	412.4	31.2	14376	3193	888	2356
2826	"	12.14	12.16	6.7	5.6		65	276	16.8	4.9	11.9	1.3	1255	186	67	144

EXPT. 11

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME	NORD EV.ACC	ALL TR. $\times 10^6$	TØ REJ. $\times 10^6$	TØ ACC $\times 10^6$	T1 ACCEPT POST $\times 10^6$	T2 REJ. $\times 10^3$	T2 ACC.	T2 COLL.	T2 2TOF. LG>1 GeV
2828	28.2.	19.34	20.16	6.1	5.2		2496	7835	~~649~~	152	497.5	59.3	8978	5742	1209	4510
2829	"	20.17	21.06	4.6	4.0		2640	7862	739	120	618.8	48.6	15077	5775	1351	4545
2830	"	21.09	21.59	4.6	4.0		2855	7933	743.3	94.5	648.8	34.1	534.8	5491	1314	4380
2831	"	23.26	23.44	6.2	4.2		717	2731	186.5	125.6	60.6	11.4	11418	2348	199	2196
2832	"	23.58	23.59	6.3	4.2		63	227	16.4	4.5	11.9	1.27	1277	183	44	144
2833	1.3.	0.36	1.15	6.2	6.2		2234	7851	581	313	268	57.3	6.9	6275	857	5459
2834	"	1.27	2.09	4.7	4.7		2130	4553	566	79	487	34.5	414	2849	1096	1820
2835	"	2.55	3.37	6.6	6.3		2502	7838	651	153	498	78.9	11.8	5395	1270	4110
2836	"	3.38	4.32	5.3	5.1		3222	7849	838	133	705	66.8	—	5130	1533	3639
2837	"	4.42	6.06	4.4	4.3		5008	9822	1303	128	1174	58.8	—	5873	2301	3709
2838	1.3.	7.06	7.46	5.0	6.1		2576	7831	670	155	514	63.7	—	5366	1305	4090
2839	"	8.02	8.18	4.0	5.0		905	2109	235	52	183	14.9	14864	1342	419	939
2840	"	9.31	10.17	5.7	5.9		2764	7834	719	146	572	71.2	4123	4872	1329	3581
2847	"	10.18	10.40	4.8	4.7		1224	1178	139	27	111	9.8	~~9802~~ ~~6614~~	684	220	468

RUN	LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	RUN ∫Ldt	EXP ∫Ldt	IBM / TAPE	BP	BHABHA	MULT. HADRON	NMK	ENERGY
346	—	.38	.85	3.37	IBM	10	—	—	1250	950	17.0
251	77	.34	0.72	4.09	"	1.0	14	1	1197	880	"
686	157	.30	1.43	5.52	"	0.9	17	1	1984	1984	"
419	184	.64	1.59	7.11	"	1.5	13	0	1855	1406	"
331	136	.55	1.16	8.27	"	1.2	21	1	1327	1120	"
173	77	.48	0.64	8.91	"	1.0	9	0	654	665	"
235	130	.63	1.05	9.96	FII 123	1.3	16	0	1085	874	"
458	242	.67	2.02	11.98	FII 122	1.1	24	1			"
31	12	.55	.1	12.08	FII 121	"	1	0			"
314	146	.47	1.21	13.29	IBM	0.77	10	0	1072	1122	
248	141	0.64	1.19	14.48	IBM	1.1	16	0	1095	1126	"
5	6	~~0.67~~	0.04	14.52	"	1.5	0	0	67	51	"
								163	4		
317	92	0.38	0.96	0.96	IBM	1.2	7	1			~~17.5~~ 17.0
320	83	0.30	0.84	1.80	IBM	1.2	11	0			17.5
362	64	0.25	0.70	2.50	IBM	1.2	6	0			17.5
63	12	0.20	0.14	2.64	IBM	1.4	3	0			17.5
6	1	0.29	0.02	2.66	IBM	1.0	0	0			17.5
210	64	0.31	0.69	3.35	IBM	1.8	9	1	1516	1299	17.5
275	83	0.35	0.77	4.12	"	1.0	5	0	1309	1106	"
369	129	0.47	1.17	5.29	IBM	1.5	11	0	—	—	"
485	90	0.29	0.92	6.21	"	1.3	16	0	1921	2136	"
659	~~sch. 96~~	(0.05?)	0.16	~~6.37~~ 6.37	"	1.1	19	0	1628	3284	"
361	> 45	0.21	0.55	~~8.76~~ 8.92	IBM	—	12	0	1512	2055	"
128	31	.33	0,30	7,22	"	—	3	0	358	605	"
398	114	0,40	1,10	8,32	"	1.3	10	0	—	—	"
72	17	0,28	0.15	8.47	"	1.0	1	0	212	400	"

RUN	Comment
2813	Ended with IBM down.
2815	T2 coll 65,66 set, only this run!
2816	
2817	
2818	ended by IBM down
2819	ended because beams lost
2821	ended by end of TAPE
2822	
2823	
2824	interrupted by magnet trip
2825	Beams lost, Radiation harming MP
2826	
2828	
2829	
2830	Beam lost
2831	~~Dump beam~~
2832	Beam dumped
2833	new filling
2834	beams lost
2835	
2836	
2837	T3 trigger: disconnected p-ch. in group 5 set HIGH
2838	Tag-2 HV switched during run, IBM disk full
2839	Beam lost, Sender defect
2840	new filling
2847	ID trips

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1GeV·LG

19.20 Tagging chambers switched on at 1500V on Signal wire
19. Tagging chambers switched off to see effect on computer dead time DeDani
20.15 Large INST dead times definitely associated with tagging chambers - get frequent
> 30%
NORD 50 busy's which are always followed by re-create missing message - why?
- these disappear when tagging chambers are off or with tagging EHT down to < 1350 V.
20.50 Test for deadtime origin : T1 forced reject → loose 0 bunch crossing (when 2+2 bunches)
T2 " " " 1 " "
T3 " " " 2 " " 5

29.2.80 0⁰⁰ Nosaki; Cords
we start with luminosity
01⁰ ID tripped
VOLTS complains about channels 97 to 115; however tagging voltage seems to be o.k.
⇒ somebody should investigate, why the HV read errors occur!
1³⁰ IBM busy IPL for IBM
run stopped (2818)
2⁰⁰ beams lost; transmitter failure
ID alarm Ancram data 37.5 address 020
3⁴⁵ new filling
5⁵⁰ IBM problems: channel failure
4⁰⁰ beams lost; transmitter failure again. ID alarm Ancram. data=20.4 add=040
4⁴⁰ new filling is ready
I_e^{max} = 6.5 mA I_e^{av} = 6.7 mA life = 6 h 2 bunches 10 sec.
5⁰⁰ output to Magnetic tape F11 123 Run 2821
IBM for Experiments down, Operators lost.
FS8-computer is down as well
5¹⁰ beams are very dirty; very long events; very high dead-time ~ 40-50% (442)
"muon create missing" comes on more and then
LG1 was a little too low at beginning of filling: see histograms of run 2821
6⁰⁰ in addition to the dead cells: wire 1120-1135 show no response
Clicks in probably coil 71
6⁴⁵ Magnet tripped: Störung "Durchfluß sekundär"
ID tripped as well
everything reset: seems to be stable
V34: 12.3 may be broken
+12 lamp is off
Recovery required

LG≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	Stat RUN	Stat Exp	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMK	ENERGY

7¹⁰ IBM link works again
we can continue
7⁴⁰ Magnet tripped again: called 389 again Durchfluß sekundär
they should click
8⁵⁰ stop run
09⁰⁰ O'Neill, Ball or Gorski:ff
Magnet trouble due to flow meters.

We found flow meters # 4 and 5 on the magnet open.
To spot the trouble we bypassed flow meters #1-4 by throwing the corresponding switch on the rackrank.
I do not know how safe the operation of the magnet is now. R. Marshall or R. Hedgecock should investigate that question.
We found flow meters # 1, 2, 3 already by passed!!
Switching on # 1, 2, 3 caused a magnet trip.
Leave the magnet off, call Hedgecock. See note over the next page. W. Bartel CH.

09 34 Have Luminosity again but magnet tripped off.
09 42 Hedgecock has coaxed the magnet back up to 7000 A. Start Run.

10.00 Investigated HV-problems: Ute Marshall
0) It is very hard to switch on the tagging chamber. Just 5!
1) Tagging channels 61/0 and 5 have failed. I reset them. Probably they'll fail again. During next fill we might swap the quads.
appear as 139 & 144
2) The many error messages come from a crate that is switched off on purpose. I changed the relevant data file (copy of the old one is (PUB) GARETH 3:5). Now it should be ok.

10:15 Muon chambers # 115 - 150 have been out of action since the beginning of Run 2822
Fixed before the start of Run 2825.
These chambers are 1/2 of the rackrank side-wall. Fault was disconnected earth in H.T. distribution.
PLEASE LOOK CAREFULLY FOR HOLES IN MUON CHAMBER HITMAP. IF IN DOUBT, CALL EXPERT.
THIS REQUIRES A MAX. Y CUT TO BE APPLIED TO SUPRESS NOISY CHANNELS IN HITMAP, OR LOOK AT MEAN HITS/CHAMBER.
COMPARE WITH EXAMPLES IN MU OPERATION NOTES FOLDER. W. Ball

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF & ≥1GeV·LG

10 19 Magnet trip off (schon wieder). "Durchfluss". We can't clear the fault because the input water temperature is > 35°C. Phoning around for experts.

10 26 Hedgecock charges in as the ~~extra~~ cavalry in an old western. Good guys to the rescue!

11.00 MARK 3 went in and out in 10 min. Thanks to our friendly agreement.

12.10 I.D. TRIPPED. (WHY DOES EVERYONE KEEP LOOKING AT ME. CRH).
Run 2826 pursued + later stopped.

12.11. Investigated magnet trip fault. Flow indicated. Checked connections on flow switches 4 & 5. All o.k. As an inspired guess, checked box on top of RUCKSACK and discovered an old fashioned "dry-joint" in the main flow interlock circuit. Re-made and should now be OK. 4 & 5 both active in circuit. CRH.

12:15 Heimzelmann here + investigating

14.06 Beams lost. The 297 events of run 2826 are all we have of this filling

2 14.50 New filling 17.5 GeV/beam. Can't switch on 4v Σ bp. Later goes up to 1v. PKR has forgotten our collimators..! Switch Σbp off again. This may be too much even for scintillation counters only.
We get 1.1v with standby voltage only!!

15.02 Beams lost.

16:00 King, Matsumura on shift.

17 30. Beam at 17.5 GeV for ~3 mins. Then lost!
18.20. Message "1 MAGNET FLUCTUATION" appears.

NB IF A "MUON CRATE MISSING" appears on the TV, this really means something is wrong!! Check Camac interfaces to see which crate is wrong AND RESET IT (via the Reset button on the crate)! Please also check MUON HIT MAP occasionally.

LG≥4 GeV	LUMI	<L> 10^{30} cm^{-2}sec^{-1}	$\int$Ldt RUN	$\int$Ldt Exp	IBM/TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

Herr Felst suggests that if we run at 17.5 GeV, we should increase the Expt. No. to Expt. 11.
No beam at the moment though.

19.34. WE START RUN 2828. AT. 17.5 GEV.
SO ~~FROM~~ CHANGED THIS RUN. WE HAVE THE EXPERIMENT No. TO 11.

20.16. Run 2828 ended.
20.17. Run 2829 started. All looks good.

20.35. Check LG. thresholds. Adjust. (with Orito).

20.40. One of the tagging power supplies (for side of expt.) giving a voltage setting of 9999. Reset this as shown earlier by Wriedt.

23.30. Start Run 2831. but DEADTIME is 65%. TASSO say their background is very high. (our BP is 1.5).
Mark J. say they are happy and have a dead time of 6%!!
PKR say they will investigate.
Tasso want to dump beam. Celto say they'll ring — they want to dump the beam, as do Tasso.
We request PKR to dump the beam. END RUN 2831
Dead-time down to 32%:
PKR say they will try to improve the beam, rather than dump it.

BP. counters at 1.0., dead-time 30%. Try running (2832)
23.33. PKR phone: they prefer to dump the beam. We agree.

0 00 Drumm, Helm 1.2.80.
1 02 ID tripped. Large dead time during use of event display.
In the trigger ≥2TOF·LG>1GeV -> 1 track (1B) 50% of the events have only 1 track.
1 49 ID tripped.
1 51 ID "
→ 2 00 Tagging pow. supply 32: mainframe 61, channel 22 was off for some time. We switched it on again.
3 00 T2 trigger, cell 70 R3, V34 time output cable to trigger was disconnected, seems that someone stepped on it! It was O.K. at run 2815, faulty from 2822 - 2835. Probably it occured when V34 12.3 (cell 71) was repaired.
3 32 On run sheet rate T1 acc.t postpone should be ~ T2 reject. O.K. till run 2815. Faulty 2816 - 2835.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS. ACC.	ALL TRIGGER x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10³	T2 REJECT x10³	T2 ACCEPT	T2 COLLIN.	T2 ≥2 TOF ≥1GeV·LG

LG≥4 GeV	LUMI	<L> 10^{30} cm⁻²sec⁻¹	∫Ldt RUN	∫Ldt Exp	IBM / TAPE	BP	BHABHA	MULTI HADRON	NMR	ENERGY

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3³⁰ According to human status folder we have 24 μ-ch. disconnected on 26.2.80. If we set all these in the T3 trigger, we would preset group 5 (outer layer) in 11 of 20 streets in the barrel part. The actual trigger level S4 requires G5 and 3 out of the 4 inner groups. I try to use level S3 = G4 and 2/3 inner groups, where only 5 streets G4 has to be preset. (A chamber ⇔ street-group T3 list is in the human folder.

MUON TRIGGER LOGIC AS SIMULATED FROM CHAMBER DATA — barrel | EC

■ at least 1 ch. missing in 'OR'
○ preset ■ not existing groups

STREET	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
GRP 1	0	0	0	0	0	●	0	0	0	0	0	■	0	0	0	●	0	0	0	0	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
GRP 2	0	0	■	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	■	■
GRP 3	0	0	■	1	■	■	■	0	0	0	0	0	0	0	■	■	■	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRP 4	0	0	■	■	■	■	■	1	1	0	0	0	0	0	■	■	■	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GRP 5	●	0	■	■	1	●	●	■	1	●	●	0	0	0	1	●	●	0	0	●	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Test with T1, T2 forced postpone gives for

10^6 T∅ accept: 1454 12000 as before, 15700 when G5 for dead chambers set

4³⁰ Run 2837 1453 31000

Decision: T3 accept is ≥ 1 Muon S4, Group 5 is set in Streets 1,3,4,6,7,10,11,13,16,17,20.
For chambers missing in G1-G4, the condition 3 out of 4 already accounts for some redundance.

5⁴⁰ Run 2837 ~ 8000 events but L = 0.13, on run sheet lumi events = 0.
Histograms show differences in TAGging System patterns highest bins and Tagging Lt Hit Map, where lower half is missing.
Scalers show 92 lumi beats.

7⁰⁰ Phoned Wrüdt. -2 HV was down. Short circuit in the power distributor (? Steckleiste) killed 4 power supplies.
Why did the new alarm box give no signal? The problem is known and we already planned to look into it next week.

Peace & Sieda on shift

8¹⁵ Beam lost. ID alarm. stop RUN # 2839

8³⁰ Sender breaks down, (PKR says) it takes ~20 mints to fix up.

9¹⁴ Injection start

09:26 HV on (all parts) I.D. current is slightly high. BP current (1,3 T)

9:31 Run 2840 start

10:24 ID trips (Run 2841), after reset alarm by standard way, ID trips two times immediately after HV on. Adress was 100. (current 42, 44) in last two cases.
We call Mr. Drumm and ask to check ID. This might be due to spike currents of dead chamber cell. (?) STOP RUN # 2841.

11.40 Beam lost.
Drumm and Heinzelmann still working on inner detector fault.
This calls for a new book!

JADE EVENT DISPLAY

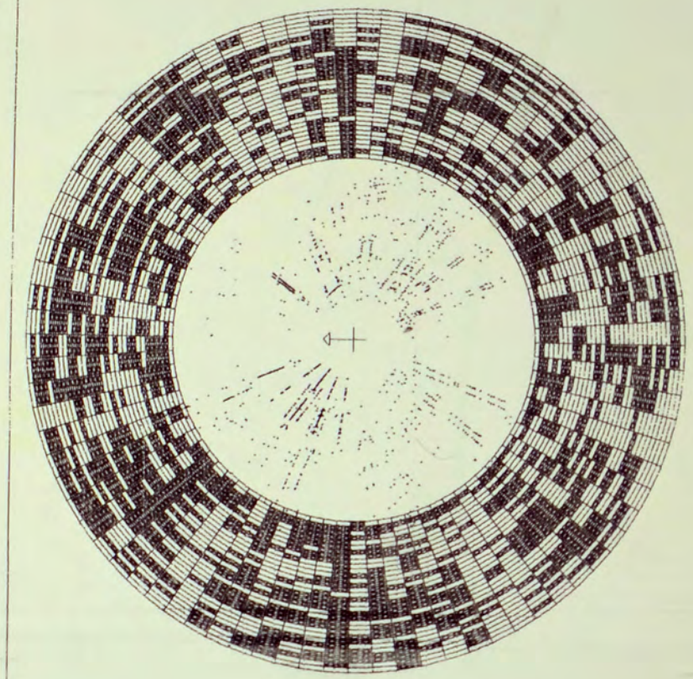
07:39:04 01/03/1980

EXPT 11 RUN 2838

EVENT 6317 LENGTH 5767
TRIGGER WORD 001000B

MAGNETIC FIELD -4531 G
BEAM ENERGY 17.500 GeV
CURRENT e+ 5.00 mA
e- 6.10 mA

IDHITS= 592
ELGTOT= 2418
MUHITS= 17
LGCYL= -3726
LGCAPS= 244 5900



multi quarks

'Hellmoisen'