JADE LOG BOOK III Runs 2842 — 3459

Ein Brunnen-Erzeugnis

JADE LOG BOOK III

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

T1 LUMI	<L> $\times 10^{30}$	SLott RUN	SLott EXP	IBM/ TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan PGb ar

p51

1145 1/3/80

MARCH 1ST 1980

Suda/Pearce continue their shift on this 1ST day of March in the year one thousand nine hundred and eighty in anticipation of the return of both beam and detector

12^{00} still anticipating

12^{15} stable beams available on Petra again. Jet chamber still not functional.

14:30 Suda replaced by Komamiya

15^{45} still no jet chambers.

" Beams dumped for new filling.

16^{00} Matsumura, Cords

new filling, ID problems still exist

Tasso requests better background conditions, the others agree; Mr. Uhf watches PKR operators, his comment: "fast automatic control does not lead back to the old operating point of PETRA, but only slow manual adjustment; he asked PKR, vertikale und horizontale Bunten zu fahren.

DL8 Wire # 203X8 Ser. Nr. 288 defekt durch Ser. Nr. 315 ersetzt o.k.

ID-problems. ID cannot be switched on because of immediate anode current alarm in Cell 17.1 (dead cell) Most probably a broken wire of cell 17.4 touches the cable for measuring the anode current of cell 17.1. Action: Put cable for anode current of dead cell 17.1 to ground $\rightsquigarrow$ o.k.

17^{20} ID can be switched on again

18^{05} ~~test~~ PKR tries orbit corrections with rest of filling, to reduce background (Mr. Fest in PKR)

19^{40} new filling available

20^{00} N50: now analysis only 20% for histograms (D.C.)

21^{00} all μ chambers in one section of the roof seem to fire very often $\rightsquigarrow$ 2044 event (run 2844 and 2847) it is on the -x side; I could not find out whether it is on the + or - z side; $\Rightarrow$ an expert should look into this problem; I put one example into the MU-folder (D.C.)

21^{20} ID has one wire in a dead cell permanently set; experts say it is noise on the dead wire

22^{20} new filling requested.

24^{00} PKR optimizes at 7GeV: "Sendestyleich"

02/3 1980

00:00 E/scan 2 Watanabe on shift.

1:30 Beams stable, All HV switched on

1:31 Run 2847 started

1:55 I.D. tripped. Run stopped (Anode current)

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 ACC+POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACCEPT	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV
2																		
EXP.11	1.2.80						495									115	296	31
2842	"	17:24	17:48	4.2	3.2		597	573	66	72	57	2.5	394					
2843		17:49	18:09	4.0	3.1		969 2043	1995	229	23	226	7.5	1281	289	563	448	872	132
2844	"	19:45	20:48	6.0	5.5		1622 2002	7816	902	153	789	62.1 37.7	4589	1203	2590	1666	2944	419
2845	"	20:50	22:11	4.3	4.1		4840 2001	7780	877	133	1126	133.2	4257	981	2776	2114	2229	575
2846	"	22:12	22:24	3.4	3.2		1270	1831	331	33	298	6.0	912	238	723	493	450	138
2847	2.3.80	1:31	2:00	6.2	5.2		1617	4096	420	67	353	35.1	2535			823 1710		201
2848	"	3:15	3:56	4.2	3.6		2354	3805	612	54	558	17.9	2000	518	1391	1051	1020	293
2849	"	4:28	5:19	6.3	6.2		3000	7163	781	143	637	70.2	4046	1256	2467	1417	2648	389
2850	"	05:24	06:35	4.8	4.8		4243	7850	1104	111	993	51.5	4330	1228	2782	1928	2451	554
2851	"	6:36	7:07	3.8	3.8		1827	2401	475	45	430	13.9 1557	1554	380	1082	829	748	191
2852	"	07:45	08:27	4.6	4.6		2484	7803	646	159	487	63.9	5230	—	—	1181	4079	344
2853	"	08:27	08:55	4.6	4.6		1046	2613	272	37.6	234	18.1	1582	816	417	493	1144	140
2854	"	10:02	10:58	5.9	5.8		3162	7841	823	126	696	64.7	4807	1198	2436	1575	3256	393
2855	"			4.4	4.4													
2856	"	11.05	12.22	4.4	4.4		4597	7747	1196	163	1033	38.5	4397	1044	2593	2061	2416	591
2857	"	13.35		6.0	5.8		701	1983	182	33	148	18.0	1187	309	632	333	855	100
2858	"	13.51	14.49	5.4	5.3		3184	7818	828	156	672	77	4424	998 1011	2756	1550	2949	418
2859	"	14.52	16.14	4.1	4.1		4529	8828	1178	122	1056	36	4306	1011	2730	2046	2369	577
2860	"	17.02	17:48	6.3	6.3		2339	7263	609	110	498	53	3884	997	1886	2732	1145	346
2861	"	19.03	19.52	4.3	4.2		3221	8997	838	153	685	65	4698	1165	2484	1521	3179	408
2862	"	19.52	21:02	4.7	4.5		4160	8493	1082	110	972	41	4504	1138	2633	1958	2582	518
2863	"	21.13	21:51	3.8	3.6		2234	4701	580	39	542	13	1927	505	1204	968	975	273
2864	"	22:26	22:31	6.1	5.8		205	589	53	10	43	5	341	96	174	118	227	24
2865	"			no	output	for	this	run	NORD	crashed	after	5121	events					
2866	"	23:23	0:28	4.6	4.3		3863	7152	1005	92	912	36	4147	877	2526	1835	2372	484
2867	3.3.80	02:31	02:31		too	short	to	write	in	numbers				—	—			
2868	"	02:32	02:46	6.7	6.7		752	2299	195	42	152	21	1427	438	663	419	1021	103
2869		03:59	04:50	6.7	6.7		3083	7842	802	140	662	77	4503	1573 ~1309	2740 ~1600	1564	2844	358
2870	"	09:51	05:35	5.0	4.9		2632	5092	684	75	609	37	2806			1250	1552	277
2871	"	05:36	6:07	5.0	4.9		1857 482	3403	482	40	442	15	2098	430	1070	869	1205	204
2872	3.3.80	12 00	12 05	6.3	5.6		255	1534	92	23	69	7,6	1765	135	277	204	865	38
2873	"	12 21	12 27	6.3	5.6		379	1491	99	20	78	7.1	1746	135	277	214	945	45
2874	"	13 03	14:21	6.1	5.8		2427	7844	631	120	510	48	5562	884	1835	1292	4289	252

RUN	T1 LUMI	$\langle L \rangle \times 10^{30}$	$\int L dt$ RUN	$\int L dt$ Exp	IBM / TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS
				8.47			Σ 113	2	17.		Scan PAB on
6	0.14	0.07	8.54	IBM	0.9	2	0	17.5			
18	0.19	0.19	8.73	"	0.9	0	0	"			
209	0.54	1.94	10.67	"	0.8	25	0	"			
167	0.32	1.54	12.21	"	0.8	24	0	"			
71	.24	.31	12.52	"	0,8	2	0	"			
5	.61	.99	13.51	"	1.0	9	3	"			
81	.31	.73	14.24	"	0.9	11	0	"			
216	.64	1.91	15.15	"	1.4	20	2	"			
220	0.47	1.98	17.13	"	1.1	19	1	"			
67	0.34	.62	17,75	"	1.0	5	0	"			
127	0,49	1.22	18.97	"	1.2	14	0	"			ended by max events (2000) being read.
47	0.40	.42	19.39	"	1.2	3	0	"			Beam lost
193	.56	1.77	21.16	"	1,2~ 1.1	18	0	"			new filling
											Dummy event ended by ID alarm
179	.35	1.62	22.78	"	1.1	16	0	"			ended normally. Scan dump.
62	.78	0.54	23.32	"	1,3	6	0	"			new filling. 13:47 Stop this Run to install new N-proj.
199	.56	1.78	25.10	"	1,3~ 1.2	19	1	"			Run end normally
175	.35	1.60	26.70	"	1.3	13	0	"			ID tripped (15:53)
176	.68	1.59	28.29	"	1.3	13	0	"			beam lost
215	.59	1.88	30.17	"	1.4	26	0	"			
184	.41	1.69	31.88	"	1.1	17	0	"			
88	.35	0.78	32.66	"	0.8	4	0	"			
20	.80	0.16	32.82	"	1.4	3	0	"			Inner detector tripped.
154	0.42	1.64	34.46	"	0.5	24	0	"			Mark J have 57 nb^{-1}
					1.5						
63	0.75	0.56	35.00	"	1.5	9	0	"			
233	0.67	2.07	37.07	"	1.5	19	0	"			
156	0.51	1.33	38.40	"	1.3	10	1	"			
79	0.38	0.70	39.10	"	1.0	4	0	"			
28	0.75	0.26	39.36	"	1.0	3	0	"			
28	0.67	0.25	39.61	"	1.1	1	0	"			beams lost
183	0.64	1.68	41.29	"	1.2	18	0	"			ended normally
					Σ	481	10				

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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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

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2:01 Run 2848 started.

03:12 Run 2848 ended at 8000 events, but no run summary came out automatically. It was printed manually, but looks like the whole run is lost, because next run # did not increase. Most likely we did not answer yes to IBM link at the beginning of that run. Looking at the TV screen, "OUTPUT TO IBMLINK" appears in white letters for normal runs, but we did not know whether the message was there or not. But it is almost impossible to check the presence of it when the computer seems to be happily taking data. Here I strongly suggest to the software people to install:

Scandal!

① Default to IBM link "YES" (Already suggested in p174 logbook II) NO WAY - we do not want test runs on the IBM!

② Red warning "NOT WRITTEN TO ANYWHERE" ← mr. Cords said this kind of message will appear on screen.

This warning exists but is purple

Sorry we seem to have wasted 1.74 nb^{-1}. We are not at all careless during this time, watching the red light flickering of "TG" light on PADAC EXPU1 unit (I thought this indicates successful link to IBM), watching histograms and event displays etc. I think we are not below average in taking shift. If people argue this has not happened so often, I predict that it would happen more often. At least wasting good data gives the persons on shift really bad feeling. You should read the questions before you answer them. D.C.

Sometimes things are hectic.

03:50 Run 2848 stopped. Beam dumped on our request.

04:27 Run 2849 started.

We checked that "DATA NOT WRITTEN" in purple letters is always there instead of "OUTPUT TO IBM LINK" when we are not writing to anywhere. So looks like we are not careful enough to spot it during the missed run. Sorry.

05:16 I D trip. stop & end run.

05:22 Start Run 2850

06:35 stop 2850 and start 2851

06:36 "MUON CRATE MISSING" CRATE #11 Reset ok

7:00 beams dumped. Cello wants to return to old beam conditions, since Tasso also did not profit from beam steering (see other page). They are suffering from background (mainly inner detector).

08:00 Suda Nozaki in shift

~~08:20~~ Cello ask to improve beam optics because they have relatively large background. — they prefer the same optics as the last friday. We discussed with PKR. They will try to improve.

08:27 Muon crate missing" appears → reset crate #

08:50 Beam lost

10:55 end run 2850 successfully.

Please make a note of missing muon crates in the "missing response" Logbook

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLOT RUN	SLOT EXP	IBM/ TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS	Scan PGB or PSI

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10.58 start new run. 2855. → ID alarm occurs. run stop crate current 21.1. address 070.

11.05 Run 2856 start.

12.22 stop run 2856. ask beam dump, and new filling.

12.50 beam is dumped at this time because the people at PKR (could not yet) install other beam controll files.

During the filling time, Mr. Cords tried to modify his on line program. he is trying to make the program better to avoid the miss that the last night happend. (See previous page)

13:~~33~~ End of filling.

13:35 Start the Run # 2857

13:47 Stop the Run # 2857. Mr. Cords reloads a modified on line program.

For those people, who like to sleep on their shifts or don't like to read any text on any screen:
If you start with F1 and you don't answer the questions for IBM or Tape output with Y, you have to answer a 3rd question: "WITHOUT OUTPUT; YES OR <NO>?". If you keep hitting RETURN key you come back to the first question.
So remember: with F1 you have to answer at least 1 out of 2 or 3 questions with Y. (D.C.)

14:30 Mark J call us, they wish to access on Monday morning, 2 ~ 4 hours. they want to add the shield of one of the part of their detector. We said, We should discuss with our member, but will might say "no".
Mr. Koch (TASSO) who is a coordinator calls us and ask whether We agree Mark J request or not. We answerd the same as we told to Mark J as above.

14:58 Muon Crate missing → crate #11, press RESET → now ok.

15:10 Mr. Koch (TASSO) call us again, he adjust the opinion of other groupes. how to decide the Mark J's request. Mark J could change their access to nex week (one week later) but nevertheless they wants to enter to see their detector it takes 30 min. and Mr. Koch agrees just this.
We said, If it's really within 30 min. We could accept Mark J's request. So, Monday morning 09^{00} ~ 09^{30} Mark J will access to their interaction point. Mr. Koch will continue to make share this with PKR.

16^{02} W. Bartel & P. Murphy on shift

16^{14} stop run 2859 wait for new filling

We could not find any message that the HV-switch on/off - procedure has changed. Fortunately H. Howard

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

6

was here to give us a lesson on the new feature.

For future shifts:

New: HV is switched on/off from rack #21 except HV for I.D.

17^{07} filling ok, start run 2860
Synchrotron radiation background estimated from 3 typical cosmic events ~ 110 ± 20 random hits.

17^{55} beams lost for ~~unknown~~ reason RF-failure

18^{29} filling ok. start run 2861
In every event there are pick up signals in cell #17 which has no HV. Likewise disconnected V34's. Pick up's disappeared

: Histograms for ID-timing maps and ID-wire maps + 3 of tagging histograms were all empty for run # 2861 because the next run got started too early. They're lost.

21^{51} ask for new filling
22^{45} filling ok
22^{39} ID-trip
23 10 Nord stops. Cannot stop run.
Restart 11 10/50 no output for run 2865

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLOT RUN	SLOT EXP	IBM/ TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan PGB on p151

8 9

00^{00} 3.3.80. Watanabe and Hassard. As filling time is now very short we decide to refill in 15 minutes ie at 3.9 mA e^+ and 3.7 mA e^-. → This decision seem to be not correct. T.N.

02^{30} start run 2867. ID trip.

02^{32} start run 2868. Dead time is 28% but dropping.

02^{46} PKR apparently dump through Jacle. ID trip, no problem apparently.

03^{30} Still waiting for beam. They ~~are~~ keep losing it.
A little calc. # Bhabha's so far in EXP#11 (17.5 GeV) up to run 2868 = 416.
$\mathcal{L}$ = 35 nb
hadrons = 9.
Bhabha's 416/35 = 11.9 ± 0.6 compared to $15.5 \times \left(\frac{15}{17.5}\right)^2 = 11.4$ expected (Log II-119)
#Hadrons 9/35 = 0.26 ± 0.09 compared to $\frac{4 \times 87}{4 E_b^2} = 0.284$ for R=4. *0.09 for e-Hits.
So at least for Bhabha's, we are doing OK as long as the engine luminocity is ~~200~~ OK, and too early to tell about top's, of course. With top, you could expect ~ 0.377 *0.8

03^{59} Start run 2869 Deadtime continues to be high: 17% at 2.7 Hz. T3 trigger surely can't be blamed.

05^{18} γ VOLTS TAG POWER supply: − HV = 1452.0 KV instead of correct 1.457.0 kV. Decide not to call our Wreidt. Thank you. HW

05^{19} The 1st hadronic event for 14 hours. Maybe we should lower more tagging HV's.

05 35 The lead glass threshold now corresponds to 40 mV instead of 45 mV before.

06^{00} Stop run # 2871 and asked for new fill. Tasso have $L = 6.10^{29}$. We have 3.3×10^{29} !.

07^{00} Still no beam.

07^{35} Average fill time at 17.5 GeV up to now is 62 minutes. So Mark J's access should be deferred until beams are ready to go dumped.

08^{00} Felst & Nozaki on shift

08^{00} troubles with a klystron

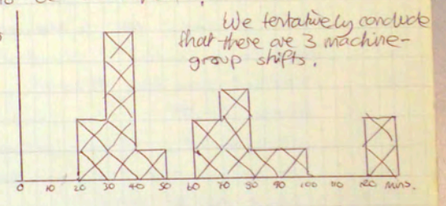
09^{00}–09^{30} access times by Mark J

08.58 Magnet Trip. Interlock Rücklauf < 31°C will cannot ~~can~~ raise the mag net current because of the alarm on.
Reason for trip unclear:
Voltage < Pumpe 2 ist an (should be on)
otherwise no other alarm is on, all inputs

09 40 Hedgecock came.

09. Magnet current can be raised now. We guess that it took 20 minute for temperature to become lower than the limit.

fill-time histo of 17.5 GeV



We tentatively conclude that there are 3 machine-group shifts.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV

Hedgecock suggests that we should operate the switches on the magnet controller exactly according to the manual. We should not use RAISE and LOWER switches when magnet trip occurs.

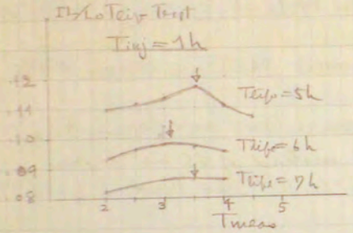
10.00 Mark J called us to tell that they have finished their access.
10.05 PKR injects new beam in ~10 minutes.

Some estimate of the optimum current at which we should dump the beam and start new filling.

Integral luminosity during the experimental period Texpt.

$IL = L_0 T_{life} T_{expt} [1 - e^{-T_{meas}/T_{life}}] / (T_{meas} + T_{inj})$

Luminosity $L = L_0 e^{-t/T_{life}}$ T_{meas} = measuring time, T_{life} = life time of beam, T_{inj} = time needed for new filling



$IL/L_0 T_{life} T_{expt}$ is max at $T_{meas} = T_{max}$

$I_{meas}(t = T_{max}) = I_0 e^{-T_{max}/T_{life}}$

3.0 mA	$I_0 = 6$ mA	We should dump 3.5 mA because
3.5 mA		$T_{life} \approx 6$ h
3.6 mA		

10.20 Pedestal subtraction for tagging lead-glass is done now by miproc. Digital threshold 50. RAE
10.45 PKR is waiting for a transmitter. They will start new filling in 10 minutes.
12.05 New filling is ready. Start run # 2872. LG high voltage error appears on the printer and stop the run.
12.20 restart new run # 2873. We have still the same errors. Call Tokyo group.
12.28 beam lost
12.40 Watanabe is checking the LG high voltage controller. He reconnected the connectors and all right now.
13.29 start run # 2874 too high event rate ~4 Hz.
13.34 Data adopted to the LG threshold. event rate ~2 Hz OK.
14.10 Tasso gets low background. PKR changes the beam orbit for 2 minutes.
14.21 Run # 2874 ended normally
14.22 Start Run # 2875

$\langle AL \rangle \approx 0.58 \cdot 10^{30}$

- cont. on page 12 -

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLOW RUN	SLOW EXP	IBM/ TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_{CM} (GeV)	FREQUENCY (kHz)	REMARKS. Scan PGB on p151

16.00 Hausstatter Abelt Meier
16:30 No electrons available before 17:00 (probably). PKR will inform us.
Therefore we will stay with this filling: $\langle L \rangle \approx 0.43 \cdot 10^{30}$ > at the moment, $I_+ = 33$ mA, $I_- = 3.1$ mA.
17:20 Beams dumped for new filling
17:55 New filling ready
18:15 "N50 Busy" we got such a message. and "No event for ...." message also came.
We loaded N50 program again.
20:20 Lumi Trigger reset to "Lo" Thresholds. — all data to End run 2881 (Run Feb'80) has had Lumi triggers from "Hi" Thresholds
20.33 We demanded a new filling for 21:00
21.19 End Run 2882 - Lumi Scintillator Ehts adjusted to Test Set (1)
22:15 New filling ready
22:50 One tagging HV wrong: mainframe #61, channel #2. Reset to its original value.
23:20 Run 2883 stopped because of error message: "IBM busy, waiting for "IBM link"
Starting the next run, the messages reappeared. For the IBM claimed to have no problems we first stopped and restarted the NORD didn't help. We phoned TASSO and learned that they suffer from the same problem. The people at the IBM are looking into it. BB is down ↘ We use a tape. ↖ one should first phone TASSO not restart the NORD if there is no obvious reason. D.C.
23.55 we switch back to IBM

4 March 1980
0.00 D. Clarke and H. Rieseberg on shift
Run 2887 in progress
0.50 Run terminated for refill
Beate Naroska measures the relative timing between LUMI and TDC of the TOF counters
1.40 New fill ready
1.45 Start Run 2888
3.08 Run 2889 started
HV WRONG Tagging powe supply 155 6V too high . no action
4.00 HV READ ERROR . Tagging power supply tripped . Reset
LG -tresholds readjusted . Threshold were too high
4.17 Run terminated for refill
4.52 New filling is ready, but very high background . BP > 10 V . (Tasso has fairly low background)
The whole crazy BP rate comes from cable # 15 . We pull the cable out, to be investigate later will
5.11 Start Run 2890 . LG -thresholds re-adjusted . After some time BP-cable # 15 has normal rate again!
5.31 Beams lost. PETRA Magnets switched off

continued on page 12

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2 TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV
2875	3.3.80	14^{22}	15^{38}	4.8	4.5		4514	7855	1175	109	1064	47.6	4173	1141	2929	2141	2072	440
2876	"	15^{39}	17:12	3.8	3.6		5544	7855	1443	89	1354	27.7	4032	1036	3030	2506	1629	464
2877	"	17:17	17:22	30	29		286	384	74	4	71	1.0	195	61	155	120	73	24
2878	"	17.56	18:15	6.6	6.3		1007	2617	2968	46	2115	26.	1449			534	937	432
2879	"	18:20	18:38	5.4	5.2		932	1860	242.6	~~4.37~~	199 ~~66~~	15.6	991	322	671	418	578	99
2880	"	18:46	18:50	4.8	4.7		503	967	130.9	17.5	113.5	6.98	487	151	376	242	265	45
2881	"	~~20:06~~ 19:54	20:16	4.6	4.5		4884	7853	1271.	101.6	1169.	41.47	4070	1100	2940	2216	1888	516
2882	"	20:20	21:04	3.4	3.4		2614	3632	680.3	32.96	647.4	11.96	1867	475	1388	1163	738	232
2883	"	22:20	23:21	6.5	5.7		3516	7054	931	114	817	618	3533	1218	2758	1737	1760	371
2886	"	23:43	0:01	4.2	3.8		1056	1660	274.9	19.96	255.0	9.44	823	240	664	509	308	96
2887	4.3.80	0.03	0.50	4.0	3.6	$-176\ mb^{-3}$	2841	3787	739.4	75.7	663.7	17.82	1847	lost	lost	1197	660	244
2888	4.3.80	1.50	3.05	5.7	6.5	-17.6	4428	7846	1152	121.7	1030	72.9	3804	1334	3204	2109	1629	405
2889	"	3.07	4.17	4.2	3.7		4118	6990	1072	73.2	998.7	29.9	2999	837	2393	1852	1162	511
2890	"	5.19	~~5.31~~ 5.31	5.2	5.2		662	2388	172	34.3	138.0	1433	1778	185	436	321	1512	82
2891	"	—	—	—			—											
2892	"	8.40	9.26	5.0	5.0		2724	6675	709	85.9	623	35.7	4412	745	1725	1310	3225	284
2893	"	9.27	10.49	4.0	4.0		4495	7852	1169.9	80.9	1079	25.0	4733	805	2332	2016	2959	467
2894	"	13.36	14.16	6.0	6.0		2394	7858	623	122.	500.7	43.9	5617	784	1675	1060	4754	269
2895	"	14.17	15.16	4.7	4.8		3470	7856	903	94.3	808.6	36.1	5062			1648	3651	399
2896	"	15.16	15.46	3.8	3.8		1798	3596	468	37	430	12.0	2335	331	942	815	1654	190
2897	"	15.48	15.52	3.5	3.4		225	397	58	4.1	54	1.3	244	44	111	108	170	27
2898	"	15.55	15.57	3.4	3.4		94	103	18	1.2	17	0.4	59	—	—	24	39	7
2899	4.3.80	18.00	18.05	6.1	6.1		279	1057	72.7	15.7	57.0	6.5	762	—	—	148	647	39
2900	"	19.19	19.49	5.3	5.2		1776	4724	462.2	65.9	396	28.4	3125	498	1165	849	2405	215
2901	"	20.30	20:45	3.7	3.7		860	1680	224	18.9	204	6.7	1101	167	453	387	755	90
2902	"	21.45	22:50	6.0	6.0		3257	7826	848	121	726	50.5	4990	821	2183	1482	3683	327
2903	"	22.52	00:01	4.1	4.0		4278	7863	1113	107	1005	39.7	4765		2353	1932	3066	440
2904	5.3.80	0.07	0.15					289										
2905	"	0.54	1.52	6.0	6.0		3422	7855	890	158	732	62.5	4731	915	2451	1431	3397	339
2906	"	3.02	4.08	~~6.5~~ 6.0	~~6.5~~ 6.0	$4.8 \cdot 10^{-3}$	3906	7856	1016	190	826	81.6	4226	—	—	1649	2632	385
2907	"	4.03	5.32	4.6	4.6		4352	7549	1289	142	1147	49.1	3880	943	2843	2044	1941	440
2908	"	6.40	7.51	6.3	6.5		4184	7828	1088	204	884	91.7	3783	1364	3316	1694	2143	403
2909	5.3.80	8.22	9.33	6.1	6.1		3983	9822	1036	181	856	74.7	6343	1504	2824	1743	4727	421
2910	"	9.40	10.13	3.9	3.3		~~3865~~ 2227	3863	579	49	530	18.9	2262	1316	519	945	1371	195

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt EXP	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS
300	0.57	2.59	43.88	IBM	1.0	28	1	17.5		ended normally
252	0.41	2.27	46.15	—"—	~~0.~~	29	0	—"—		—"—
10	0.28	0.08	46.23	—"—	0.8	4	0	—"—		PKR waits to dump for new filling
125	~~1.07~~	1.07	47.30	—"—	1.4	15	1	17.5		N50 Program was broken?
97	0.86	0.80	48.10	—"—	10.	9	0	17.5		~~During~~ During display, message "No events"
36	0.64	0.32	48.42	—"—	10.	4	0	17.5		~~"~~" came and we could not recover it.
316	0.57	2.76	51.18	—"—	09.	33	1	17.5		ended normally
143	0.43	1.13	52.31	—"—	09.	15	0	17.5		ended normally (new filling)
369	0.79	2.84	55.15	—"—	1.3	51	1	—"—		Run stopped after message "IBM busy" lasted for ~ 1 min
76	0.55	0.58	55.73	F22B62	1.1	4	0	—"—		Run stopped (linked to IBM)
167	0.45	1.28	57.01	IBM	—	15	0	17.5		new filling
421	0.72	3.20	60.21	IBM	1.2	28	2	17.5		
234	0.45	1.87	62.08	—"—		36	2	17.5		new filling
65	0.76	0.51	62.59	—"—	1.0	3	1	17.5		both beams lost. new Fillig
		—	—	—						IBM down
240	0.76	2.07	64.66	F11 Ø99	1.3	25	3	17.5		— "—
306	0.58	2.40	67.06	IBM	0.9	25	1	17.5		new fill
286	0.84	2.26	69.32	IBM	3.8⊕	20	1	17.5		
333	0.74	2.57	71.89	IBM	5.0	26	1	17.5		
126	0.54	0.96	72.85	IBM	3.7	12	0	17.5		
14	0.44	0.10	72.95	IBM	4.0	2	0	17.5		
6	0.51	0.05	73.00	IBM	4.0	1	0	17.5		beams lost
36	0.99	0.28	73.28	IBM	1.7	1	0	17.5		new fill.
210	0.91	1.61	74.89	IBM	1.7	12	Ø	17.5		new fill
36	0.37	0.32	75.21	IBM	1.5	3	Ø	17.5		
310	0.72	2.35	77.56	IBM	1.8	33	3	17.5		new fill
240	0.45	1.92	79.48	"		30	—	"		
	0.20	.07	79.55	"		2	—	"		
332	0.75	2.58	82.13	"	1.8	23	2	17.5		new fill, beam lost at end of run
381	0.75	2.54	85.07	"	2.0	28	0	17.5		new fill
302	0.45	2.25	87.32	"	1.6	31	0	17.5		beams ~~dumped~~ dumped
322	0.54	2.27	89.59	"	1.9	32	0	17.5		new fill; beam lost, end run
245	0.50	2.01	91.60	"	2.2	24	0	17.5		~~beam lost~~ ~~new fill~~
89	0.30	0.66	92.26	"	1.4	5	0	17.5		
						Σ 1084	30			

Scan PKB ar

p151

⊕ HV(BP) barely adjusted ~~new~~ wrong burst ~~run~~ 2967

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV
	80.3.3																	
	15.36	stop Run # 2875		start Run # 2876														

← part of page 8 — cont. on page 9 —

4.3.80 cont'd from page 9

6^{05} PKR says that there is a fault in a cooling water circuit. People are on the way to investigate.

7^{10} "Petra wird eingedalket", ~~but magnet current still zero~~

8^{00} (4.3.80) H. Krehbiel & A. Wagner

8^{15} new filling ready / problems with IBM link, computer down

8^{35} still no link, decide to write onto tape.

Discriminator Beampipe 15 was defective. Erratic & excessive Output Pulse Width. ~~Collar fa~~ !
This affected the BP Meter Reading. Cables of BP 15 changed to an empty channel.

10^{45} new filling requested

11.15 Found BP HV completely random. Most were too low. Set them to plink values.

The old Veto - Injection Switch is now obsolete. Injection is automatically enabled if all 8 subsystem HV's are down. ID is now — too shut down by the Central Control Box, but run up still as before at Rack 2. See instructions at the CCB.

14:30 Found in crate 14 missing for ~ 1st 500 events of run 2895. There was no 'missing response' message. We don't know why. Cured by resetting crate. Was O.K. for run 2894. A. Ball. / F. Loebinger.

15.45 For computer experts: try to make in STD-HISTOGR ↷
"Error 14 in 34557 at 56010 outside segment bound pg 163".
→ we stop run and start ZDAS again. *note: LG HV check program was running too
new run, try to make histograms ↷ same error as above
→ reload NORD

16^{00} 10 min after beam loss we call PKR to ask about new filling. They had not noticed yet, that they had lost their beams !!!

16^{00} McCann / Minowa

17.^{00} PKR say they have problems with a transmitter - will take ~ 1 hour to fix.

17.50 START RUN — BP current quite high — ~ 17 mA.

17.55 TASSO say they have enormous background — PKR want to try to correct the beam. STOP RUN.

T1 LUMI	<L> $\times 10^{30}$	SLOT RUN	SLOT EXP	IBM / TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan PAB on p151

19:05 new filling ready start Run 2900., DEADTIME at the beginning ~16%

19.15 Lowered Voltage on BP counters 16- and 11+ by 100 V.
Now most of the reading on the meter comes still from 11.
With 11 BP ~ 20
Without 11 BP ~ 6
On the Scope counter 11 does not look very much different from 12.

19.45 PKR want to adjust the beam again. stop Run 2900.

~~20^{17} Test Run 2901 No Link No Tape.~~

20^{30} start Run 2901. Currents are 3.7 mA | beam. Luminosity is ~ 0.34 $\cdot 10^{30}$

20 45 Therefor, we decide to stop the run and have a new filling. When phoning around to other experiments, Cello say they ~~want~~ have agreed with PKR to do some beam optimisation at their intersection. PKR say only ~ 10 minutes or so is required. We agree.

2055 Beam dumped

2145 new filling. BP ~ 18-20, in agreement with above observation.

2200 TASSO and CELLO request local beam optimization pause Run 2902 — PKR say 10 min.
(PKR say we could go on taking data because there is no risk of long fluctuations at our intersection — but we put everything down anyway - playing safe.)

2208 Continue Run 2902

5.3.1980, 0^{00} Steffen and Drumm on shift.

0^{15} beam dumped

0^{50} new filling ready. We restard the Nord in order to enable again the blinked use of the display.

≈ 1^{00} Tagging power supply: mainframe 61, units 5, 10, 23 were off. We switched them on.
since our shift: there are time outs in the MK-System (branch 3, crate 2) about all 10 minutes. For the moment [MK-crate 1]
we do not take any action.
We readjust the LG thresholds (from 40 mV → 45 mV)

1^{50} beam is lost. ~~Run~~ Run 2905 was just ended.

2^{55} new fill ready. We start run 2906

3^{00} Tagging system: while mainframe 61 has 1500 Volt: we restore it. Change power ~~supply~~ supply ???

3^{05} - 3^{20} Orbit correction for TASSO. ~~No~~ effect ~~for~~ for us.

Why is the number T2 reject not = equal to T1 accept + postpone?
Can T3 accept and T3 reject be easily included in the run summary page? ~~for~~ In the moment the numbers are often forgotten ~~to~~ and not copied to the Logbook.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$\geq$1 $\geq$1 TR.	T1 LG$>$4 GeV

5^{25} We ask for beams being dumped and a new filling.
6^{45} Tagging system: power supply mainframe 61 is changed now finally.
7^{00} It planned tried and Hughes because of the power supply fault. Hughes will come. (came 7^{30})
7^{50} beams are lost due to Sendereausfall (already 3 relativ high beam losses during fill, especially 20 min. after start)
6^{30} It called Murphy because of the MU-time-out. The proposed Rest of Crate 1 did not help. Still ~~short~~ a time out in about 5-10 min. The specialists will have a look during the morning. (In addition to time-out there are quite often shorter hang-ups in MU - note 1 [Kamp a.] (≈ 0,5 sec).

8^{00} M. Helm and H. Riesberg on shift.

8^{16} New filling ready

8^{22} Run 2903 started. High background BP = 2.2 V, deadtime 25-30%

8^{28} ID tripped.
LG-thresholds and histograms checked

9^{40} Run 2910 started. Mr. Murphy exchanges CAMAC unit of Muon crate 1 in position 1 of CAMAC crate 302
Time out error still present.

9.30 Tried replacing CAMAC units for muon crate 1. Still get time-outs.
Look at event on display. Hits in crate 1 region on cosmic tracks are OK. Crate 1 region is not noisy.

10^{15} New filling requested.

11^{00} PKR did some work on transmitters. Response on our question - why luminosity is down a factor 2 with same currents - is bad vertical orbit. They want to do an orbit correction with e^- beam at 17.5 GeV. We agree.

T3 rates for 10^6 TØ accept: 1 S4 34k, 1 S3 43k, 1 S2 174k
2 S4 7k, 2 S3 10k, 2 S2 68k.

12^{10} New filling ready
BP = 2.5 V, but only 0.8 if cable #11 out

12^{17} Run 2911 started. Deadtime 27%, Rate 3.5 Hz, $L = 1.1 \times 10^{30}$ → specific luminosity is normal again
There are orbit corrections for TASSO going on

12^{28} PKR tries to minimize our background rate which jumps rather violently, no success
~~Partial allogs~~ Also orbit corrections between NW and W do not help.

12^{32} N50 BUSY (Environment), Nord restarted. Regular event display was on

12^{41} Run 2912 started
Time out in 302 occures again frequently

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int$Ldt RUN	$\int$Ldt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan P66 ar p151

At 17.5 GeV including run 2911 we have ONLINE: $\int L dt = 92.92\ nb^{-1}$
Σ Bhabha 1092 $\left[= 11.7 \pm 0.4\ \frac{1}{nb^{-1}} \right.$
Σ MH 31 $\left. = 0.33 \pm 0.06\ \frac{1}{nb^{-1}} \right]$

$\sigma_{\mu\mu} = \frac{87\ nb}{s} = 0.071\ \frac{nb}{GeV^2}$. Assuming $(\varepsilon_{MH} = 0.8 (1+\delta)^{r.c.} = 1.2)$ that corrections cancel, we get $R = 4.6 \pm 0.8$.

13^{47} Camac clock adjusted -6 min from R. Eichler before run 2913.
14^{22} Taking luminosity events with $I^\pm = 2.2\ mA$ we get an average of ID hits from 40
MU " 28.

15^{00} New filling requested. Take out tag-chamber readout, RAE
15^{45} New filling ready BP = 2,2 (cable #11)
15.47 Start R 2914
15.50 ID tripped.
1555 Errors Muon crate time out in 302, several times
IBM JOB ERROR CHECK 3

5.3.1980
1600 Murphy / Minnow on shift.
17.02 ID tripped

~1845 Failure in Pb glass HV system. Replace one mains plug.
~~1916~~ new fill ready start run 2917
1950 Beam dumped
2020 IBM LINK error, check, call IBM. Run 2918 had only a very few events.
20^{35} IBM LINK is OK, start run 2919.
20^{46} Beam lost
2120 Start run 2920
With help of F.K. Loebinger we changed the serial output board in muon crate 1. We have had no muon errors messages for ~~1962 events~~ a whole run of 8000 events, which is a record on recent form.

6.3.1980 0^{00} R. Hedgecock & A. Wagner
1^{00} new filling requested
1^{27} NF ready
3^{40} IBM BUSY. — WAITING FOR INVESTIGATIONS TO BE CARRIED OUT.
4^{30} IBM people claim: not an IBM problem. I have tried to restart Miproc TMS 9900 since also TASSO and CELLO can't transfer data. (following D. Noh's procedure in JDAS folder). success or not? unclear, since 2 IBM's are down. We write tapes since 4^{00} am.

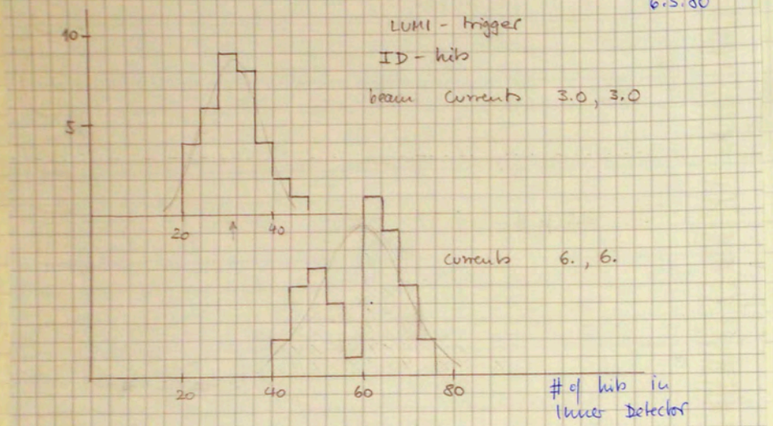
RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS ACC.	ALL TRIGGER $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACC+ POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV
2911	5.3.80	12.22		6.4	6.3		711	2549	185	50.0	135	22.6	1628	386	707	320	1333	97
2912	"	12.41	13.52	5.6	5.5		4250	9825	1106	205	901	99.4	5624	1520	3382	1742	3914	485
2913	"	13.47	14.53	4.2	4.2		4268	7849	1111	127	984	87.6	4378	1139	2738	1774	2701	447
2914	"	15.47	16.36	6.2	6.2		2739	7841	713	158	554	82.1	4221	1380	2852	1268	3453	364
2915	"	16.41		5.1	5.2		3958	7848	1030	168	861	59.7	4571	1128	2558	1670	2931	425
2916	"	17.55	18.20	3.7	3.8		1440	2445	374	54.8	320	15.1	1414	345	808	576	847	148
2917	"	19.16	19.50	5.3	5.4		1822	4101	474	158	316	37.3	2497	620	1239	752	1760	193
2918	"	20.20	20.21															
2919	"	20.36	20.46	6.3	6.3		503	1354	131	44.8	85.9	14.2	830	218	395	204	640	56
2920	"	21.20	22.16	6.1	6.1		3318	7853	863	134	730	84.5	4195	1185	2885	1474	2740	369
2921	"	22.17	23.28	4.5	4.6		4220	7855	1098	111	987	62.0	4252	1142	2850	1801	2499	424
2922	"	23.30	0.55	3.6	3.6		5023	7852	1037	90	1217	40.36	4082	6802	2935	1023	2059	548
2923	6.3.80	1.26	2.17	6.5	6.4		3002	7849	781	139	642	85.6	4363	2820	1180	1360 1773	2988 2647	357 403
2924	"	2.17	3.25	4.8	4.8		4044	7848	1052	114	937	66.8	4259			134	147	30
2925	"	3.31	3.36	3.8	3.8		298	515	77	6.38	71	3.5	258	—	—	1528	1260	300
2926	"	4.00	4.59	3.5	3.5		3475	5154	904	51	853	22.8	2706	1947	628			
2927	"	5.29	6.20	6.5	6.6		3323	7856	864	126	738	79.1	4286	2788	1185	1495	2808	366
2928	"	6.25	6.35	4.6	4.6		618	1167	161	15.5	145	8.8	632	411	151	286	361	66
2929	"	6.38	8.01	4.4	4.4		4685	7851	1271	88.6	1183	44.4	4115	—	—	2149	2067	486
2930	"	8.02	8.13	3.5	3.5		671	977	174	9.3	165	4.0	484	404	118	291	200	48
2933	"	8.50	8.52	6.6	6.6		125	369	32	8.1	24.3	4.0	218	81	120	81	138	14
2934	"	9.02	10.02	4.9	4.9		1520	8994	916	136	779	75	4343	7954	—	1583	2791	397
2935	"	10.02	11.12	4.2	4.1		4045	7013	1052	99.3	953	47	3734	1005	2618	1787	2015	378
2936	"	12.00		7.1	7.0									—	—			
2937	"								Run summary			Last very short		—	—			
2938	"	12.07	12.19				733	1893	191	54.1	136.7	23.7	977	—	—	272	703	122
2939	"	12.22	12.57	6.1	6.0		2069	3985	538	83.9	454.3	52.6	1628	—	—	902	693	254
2940	"	12.57	14.22	4.8	4.7		5041	7851	1312	145.2	1167	69.8	3478	—	—	2157	1276	568
2941	"	14.23	14.24	4.0	3.9		67	108	17.5	1.3	16.1	0.7	53	19	42	36	15	6
2942	"	14.56	15.54	4.6	4.8		3499	7848	910.7	145.9	764.8	96.5	3636	—	—	1717	1749	593
2943	"	15.54	17.15	4.1	4.2		4779	7857	1244	113	1131	67	3537			2085	1395	704
2944	"	17.16	17.24	3.6	3.8		338	520	87.9	6.7	81	3.1	228	118	229	153	71	49
2945	"	18.22	19.30	4.6	4.7		3741	7430	974	188	786	85	3388			1971	1327	596
2946	"	19.31	19.34	4.4	4.4		142	267	37	3.7	33.4	2.3	112			73	42	19
2947	"	19.41	20.01	4.3	4.3		1207	2070	314	28	286	16.6	964			571	380	154

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan PGB on p151
89	0.94	0.66	92.92	IBM	2.5(1.0)	8	1	17.500		
416	0.75	3.19	96.11	"		49	2	"		
277	0.51	2.20	98.31	"	1.6	31	0	"		
297	0.89	2.43	100.74	"	2.3	33	0	"		new filling
296	0.59	2.33	103.07	"		20	0	"		
75	0.42	0.61	103.68	"		12	0	"		new filling beam lost
165	0.70	1.28	104.96	"		17	0	"		IBM Link error new beam beam lost new beam
56	0.91	0.46	105.42	IBM	2.0	5	0	"		
381	0.87	2.90	108.32	"	2.0	29	0	"		
321	0.60	2.54	110.86	"		41	2	"		
281	0.43	2.18	113.04	"	1.8	31	0	"		NORMAL END ANY BEAMS DUMPED.
355	0.91	2.74	115.78	"	2.8	32	1	"		NEW FILLING.
350	0.69	2.78	118.56	"	2.3	25	0	"		
19	0.55	0.16	118.72	"	2.0	1	0	"		RUN TERMINATED. IBM NOT RESPONDING
193	0.44	1.54	120.26	F11 103 TAPE.	1.9	13	0	"		WRITING ON TAPE. BEAMS DUMPED.
406	0.96	3.18	123.44	F11 102 TAPE	2.7	36	0	"		NEW FILLING. WRITING ON TAPE
55	0.67	0.41	123.85	F11 092	2.1	6	0	"		is this tape OK? we stop run early
343	0.55	2.68	126.53	F11 100	2.1	34	0	"		
41	0.48	0.32	126.85	F11 100	2.1	3	0	"		
17	1.15	0.14	126.99	IBM	2.2	2	0	"		large fluctuations in B.P 2.0V $\Rightarrow$ 10V
358	0.79	2.38	129.77	"	2.2	30	0	"		
273	0.53	2.13	131.90	"	2.0	21	0	"		
		0.02		IBM	2.4			17.5		IBM link died
				F11093	2.4			"		LG trash4 increased to 1GeV
86	0.93	0.68	132.58	"	2.4	26	0	"		
225	0.83	1.71	134.29	"	2.3	47	0	"		
368	0.58	2.90	137.19	IBM	2.3	35	1	"		IBM back again
6	0.54	0.04	137.23	"	2.3	0	0	"		beams dumped
348	0.77	2.69	139.92	"	2.7	44	0	"		
304	0.50	2.40	142.32	"	2.3	23	1	"		
16	0.37	0.12	142.44	"	2.0	1	0	"		beams dumped.
324	0.67	2.49	144.83	"	2.0	28	0	"		one of IBM dead.
10	0.50	0.07	144.90	"	2.2	1	0	"		IBM dead. run stopped
79	0.53	0.64	145.54	F11094	2.0	10	0	"		Beam lost.
						Σ1792	Σ38			

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 Acc + Postp. $\times 10^6$	T2 ACC	T3 REJECT	T3 Acc	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1 TR.	T1 LG>4 GeV

18

6.3.80



Synchrotron radiation background as function of beam currents.

$I(e^+,e^-)$ = 3. mA : $\langle n \rangle$ = 31
6. mA $\langle n \rangle$ = 60

5.00 NF requested
6.25 We still write onto tape: IBM-machines are up, but still have problems:. All links still blocked. (I hope: not due to my interference with the μP).
6.35 We stop run 2928 on tape F11 ϕ92 after 1200 events, since 1. Tape makes funny noises, 2. tape seems to get write errors.
7.55 Hughes, Narodka
8.15 Request New Fill
Try IBM link. Doesn't work. Call Hochwelker groups.
Now it works. #2931, 2932 link tests.
8.50 New fill ready, switch on, BP 20
After ~5 min BP show strong spikes. Switch off ID.
9.02 Spikes disappear. Continue running.

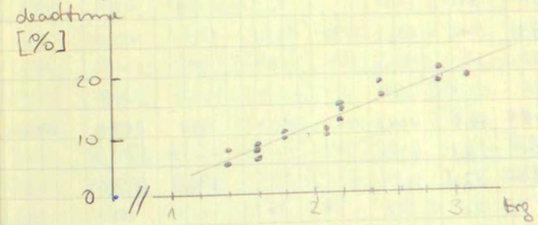
Thin could also be a lifetime effect. The lifetime at 6 mA is ~ 8.5 h, at 3 mA it is ~ 5.6 h.

W. Bartel

T1 LUMI	<L> $\times 10^{30}$	SLOW RUN	SLOW EXP	IBM/ TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_{CM} (GeV)	FREQUENCY (kHz)	REMARKS. Scan PbG on

19

11.00 T.D. Alarm testing by Rinsebert
11.15 Request New filling
11.39 PbGlass Threshold Channel 3 Reset to 0.8 GeV — to the same value as Ch 4
That's the one for TAGG T1 accept.
12.01 Fill ready 7.3 mA / beam
12.15 We are getting deadtimes of 30-40% (740 mV). 3.1 Hz. We increase LG threshold to 1 GeV
12.30 Deadtime 15% 2.0 Hz 57 mA
14.03 IBM ONLINE JOB CHECK 5 — "bad buffer start"
14.25 beams dumped
14.45 μ - tests
14.55 beams ready 6.3 e^- 6.2 e^+
15.00 PKR wants to correct orbit at TASSO ; 15.05 finished



16.00 McCann and Totenko on shift
17.16 Run 2943 ended. 2944 started. M crate missing (no. 7) Reset OK
17.20 Background is fluctuating rapidly between ~0 and 30.
17.25 Dump beams.
17.40 one - "Magnet Current Fluctuating" but everything is normal. - Acknowledged
18.09 Still injecting. μ test run (2945) no output. ∴ next 'real' run is 2945 anyh.
18.22 2945 started.
19.30 one of the IBM dead. big dead time. run stopped. shortly after IBM completely died.
20.06 Beam lost. at the same time "Magnet Fluctuating" has nothing happen
Now Filling
(Status is normal!)

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 Acc + Postp. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1 TR.	T1 LG>4 GeV
20																		
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 Acc+Postp $\times 10^6$	T2 Acc	T3 Reject	T3 Acc	T2 collin.	T2 ≥2TOF LG>1 ≥1 tr.	T1 LG>4
2948	6.3.80	20.34	21.32	4.7	4.8		3262	6748	849	125	723	84.9	3036			1647	1206	519
2949	"	21.33	22.53	4.5	4.6		4751	7862	1237	106	1131	61.1	3594			2283	1238	635
2950	"	22.53	22.56	3.6	3.6		126	193	33	2	31	1.1	93			65	25	14
2951	)	no events		test runs in trying to get IBM Link working														
2952	)																	
2953	7.3.80	12:45		5.9	5.8		4612	9224	1200	133	1066	85	3302	528	1494	2292	901	475
2954	"	3:09	4:11	4.2	4.2		7417	7323	983	903	804	34	4431	853	2226	1802	2784	375
2955	"	4:56	5:29	6.4	6.5		1982	7854	515	108 ~~108~~	407	50	5670	808	1647	953	4824	263
2956	"	5:32	6:00	5.2	5.3		1670	4728	434	58	376	29	3112	595	1243	817	2392	207
2957	"	6:00	6:58	4.6	4.5		3382	8814	880	90	790	39.6	5147	954	2068	1691	3631	387
2958	"	8:33	9.21	5.7	5.6		2903	7649	755	99.8	655.6	49.7	5151	889	2149	1496 ~~1495~~	3750	342
2959	"	9.26		4.1	4.0		1451	4578	508	44	463	17	2647	423	1186	926	1826	224
2960	"	15:35	16:29	6.8	6.8		3105	7837	808	128	679	68.9	4637	1138	2512	1514	3156	404
2961	"	16:30	17:40	4.8	4.8		4496	7810	1091	96	996	47.2	4344			2017	2401 ~~2017~~	432 ~~2401~~
2962	"	17:41	18:03	3.8	3.8		1284	2169	334	24	310	89.6	1235	250	768	610	638	130
2963	"	19.13	19:51	6.5	6.5		2310	7829	601	108	493	54.5	5363	874	1951	1227	4219	298
2964	"	19:53	20.52	4.3	4.4		2260	5249	588	66	522	33.6	3323	676	1567	1047	2258	247
2965	"	20.58	21.46	5.6	5.6		2796	7779	728	118	610	66.7	4628			1447	3207	355
2966	"	21.48	23.00	4.0	4.1		4280	7850	1114	95	1018	50.5	4043	1084	2827	1994	2071	504
2967	"	23:00	0.14	3.3	3.3		4742	7850	1235	77	1157	26.1	4388	906	2608	2213	2309	516
2968	8.3.80	03:25	4.09	4.6	4.6		2613	5420	680	66.3	614	32.7	3069	631	1758	1328	1797	313
2969	"	04:13	4.12	4.0	4.0		255	457	66	5.2	61	2.6	299	54	169	103	196	30
2970	"	04:15	4.14	3.9	3.9		312	582	81	6.4	75	3.1	311	65	204	159	158	32
2971	"	04:24	05:40	3.9	3.9		4717	7861	1227	758	1151	32.2	4291	824	2731	2233	2166	447
2972	"	05:43	06:25	3.2	3.2		2362	3644	614	30.2	584	9.7	2006	401	1872	1089	880	242
2973	"	06:55	07:38	6.4	6.4		2479	7854	645	109.1	536	57.2	5013	900	2116	1934	3831	334
2974	"	07:39	07:48	4.9	4.9		462	1161	120	14.2	106	7.5	662	113	361	241	464	52
2975	"	08:50	09:33	6.3	6.2		2559	7853	676	114	562	62.3	4867	938	2755	1266	3698	340
2976	"	09:44	10:52	4.7	4.7		3954	7859	1040	94	945	47.0	4376	963	2532	1854	2590	453
2977	"	10:53	11:37	3.8	3.8		3477	6542	983	62	921	24.3	3646	718	2209	1708	2033	383
2978	"	12:55	13.16	6.3	6.2		1183	3538	308	56	251.5	33.1	2067	523	1081	630	1439	162
2979	"	13.17	14.29	4.3	4.3		4315	7856	1123	114	1009	68.7	3659	1359	3166	2001	1627	463
2980	"	14:30	15:58	4.1	4.1		5138	3850	1337	80	1254	36.8	3870	1256	3014	2434	1476	527
2981	"	16:35	bis	6.4	6.5		2383	7857	620	110	509	50	5478	873	1780	1169	4374	344
2982	"	17:10	17:41	4.8	4.9		1623	4339	421	49	372	21	2834	465	1062	821	2080	246

RUN	T1 LUMI	$\langle L \rangle \times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS
	T1 Lumi	$\langle L \rangle \times 10^{30}$	$\int L dt$ Run	$\int L dt$ Exp	IBM/TAPE	BP #	BHABHA Σ 1772	Mult Hadron Σ 38	Energy E_B		
	299	0.74	2.40	147.94	Tape F11094	2.7	31	2	17.5		New filling
	306	0.52	2.47	150.41	IBM	2.2	36	0	"		
	7	0.35	0.04	150.45	"	2.0	0	0	"		DISK overflow, run stopped
	373	0.62	2.88	153.33	IBM	2.5	36	2	17.500		New filling dead time ~14%
	219	0.46	1.72	155.05	"	2.0	22	0	"		
	198	0.89	1.62	156.67	"	2.0	20	1	"		New filling stopped early tagg scaler test
	133	0.66	1.10	157.77	"	1.9	16	0	"		
	210	0.50	1.68	159.45	"	1.9	22	1	"		
	201	0.57	1.65	161.10	"	2.0	15	0	"		
	43	0.40	0.77	161.87	-		13	0	-		
	270	0.70	2.17	164.04	"	2.0	33	0	17.500		
	256	0.49	2.07	166.11	"	2.0	19	2	"		DL8 broken in fact only loose contact
	53	0.36	0.46	166.57	"	2.0	6	0	"		-"-
	224	0.82	1.89	168.46	IBM	2.3	18	0	"		New filling
	187	0.64	1.45	169.91	"	2.0	21	0	"		Senderausfall.
	296	0.84	2.34	172.25	"	2.3	24	1	"		New filling
	455	0.84	3.62	175.87	"	2.2	37	2	"		
	325	0.56	2.67	178.54	"		43	0	"		normal end and beams dumped
	293	0.90	2.34	180.88	"	2.0	23	2	17.500		new fill
	99	0.88	0.92	181.10	"	"	4	0	"		) TAG HV ERROR
	32	.89	.25	181.35	"	"	3	0	"		
	376	0.63	2.99	184.34	"	"	43	1	"		
	120	0.43	1.03	185.37	"	"	12	1	"		normal end and beams dumped
	377	1.21	3.00	188.37	"	2.3	~~39~~	2	"		N.F.
	59	0.88	0.45	188.82	"	~2	2	1	"		beams lost.
	425	1.27	3.29	192.11	"	2.3	40	1	"		run ended normally
	428	0.84	3.37	195.48	"	2.1	34	3	"		-"-
	250	0.63	2.37	197.85	"	1.9	22	2	"		run stopped for new filling
	215	1.39	1.65	199.50	"	2.3	16	0	"		run stopped after repairing V34
	549	0.96	4.15	203.65	"	2.2	49	3	"		
	426	0.65	3.34	206.99	"	2.0	33	0	"		run ended normally
	242	0.84	2.0	208.99	"	2.2	13	1	"		
	188	0.82	1.5	210.5	"	2.0	15 Σ	3 Σ 69	"		

Continued page 30

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 Acc + Postp. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1TR.	T1 LG>4 GeV

6.3.80 20.30 Run 2948 started.
One of LRS P.S. in Tagging counter gave HV error. "Restore" action was done. Now OK.
Runs 2947, 2948 written on Tape F11094.
" 20.48 JDAS ERROR 44 SUB 401
" 21.40 IBM link work again. Data sent to IBM from Run 2949
22:50 warning "IBM DISC 96% Full" appeared. asked IBM to start "JADEDUMP".
23:15 new filling
23:40 Senderausfall.
24.00 Orbo-Hydr.
01 30 Petra Refilled.
All 3 JADUMP jobs present in machine now executed. "IBM Attention" clears the "DISK Full" Error.
Test Runs # 2951 a 2952, # 2952 successfully to disk at IBM
High backgrounds, BP > 2.0 V. PCR investigate.

3 25 readjusted LG thresholds.

7 00 End Run # 2957 Pb Glass Threshold 3 Reset to normal 1.8GeV (see page 19) at end of tagg. Lg trigger test
7 00 Request New filling
7 20 The DVM for the LG threshold measurement does not work properly when operated with 220 V AC. Use in the battery mode.

8 00 **Bahl - King**
8 30 filling ready Run 2958 started.
8.40. Message "08.42.16 ERROR 38 in 32 251 MEMORY PARITY PEA IS 17777. PES = 77107."
Everything looks normal! Run continuing.
hosted at Rome event, and a few events on the display: seem fine.

10 00 stop run 2959
ready for collimator service. ID off
Purpose: Find out the minimum collimator opening at all

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLOT RUN	SLOT Exp	IBM/ TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan PGB or PSI

interests at which Petra is still able to run and the experiments do not suffer from excessive background

Table 1

		Jade		Cello		Tasso		Rank Y		JADE
		Col.	BP	W	BP	Col	BP	Col	BP	
out left:		28	1.6	28	1.4	28	13	28	12	
		26	1.6	26	1.4	26	13	26	12	
		* 24	1.6	24	1.4	24	13	22	12	
		22(+)	1.8	~~22~~ 20(+)	~~1.4~~ 1.4	22	13	20	12,5	
						20		18	12	
								16	12	
in left		28	1.6	28	1.4	28	13	27	12	
		24	1.6	24	1.4	26	13	24	12	
		24	1.6	20	1.4	24	13	22	12	
						22	13	20	12	
						20	13	18		
out right		28	1.6	28	13	28	13	22		
		26	1.6	24	13	26	13			
		24	1.6	20	13	22	13			
		22	1.6			20	13			
						18	13			
						16	13			
in right		28	1.6	28	13	28	13	22		
		26	1.6	24	13	26	13			
		24	1.5	20	13	18	13			
		22	1.5			16				
						14				
$I^{+/-}$ =		3.5/3.4		3.2/3.1		3.0/3.0				

+ = increase ~~can make either jade or other experiment~~

settings ~~for~~ after first round

Table 2

	Jade	Cello	Tasso	Rank Y
out left	24	20	20	18
in left	24	20	20	14
out right	22	20	27	
in right	22	20	14	

Cello has increased background rate at out left = 20 mm
We do not see any effect if Cello goes to 20 mm with all 4 collimators
Tasso no effect on us, but full higher background between 20 and 22 mm from coll. right

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 Acc + Postp. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1TR.	T1 LG>4 GeV

Tasso gets hitted at 24 mm right out. They have higher background at 26 mm however can survive.
Tasso at right increased beheard at 14 mm right out (too high for running)

roving Tasso collimators has no influence on us

Mark J: out left 16 mm and possible ~~18~~ 20 mm ok 18 marginal
~~out~~ left 14 " high but possible to run

Mark J beams lost during Mark J collimator steering

Summary: roving collimators at Cello to 20 mm (all) has no influence at our experiment.
The same is true for Tasso and Mark J if the settings of Table 2 on page 23 are maintained.
We get an increased background rate at: (the increase was ~10-20 %)
out left : 22 mm
out right : 20 mm
We did not go to the limits with the other collimators because at that time the philosophy was to have a symmetric setting if possible and try tighter settings in the next round. The first round however took much longer than anticipated because Cello is not yet set up for quick background readings.

12 Dec filling ready continue collimator steering

$I^{+/-}$ = 5.3/4.5 BP = 1.8 (nominal coll. setting)

Start with collimator settings of Table 2 page 23 BP = 1.7

T1 LUMI	<L> $\times 10^{30}$	SLOT RUN	SLOT EXP	IBM/ TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS	Scan PGb ar
											p151

	Jade col	Jade BP	Mark J col	Mark J BP	Cello col	Cello BP	Tasso col	Tasso BP	Tasso Vertical col	Tasso Vertical BP
out left	28	15	18		20	17	20	14		
	22	15			18	17	18	14		
	20	16			17	17	16	14		
	- 18 *	20					~~14~~	~~16~~		
	17	26								
	18	23								
	18	20								
in left	24	20	14		20	17	20	15		
	22	20			18	17	18	15		
	20	20			16	17	16 *	16		
	18	20			14	16	14	14		
	- 16	20			13	16				
	14	21								
	13	24								
	14	21								
out right	22	22	28	17	20	15	27	14		
	20	22	26	17	18	15	24	14		
	18	22	24	17	16	15	23	14		
	16	23	22	17	15	15				
	14	45	20	17						
	16	22								
	16	25								
	17	25								
	18	25								
	19	22								
in right	22	22	28	17	20	15	13	14		
	20	22	26	17	18	15	12	14		
	18	23	24	17	16	15	11	14		
	16	25	22	16	15	15	10	14		
	15	27	20	16						
	14	30	18	16						
	13	63	16	16						
	15	27	14	16						
	18	25	12	16						
	18	4.6/4.3		4.6/4.4						

Mark J: out right: 20 mm high bckgnd. goto 22 mm
in right: 18 mm still possible to run Pitm does not want to go further in

Jade: final adjustment
right 18/18 BP = 22 $I^{+/-}$ = 4.6/4.8
left i. 14 = 21 16 = 20
o 18 = 20 20 = 18

Jade: right 18 (in) 18 (out)
left 20 (out) 18 (~~out~~)
BP = 1.8 $I^{+/-}$ = 4.2/4.0 mA

Problems with reproducibility of coll setting coll has to be moved in 1 direction

Final settings

	Jade	Cello	Tasso	Mkγ
out left	18	18	18	18
in left	~~16~~ 14	14	14	14
out right	18	16	24	22
in right	18	16	10	12

Cello: out left 18mm possible to run 17 mm not possible
in left 14mm hard edge Cello chamber still ok 12 mm was not tried
out right 16mm possible to run 15 mm dead
in right 16 mm possible to survive

conditions are such that Cello can survive but would not like to run under these conditions.

Tasso: ~~tot~~ out left 16mm chamber trips 18 mm chamber survives
in left 14 mm chamber survives however no conditions for esp. running
in right 10 mm just ok
out right 24 mm ok 23 mm chamber trip

Vertical test in Tasso intersection only: open horizontal by 4 mm each roll. Then close vertical roll.

left: ~~top~~ ~~bottom~~ start 10.8 mm
top at ~20 mm small increase of bckgrd. at 18.5 still possible to run
bottom at 31 mm increase in bckgrd 31.5 " "

right top 28 ~~30~~ mm ok
bottom 28 mm ok

~~check operation~~
Final test in Petra: with all experiments switched off a measurement of the lifetime will be made. The collimators will be closed further until they limit the lifetime

Summary: collimator steering in other intersects does not affect us.
With our final setting we could run.
closing the collimator at TASSO left in to 8.8 mm
left at to 13.7 mm
brought the lifetime down by 1 h.

15^{20} filling ok BP = 2.5

16.00 Eichler, Totsuka on shift.
from run 2960 the collimator position is 28 (nominal)
Run 2961: From Histogramm seen, that DL8 # 137 [redacted] is bad (in bitmap 80% inefficient!)
(wire 1036-1064)
We take it out and in again, shake at the cable, then seems to have solved the problem for the moment.
We will leave it in for the moment and investigate the problem next week.
similar for DL8 # 167, wires 1336-1341 where 3 wires are only ≈ 50% efficient (wires 1341-1543)

18:30 New Filling
INITIALLYSE Nord memory since we had a memory parity error this morning.
"Improve" error message in Tools Now is printed manifrane = mfr, channel # for TOF/TAG
The manifrane # is written on the power supply. mfr 52-54 TOF mfr ≥ 55 from TAGGING.

20:40 Senderausfall.
21:00 New Filling ready TAG - Powersupply manifrane 60 off. Reset during first 5 min. of run.
21 46 IBM - busy for >60 sec call up IBM operator and stops run. 2 min. later link works again
luminosity increases slightly during run. Now $L = 0.9E30$ at $I = 4.2$ mA
23.00 LG threshold adjusted
23.15 IP tripped
2^{00} Mirowny, Olsson
New fill asked for at 00^{30} ~ 01^{00} PKR: Problems with cavities ≥ ½ hour pause to investigate, twice later
3^{30} start again, Petra mechanically repaired subcryostat magnet current.
Wire map checked, DL8 137, 167 OK
0400 Errors: 2HV wrong, 3HV Read error Reset doesn't work Frame 60 Start New Run OK!
Repeated Trig HV errors. Frame 60, ch 21. Several runs restarted after restoring. Then we see frame 61
has channel 21 with voltage 8888. Restoring: now everything OK. Bug in error print program?
06^{20} Frame 60 gives HV error again Ch 30. But Frame 61, ch 30 wrong, restored.
06^{25} stop for N.F.
07^{00} starting again. HV error, Frames 57,58 not possible to read. H. Weindl not available on telefon. He is coming at 8:00 on shift. We wait, run with HV error.

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 Acc + Postp. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan P66 ar p151

8-3-80

8^{00} Wriedt, Warming on shift

8^{40} Stable beams again

muon crate 13 missing, reseted

tagging crate 56,57 have wrong voltages : Mainframe 57, channel #31 & mainframe 58, channel # 0 ($\triangleq$ tagging hist-gram channels (software) 17 & 9) found to be 0. Reset to its original values. This error seems to have been there since run 2973 (mfr. 57, ch #31) and run 2974 (both channels) respectively.

|| Note: the mainframe-number of tagging-HV which is printed out by the line-printer has to be increased by 1 to get the real number of the faulty mainframe. PW.

11^{30} Asked for new filling at 12:00

12:00 V34 # 11.4 dead, 12V fuse broken, has been required, no dead channel found PW. not any more see right

12:50 ~~single~~ new fill ready

12:55 Run 2972 started, without V34 #11.4

Tagging-HV: mfr. 61, ch 20 & 21 restored

15:05 - " - - " - , ch. 1 - " -

15:40 asked for new filling at 16:00

16^{00} Grikkard, Felst

16^{30} Lgl. thresholds new adjusted (20mV) Filling ready noticed high 3TOF rate

17^{00} LG-threshold 25mV $\frac{3\,TOF}{T0} \simeq 0{,}18$ but trigger rate as normal

19^{00} get continuous IBM-busy messages, IBM says everything OK,

start writing onto tape

18^{30} Senderausfall

19^{00} IBM-link wieder OK

19^{15} LG-thresholds $\rightarrow$ 30 mV

19^{35} EQ-tripod

23^{45} Komamiya / Eichler on shift. Voolts reloaded. Mainframe number should be correct now 22^{00}

9 Mar. 80

00^{30} LG threshold 28mV

2^{00} asks for new filling

3^{45} Filling ready (they had troubles with feedback system in beam control) LG threshold 40 mV.

3^{50} start data taking (IBM was ~~busy~~ busy for first 4 minutes)

4^{06} IBM busy continues for $\geq$1 min. stop run. and write on tape

4^{09} RUN 2994 on tape F11/129. Muon Crate Missing #12, 13 & 14. And then #2. Reset ~~Hist~~ OK.
Whole IBM is down; problem seems deep. LG threshold 35 mV.

4^{56} Suddenly lost 2mA from e^+ & e^- beam and now only 2.4mA each. Asked for New filling.

5^{20} New Filling ready already. Record!? Start Run 2995 on tape # F11/106
$\sharp$HV wrong. MFR 60; ch 20 & 21 HV=0. But it was MFR 61 blame to Beate. Reset OK.

5^{30} LG threshold moved to 40 mV again. ~~Dead~~ Dead time was too high (~25%) Now 16%. → change program (HVLIB reloaded now supposed to be OK.

Some sign of life in IBM system. But IBM link looks still down.

5^{55} $\sharp$HV wrong & read error MFR 60, ch 21. (MFR 61) reset OK.

6^{12} Beam lost.

6^{46} New filling ready. Run 2997 started.
Shift Records ① highest $\langle L \rangle$ ② 8 hadrons / less than 4 hrs of running.

8^{00} Ball & Barkl

8^{40} Message from PKR filling delayed due to RF-problems.
2 experts try to fix on transmitter.

Run 2998 - in system test run with T3 trigger. No data written. Run number not incremented.

9^{15} filling ready BP=2
start run
~~its lost the plot for trigger bits in run 2998 long~~
LG kill map for tagging system: Blocks ~85 to 90 now have bits which was not the case in previous runs

10^{30} check LG-thresholds all ok
Multi hadr.: 84 } $R = 4.9 \pm 0.5$
$\int Ldt$: 240 nb^{-1} }
no corrections applied
from on line selected events would be interesting to see what R is off line

11^{00} Stop run 2999 and ask for a new filling
Histograms look fine.

11^{40} filling ready start run 3000

12:28 8000 events run stopped. Problem with Gould printer.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 BR.	T1 LG>4 GeV
2985	8.3.	18^{00}	18^{24}	4.1	4.2		1379	3870	358	34	324	~~1057~~	2759	327	776	690	2202	171
2986	"	19^{10}	20^{20}	6.5	6.4		3404	7845	885	118	767	63	~~4558~~	1125	2538 2909	1669	2907	373
2987	"	20^{20}		4.5	4.4		4912	7858	1277	86	1191	42	4021	1052	~~1052~~	2340	1734	495
2988	"	22^{10}	22^{19}	6.4	6.4		213	660	55	12	43	8	343	148	249	147	215	28
2989		22^{17}	23^{22}				3685	7858	959	168	790	75	4039	1220	2893	1676	2307	446
2990		23^{03}	23^{24}				224	434	58	5	53	3	223	61	156	96	127	27
2991	9.3.	0.00	0:59	5.0	5.1		3451	7852	897	114	783	66	4385			1724	2732	441
2992	"	0:59	2:02	4.3	4.4	4E-9	3778	6288	983	706	913	34	3257	867	2284	1727	1587	407
2993	"	3:50	4:06	6.0	6.0		878	2573	228	42.5	186	26	1494	417	796	460	1043	114
2994	"	4:09	4:56	5.6	5.6		2639	5364	~~6862~~	80.6	606	48	2650	817	1970	1211	1464	272
2995	"	5:21	6:07	5.8	5.9		2708	8002	704	120	584	64	4840	1096	2235 ~~2365~~	1387	3490	372
2996	"	6:09	6:18	4.8	4.8		502	1079	131	14	117	81	545	~~139 345~~	~~345~~	~~243 137~~	347	54
2997	"	6:47	6:52	6.1	6.1		294	1069	76.5	16	61	8.6	637	~~157 283~~	283	226	433	36
2998	"	9^{14}	10^{12}	5.7	5.7		3498	8876	411	121	790	71	4303	?	?	1769	2618	381
2999	"	10^{17}		4.4	4.5		3238	5816	843	72	771	35	3157	721	2044	1526	1769	313
3000	"	11^{38}	12^{32}	6.8	7.0		3174	9013	826	125	701	71	4601	?	?	1540	3090	581
3001	"	12^{39}	13^{36}	4.6	4.8		3319	6464	864	72	792	35	~~3358 2659~~	841	2084	1542	1888	394
3002	"	~~16'4~~ 15'12		6.5	6.5		3088	7845	803	121	682	68	4596	?	?	1513	3154	370
3003	"	~~1611~~	1611	4.6	4.6		3378	6342	878	73	806	35	3531	841	2130	1582	2030	364
3004	"	16^{37}		7.1	7.1		3067	8942	~~798~~	120	678	64	4718	2371	1093	1540	3221	338
3005	"	1740	1859	4.5	4.5		4646	7861	1809	86	1122	37	4378	937	2657	2150	2371	443
3006	"	1859	1933	3.5	3.5		1755	2676	457	23	433	8	1398	298	960	776	672	194
3007	"	19'50		6.8	6.8		2675	7840	696	115	581	65	4826	1025	2257	1312	3574	345
3008	"	2040	2146	4.9	5.0		3922	7862	1020	92	928	44	4530	902	2445	1784	2881	468
3009	"	2148	2217	3.8	3.9		1706	2841	444	35	409	11	1599	314	943	762	895	170
3010	"	22'43	2326	7.10	7.10		2575	7848	670	116	554	63	4967	1000	2149	1306	3759	339
3011	~~4.3~~	2328	0034	4.3	4.4		3776	~~7858~~	982	91	892	44	4652	942	2419	1789	2961	405
3012	10.3	0036	0133	3.9	3.7	~~5.0~~	3353	5658	873	53	820	21	3305	638	1765	1518	1890	339
3013	10.3	0158	0251	6.1	6.2	5.0×10^{-7}	2491	7848	778	105	673	56	4932	983	2140	1374	3621	362
3014	"	0233	0406	4.4	4.5		4250	7855	1105	82	1023	36	4581	forgot	forgot	1965	2754	458
3015	"	0407	0424	3.5	3.6		1023	1732	266	16	251	5	991	211	553	486	547	114
3016	"	0451	0527	6.2	6.2		2040	5916	531	81	450	43	3783	732	1538	991	2897	294
3017	"	0548	6^{40}	6.5	6.5		2905	7847	756	116	639	63	4834	981	2209	1405	3544	370
3018	"	06^{40}	7.53	4.6	4.6		4140	7853	1077	85	992	38	4667	877	2348	1921	2911	458
3019-20	11.3.	11^{30}	11^{30}					20										
3023-36, 17.3																		

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt EXP	IBM/TAPE	BP	Σ2567	multi HADRON Σ 63	REMARKS
129	0.73	1.0	211.5	F11/101		13	1	beams lost due to transmitter fault
365	0.84	2.86	214.36	IBM		17	2	
421	.66	3.22	217.58	IBM		42	1	ask for new filling
33	1.06	0.22	217.8	IBM		2	0	trouble with LINK
463	0.96	3.59	221.39	IBM		32	1	
26	0.89	0.20	221.59	IBM		3	0	beam lost
474	1.04	3.59	225.13	IBM		38	2	
328	0.66	2.50	227.63	"		18	3	ask for new filling
154	1.83 the highest	1.60	229.23	IBM	2.5	21	0	IBM down
340	1.01	2.66	231.89	F11/129	2.0	33	2	big beam loss, ask for new filling
386	1.12	3.03	234.92	F11/105	2.4	32	1	
63	0.91	0.46	235.38	IBM	2.0	7	0	IBM back up just in time. beam lost.
46	1.23	0.36	235.74	"	2.5	5	0	beam lost
475	1.04	3.62	239.36	"	2.0	58	2	
293	0.70	2.26	241.62	IBM	1.9	25	1	ask for new filling
328	0.82	2.54	244.21	"	2.0	31	3	
247	0.63	2.10	246.31	IBM	2.0	24	1	ask for new filling
391	1.0	3.09	249.40	IBM	2.5	36	0	
307	0.71	2.39	251.79	IBM	2.0	26	0	new fill
403	1.03	3.17	254.96	"	1.7	35	—	
364	.60	2.79	257.75	"	1.4	30	—	All 17.5 GeV
119	0.53	0.94	258.69	"		13	0	new fill
402	1.20	3.21	261.90	"	1.7	49	1	
404	0.79	3.10	265.00	"	1.5	29	3	
126	0.57	0.97	265.97	"	1.5	9	1	requests new fill
371	1.14	2.93	268.90	"	1.8	47	2	
364	0.76	2.87	271.77	"		37	1	
240	0.58	1.96	273.73	"	1.5	17	0	
396	1.03	3.08	276.81	"	2.0	42	1	New fill
348	0.66	2.79	279.60	"		31	0	
72	0.55	0.56	280.16	"				
282	1.09	2.21	282.37	"	2.0	32	2	New fill Ended by beam loss.
415	1.11	3.21	285.58	"	2.2	36	2	
361	0.69	2.85	288.43	"		40	0	
						3485	102	Testruns, ignore RAE

TAPES _____ LG-TEST, MINOWA

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 Acc + PostP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

12 Σ^0 HV - tagging failure crate 61 channel 1

We have problems putting paper into the Gold plotter.
We need a description how to do it.
Such a description should be attached to the plotter

A description of the load procedure is attached to the Plotter (left side wall). It is the result of a probably very expensive (paper) trial and error procedure.

13:35 Ask for new filling. End run 3001. all histograms look ok
14 [illegible] filling ok start run # 3002
14:45 TAG HV's wrong MFR 61 channels 23,25,26. Reset.
15:20 ID - trip during run 3003, which started at 15:15.
Histos for run 3002 look OK. We keep forgetting T3 accept + reject, despite reminders!
15:42 TAG HV's wrong MFR. 61 chs. 21, 28. Reset.

1605 Steffen + Murphy on shift.
1635 Start run 3004 after new fill.
1645 Beam being lost; large beam pipe counter monitor current. Pause Turn inner detector voltage down.
1653 Back on after orbit adjustments. $e^{\pm}$ currents have dropped to 5.8 ma from 7.2 ma in $\frac{1}{2}$ hour.
2115 Muon code 8 gives a hit in every chamber; cured by pressing reset. this was a delusion; it is (was?) intermittent.
2140 The fault in the muon system is still happening intermittently. It can be seen in the μ hit map histogram. It wasn't in run 3007, but it is in run 3008.
This fault has not occurred in runs 3009 or 3010.

Monday, March 10, 1980

00.00 Hassard and O'Neill on the Graveyard.
01.29 $\mathcal{L} = 0.47 \times 10^{30}$. Call other experiments. They agree to a new fill. Call PkR. They are filling Doris. Will take a minute.
01.33 PkR requests "Frigobo". STOP Run 3012. Run down HV.

T1 LUMI	<L> $\times 10^{30}$	SLOT RUN	SLOT Exp	IBM/ TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_{CM} (GeV)	FREQUENCY (kHz)	REMARKS

Scan PGB on p151

Make histograms. Hey! I like this button F14, just right for guys like me who have no idea how to get these histograms, let alone what they mean. Compare histograms to last set, assuming the boys on the last shift knew what they were doing. Bunch of spikes in JETC MEAN HITS/WIRE near bin 130 has gone away. As compensation we have a new spike in LG Hit Map Barrel II near bin 250. I don't panic.

01 54 New fill ready. Slightly hot $\Sigma BP = 2.0$ Go ahead. JETC runs up ok.
01 59 Going again with run 3013. $\mathcal{L} = 1.36 \times 10^{30}$
Forgot for several minutes to turn the attenuator back up. Pause run. Switch from 4 db to 8 db. Continue.
~ 2 00 Teletype clatters. YVOLTS. ERROR IN HV-system, channel = 331 BAD channel.
YVOLTS: TAG - MFR = 61 chan = 11 HV = 0.0390 should be 1.5000
See note that similar error occurred on day shift. Also see teletype message to similar effect from last shift. No indication what action was taken. After some agonizing phone H. Wriedt. He tells me where power supply is and how to reset it.
~ 02 30. HV error cleared.
02 53 Run 3013 stops automatically. Start 3014.
03 29 Get another one of those silly tagging HV errors. This time I know how to clear it.
04 07 Run 3014 ends automatically. Start 3015 Muon crate missing!
Succeed in resetting it by following written instructions. Practically unheard of! This was crate # 4
04 15 Mark J wants to dump and try for two fillings before the end to avoid a very long one. We are reading $\mathcal{L} = 0.62$. Seems reasonable. TASSO + CELLO agree.

04 23 Stop Run 3015. for new fillings.
~ 04 50 New fill ready $\Sigma BP = 2.0$. Start HV. run up sequence. Stupidly push green button for JETC before green on Krabiehl's new box. Must run down and reset alarm
04 53 Going again. Run 3016
05 28 Beams lost. Got "1 magnet fluctuation" message.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

34

Monday, March 10, 1980.

05 48 Going again. Run 3017

06 25 Another tagging HV error. ch. 25. clear and acknowledge.

06 40 Automatic end of Run 3017

07 54 Automatic end of Run 3018.

07 55 Beams dumped.

Chambers + Magnets switched off.
When running down the magnet the magnet trip alarm on the chamber came on and could not be reset.
Bursen switched off. Wagner will take care of this alarm

Tuesday March 11

11 30 change programs ZDAS and YPARA. No change in logic only change in logistik.
2 Terminals to IBM

12-3-80

Digital Threshold for Tagging LG-Hiproc changed from 50 → 20 channels above pedestal. RAE.

Sat March 15

Shift 16-23 PKR confirms that nothing is going to be done with experiments, so I go home.

Exchanged TOF ADC 1 after adjusting Pedestals.
I don't remember which stations the Drift chamber current read boxes have to be!

Sunday March 16. 00^{00} Johnhasard

0303 Tagging on for luminosity. We're a factor of 6 lower than other experiments. I can't find what's wrong but let the expert sleep on.

06 43 Eichler fixes ZDAS. Things are really humming here.

8.00 Totsuka

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLott RUN	SLott EXP	IBM/ TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS	Scan PGB av

35

08^{10} Cosmic Run using T3 Trigger - NO prepulse.

15:10 Beam energy = 17.9 GeV Curr = 5.5 (e^+), 5.3 (e^-)
~~BP = 9.0~~ PKR wants to measure $\mathcal{L}$
I_{BP} = 9.3 (collimators are open)
JDAS without ID. rate = 1.3 Hz $\hat{=}$ 2 Hz.
~~Luminosity does not~~ 2 HVPS of Tagg system are off ?? Display says $\mathcal{L}$ = 0 !!

16.00 Matrumuro on shift

23 00 After a gas alarm there has been a thorough checkout of the warning system. Schwidert, a technician, Wagner, Murphy, Hedgecock were all here. Schwidert said it was not an instrumental fault. But as the gas level has ~~stood~~ STAYED below threshold for several hours, it was decided to watch it and record any further alarms. The control technicians will not come here automatically.

When there is an alarm - write down which probe and reset it.

17.3.80

0^{00} Nozaki, Warning on shift

PKR: Orbit corrections at 17.5 GeV ~~at present~~ currently under investigation
optimization of injection
lumi measurements

1^{00} ID temperature and pressure checked

3^{30} " " again, no other action taken in the meantime

6^{30} 12 GeV Beam $I(e^+)$ = 6.3 mA $I(e^-)$ = 6.1 mA Magnet off
start luminosity measuring $B_P \triangleq 6.$ ID = 0. no output of raw data.
Jade Tasso Multp
16, 17, 21 $\times 10^{29}$ comparison by PKR 6^{30} h
AL = 1.55 (taking number) →

7^{04} beam lost, stop runs.
IL = 2.91 nb^{-1}, AL = 1.33E30, L = 1.06 E30 SL = 5.51 E 28

17.3.80

8.00 Totsuka on shift.

16^{00} Pearce / Wagner on shift. IBM link broken - use local tape for data taking

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1TR.	T1 LG>4 GeV
36																		
3037	17/3/80	16^{09}	16^{43}	3.1	3.1		1934	4114	511	54.2	457	22.0	2577	778	1336	1161	1514	169
3038	"	20^{17}	21^{06}	3.6	5.7		2892	7832	753	125.8	627	63.9	4994	1480	2449	1639	3490	261
3039	"	21^{06}	22^{02}	2.4	3.9		3295	5113	857	54.2	803	24.7	2692	903	1962	1605	1173	266
3040	"	22^{25}	23^{32}	6.1	5.4		3599	7836	936	153	784	86.9	4039	1667	3162	1973	2230	341
3041	"	23^{33}	0^{30}	2.8	2.8		3382	4549	880	45.8	835	19.7	2273	721	1912	1575	787	274
3042	18/3/80	0.56	1.47	4.4	5.1		2895	7837	753	159	594	100	4223	1721	3194	1688	2634	305
3043	"	1.48	3.04	3.3	4.0		4446	7043	1156	97.8	1058	51.9	3524	1313	3041	2162	1480	336
3044	18/3/80	3.28	4.14	5.9	5.2		2708	7844	704	156	548	101	4113	1700	3238	1581	2617	277
3045	"	4.15	5.30	4.3	4.0		4329	7855	1126	117	1009	69.5	3791	1469	3364	2108	1820	404
3046	"	5.31	5.45	2.7	2.7		800	1114	208	11.5	196	5.25	546	177	476	372	177	59
3047	18/3/80	6.05	6.29	5.8	5.4		1267	4528	330	96.6	233	56.8	2606	992	1697	878	1792	127
3048	18/3/80	7.42	8:25	5.2	5.4		2511	7831	653	177	477	111	3986	1849	3442	1558	2518	274
3049		8.35	9.37	3.8	4.1		3688	7248	955	119	836	236	3719	1584	3036	1881	1997	362
3050		too short ignore CMUON																
3051																		
3052		11:21	11:41	3.9	4.2		1155	2581	300	70.7	229	45.4	1028	759	1371	643	400	116
3053		12:05	13:04	3.6	3.9		3491	5117	909	107	808	58.5	2163	841	2483	1470	723	295
3054	18/3/80	16:38	17:09	5.3	5.2		2097	2700	546	102	444	80.9	2024	3163	172*	1104	918	259
3055	"	17:49	18:13	5.3	5.4		1428	2862	371	100	270	52.2	1234	916	1311	685	563	152
3056	"	18:18	19:24	4.5	4.7		3907	6703	1016	208	809	86.7	2659	1219	3444	1675	1007	338
3057	"	19:27	19:39	3.5	3.7		724	1031	188	34	153	10.8	448	175	487	288	162	69
3058	no data																	
3059	"	20:08	21:18	4.5	5.6		4171	7838	1085	171	914	116	3272	1559	3822	1970	1312	435
3060	"	21:19	22:26	3.3	4.3		4021	6107	1046	97	949	61	2652	1135	2849	1785	92	398
3061		23:08	23:22	5.2	5.6		766	1701	199	43	157	32.2	667	641	863	437	238	90
3062	19-3-80	23^{51}	01^{07}	5.3	5.3		3336	7841	1040	222	818	133	3203	1938	3363	1982	1198	435
3063	"	01^{02}	02^{05}	4.1	4.3		3758	6346	978	121	856	83	2843	1581	2956	1710	1153	376
3064	19-3-80	02^{10}	03^{25}	3.4	3.6		6998	5925	1132	97	103	48	2592	1070	2757	1838	781	385
3065	"	03^{48}	4^{49}	4.7	5.6		3538	7646	936	162	773	116	3383	1975	3580	1791	1614	447
3066	"	06^{16}	06^{24}	2.8	3.5		467	698	121	10	111	6	313	143	326	244	75	46
3067	"	07^{45}	08^{31}	5.7	5.5		2618	5646	681	169	512	87	2573	1295	2561	1181	1442	340
3068	"	08^{32}	09^{59}	4.0	4.0		5145	7759	1338	128	1211	80	3529	1172	3666	2269	1254	429
3069	"	10^{52}	12^{04}	4.5	4.6		4185	7846	1089	162	926	103	3640	1216	3580	2051	1604	414
3070	"	12^{08}	12^{22}	2.9	3.0		729	888	190	18	172	6	506	114	404	321	3330	55

T1 LUMI	$\langle L \rangle \times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM/ TAPE	BP	BHABHA	MULT. HADRON	ENERGY EB (GeV)	FREQUENCY (kHz)	GAS alarm monitor MS9	REMARKS
											Scan PGB at p151
37	0.18	0.35	0.35	TAPE FM098	1.7	3	1	17900	-2.5		FIRST RUN 17.9 GeV
112	0.35	1.00	1.35	IBM	2.7	8	0	—"—	-2.5		
162	0.41	1.35	2.70	—"—	2.1	12	0	—"—	-2.5		beams lost, scrubscan fail
217	0.51	1.83	4.53	—"—	3.1	19	0	—"—	1.		new filling
81	0.21	0.70	5.23	—"—	4.0	14	0	—"—	1.		
102	0.33	0.95	6.18	—"—	2.2	6	0	"	1.		new filling
129	0.25	1.13	7.31	—"—	2.1	13	0	"	1.		
193	0.61	1.64	8.95	—"—	2.5	13	0	"	1.		new filling
272	0.52	2.24	11.19	—"—	2.0	33	0	"	1.		
28	0.30	0.24	11.43	—"—	1.5	2	0	"	1.		
80	0.54	0.68	12.11	—"—	1.5	4	8	"	1.		new filling, beam lost
106	0.41	1.02	13.13	4	2.5	14	0	4	1.		NORMAL END
111	0.28	1.03	14.16	4	1.0	11	1	4	0		
		1006	1422		2.5			4	0		Time out error, 302 (Muon crate)
		0.0	—					4	0		4 302C ")
65	0.50	0.58	14.80	4	2.0	5	0	4	0		Stop to study the triggers
151	0.35	1.24	16.04	4	1.5	14	0	"	0		
213	0.81	1.70	17.74	"	2.0	26	1	"	0		Stop to study triggers. *μ-Multiplicity constituted of 1!
129	.70	.99	18.73	"	2.3	11	1	4	0		inner detector tripped ??
244	151	2.01	20.74	"	2.2	24	1	4	0		stopped run 2 subsequent runs have bad quality no data
33	138	138	21.02	"	2.2	2	0	"	0		Tasso trigger set wrong !!!
		0	21.02								Stopped spontaneously (loop between 2 events)
283	0.56	2.33	23.35	"	1.7	27	1	"	0		
186	0.37	1.51	24.86	"	1.7	14	1	"	0		Dump beams for new fill
50	0.53	0.41	25.27	"	2,3	4	0	"	0		beams lost
207	0.42	1.63	26.96	"	2.2	21	0	"	0		
148	0.34	1.27	28.23	"	2.0	15	0	"	0		
176	0.33	1.43	29.66	"	1.7	15	0	"			Dump beam for new fill
170	0.39	1.42	31.08	"	2.2	13	0	"			Run terminated by magnet trip
12	0.26	0.12	31.20	"	1.6	4	0	"			dump beam for new fill
70	0.24	0.62	31.82	"	2.0	1	0	"	0		Run terminated because of NORD failure
112	0.24	1.02	32.84	"	1.7	9	0	"	0		beams dumped
185	0.37	1.56	34.40	"	2.2	14	0	"	0		
19	0.26	0.19	34.59	"	2.0	0	0	"	0		beam dumped
						Σ 371	8				

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS ACC.	ALL TRIGGER $\times 10^6$	TΨ REJECT $\times 10^6$	TΦ ACCEPT $\times 10^6$	T1 Acc + Postp. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1 TR.	T1 LG>4 GeV
38	17.3.80 16.09	START DATA TAKING 17.9 GeV																
	16:30	from Run 3037 LG Threshold fr channel 3 (used for Tag Trigger) was set to 1.0 GeV / Totsuka																
		LG timing checked - OK / Totsuka.																
	16 40	Please note from now on Gasmonitor MS9 - reading together with all other parameters into the run log. (AW) The monitor is located at the top of the last rack on the right hand side in the hardware section.																
	16 45	Tasso wants to refill.																
		Some errors in Histograms of run 3037:																
		- trigger 1 output has holes: input cables were loose. (B.N.) fixed during run 3039																
		- jet-chambes : 2.DL8 in 16.3 missing																
	17 45	still no beams.																
	20 15	Enfin: beams, but very unequal contents. Beter than nothing. Luminority low ($0.3 \cdot 10^{30}$)																
	22 02	„Senderausfall". beams lost																
	22 25	NF ready																
		present status of luminorities	Tasso $4.0 \cdot 10^{29}$															
			Mark J $3.6 \cdot 10^{29}$ } PKR															
			Jade $4.7 \cdot 10^{29}$															
	18.3.80																	
	0.00	Matumoto, Meier on shift																
	0:00	DL8 in wire 1256 ~ 1263 changed																
	6.29	beam lost																
	6.50	after ~1min run beam again lost („Senderausfall"), we did not start the next run																
	7.42	new start (Run 3048)																
	08:00	Krehbiel, Watanabe on-shift (According to Mr. Krehbiel.) rather high dead time TOTAL 28%, INST = 21%. beam pipe 2.5 V (coming from one bad counter) ⇐ probably comes from LG THRESHOLD 1 being too low (according to the histogram), but the threshold is set to 40 mV, which is correct on the scope.																
	08:34	Run 3049 started. Got YPARA errors. Says Error in Muon system, crate 31, 0, 1 non zero states, CR 10-14 no response. But we do not get "Muon Crate missing", and the LED's on muon modules are blinking. Hitmap looks the same. So we ignored the error message.																
	9.00	#2/3 of #1 Current at the instrument seemed to come from one counter, namely 11. It turned out it was not its rate, but a permanent DC level of 10 mV at the discr. output. This does not affect Trigger + TOC operations, but it is integrated at the instrument. Signal 11 is temporarily removed from Monitor Circuit beam pipe now 1.0 V																

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLOT RUN	SLOT Exp	IBM / TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS
										Scan PMB ov

We increased the threshold for the trigger 2TOF · LG 1 GeV track to 1.5 GeV, it was at 0.8 GeV
It should now be set to
(51+x)* 10 mV where x is level above 0.
(Per Mr Felst's request, executed by Frau B. Naroska)
After some discussions with Totsuka & Orito, the threshold is moved back to 1 GeV, the same as LG threshold 2.

11:10 New fill ready. Runs 3050, 3051 ended due to time out error. BR 3, CR=2. MUON CHAMBER. Ball-Stephens working on muon crate 9, Replacing a module in Muon Crate #9.

11:20 Dead time still high ≥ 30%. Looks like it is not due to LG threshold. But the trigger itself

11:41 End Run 3052 to investigate trigger problems:
The dead time comes from too high TOF rate. No action taken.

12:05 TASSO wants 30 min. access after this filling.

13:05 PKR wants ½ hr access.

13.15 For Energy Saving. Magnet current down to 1000 A ← Don't forget to raise again

15.50 magnet current raised back to 7000 A

16 00 Murphy & v. Krogh on shift

16 33 started Run 3054

1711 Stop run 3054 : Krehbiel + Naroska investigate high T1 trigger rate.

17 21 lost beam

Facts: The apparent inconsistency is due to the fact that the rate 2TOF$_{coll}$ $\overline{\text{NTOF} \leq 4}$ overflows in the Scaler.
Max Scaler is $16 \cdot 10^6$, the rate is 40000/sec, so after 400 sec Run ~ 500sec the scaler is in overflow
Why is the rate so high ? ? No conclusion yet, as the beam was lost. Pulse looks "normal" with beam. Wood for no beam.

1750 started Run 3055
Run 3054 Muon trigger multiplicity was switched to 4 instead of 1! M.H.

1817 Run 3056 started.

1900 : a status board in the muon readout is faulty. We are now running with no output from crate 13 (end wall). This should not affect the muon trigger. The muon crate missing message will be on permanently, therefore please check if both are flashing on.
— at least one after start of each run

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt EXP	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (KHz)	REMARKS

Scan 986 ar

p151

1425 Experiment stopped: NORD printed "page fault for non-demand". We have to stop and start a new run (~~3056~~ 3057)

Out of 50 triggers, 11 were NORD "cosmics" and had no tracks
27 were NORD "beam-gas", but of these 17 were clear cosmic muons
7 were NORD "halo", and had no inner detector tracks
3 were NORD "lumi" " " " " " "
2 were not classified and had no tracks (trigger words 1B and 20B)
∴ $\frac{27}{50}$ triggered are cosmics. Event rate 1.9/sec.

0^{00} Peace, Felst

0^{20} "memory parity error in Nord" ? is this the start of our troubles again?
0^{25} inner detector tripped
2^{30} noticed that wires ~1256 - 1264 are dead. SLP? this effect is new!
5^{00} magnet tripped without error message (probably don't rely again)
one door of the power supply was not properly latched (one on opposite side of power room to control panel, ~3 units away)
Also had water cooling interlock failure. By the way – the Heidelberg keys no longer fit the power house ∴ we can't get in!
6^{75} magnet on again

It seems that we get significantly less lumi than the other experiments

8:20 Warning & Domanig on shift
BP Patenaude shows large spikes, also ID sometimes sees a little bit
R. Felst goes to PKP and discusses our background problems
(compensating magnets switched off → measured Lumi $0.24 \cdot 10^{30}$
" " switched on again " $0.25 \cdot 10^{30}$ ↗
its now the same for all experiments
8^{30} Run stopped because "page fault for non-demand" occured, new run started
8^{45} worried about DL8's "permanently converting". Asked Wagner. He says: at a rate of 20 kHz that is ok.
8^{55} LG signal is now 35 mV above pedestal → LG thresholds readjusted
10^{00} DL8 (No. 235) is replaced by new one
10^{35} new fill ready
11^{10} 'JDAS error 000014 (OCT) SUBERROR 000 603 (OCT) TASK 1' appears on display.
13^{30} new fill ready. The first 120 events got the wrong energy label due to typing mistake!
16^{00} Darvill u. v. Krogh on shift

~19^{45} Petra ready NORD-50 break down.
while in the process of starting the run, something went wrong in the Nord. While putting in e$^-$ current, the letters started to become confused characters (like chinese characters)
It was not possible to restart the Nord, not even Mash Clear worked.
We called Mr. Delfs (F58), fortunately Naroska knew whom to call.
Following his instructions we switched off the disks, switched off the power on the Nord and on again. Bekk writes happened.

To spend the time usefully, Naroska and I measured TOF rate.

TOF	rate (kHz)															
1	4119	11	11133		21	3654		31	7730		41	2677	5.2 28.6
2	10222	12	29422		22	1584	58 1.9	32	11993		42	7355	1.26 4.58
3	14797	13	12569		23	1902		33	8329				
4	9275	14	13227		24	3236		34	39714	←
5	14113	15	11162	57.7 27.4	25	2533		35	20074	
6	2502	8.2 13.0	16	5126		26	9033		36	8387	34.8 27.5
7	4779	83.7 29.4	17	1935		27	10974		37	19921	30.8 39.5
8	6755	48.4 22.4	18	2387		28	7053		38	15641	60.7 37.7
9	7639		19	6990		29	9908		39	11002	31.1 35.5
10	5470		20	2161		30	14099		40	3597	10.2 28.8

we decreased # 34 by another 100 V: ~~36 285~~ 19715

21^{50} Delfs did it.
branch transceiver 1093 C crate B (data) exchanged

22.00 Lowered HV of TOF 56 (counts 12+) to 2600V and TOF 76 (counts 34+) to 2660 V. (corresponds to −100 and −200 V)
Please watch rate in Triggerinput F6, F6

22^{44} started run 3076
23^{45} at end of run 3076 Tasso reports $L = .45 \times 10^{30}$ while we have $.26 \times 10^{30}$.
1$^{0\,10}$ v. Krogh calls Mikowa for peculiar Histogram "LG Hit map". Many spikes. M. says wait another run hat sex

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV
42																		
Run #	Date	Start	Stop	I^+	I^-	Vac	Time (sec)	Nord Events acc	All Trigger $\times 10^6$	T0 Reject $\times 10^6$	T0 Accept $\times 10^6$	T1 Acc+Postp $\times 10^6$	T2 Acc	T3 Reject	T3 Acc	T2 collin	T2 $\geq$2TOF · LG$>$1 · $\geq$1 Trk	T1 LG$>$4 GeV
3071	19.3.80	13:16	14:13	4.1	4.7		3343	7848	870	187	683	119	3823	1880	3475	1620	2777	329
3072	"	14:15	14:57	3.8	4.5		2362	3984	615	65	550	39	1834	687	1768	1040	834	209
3073	"	16:47	17:20	5.2	5.7		3132	7850	814	180	634	97	4214	1433	3135	1462	2760	299
3074	"	17:21	17:35	4.0	4.5		821	1318	213	28	184	20,8	521	276	692	366	172	52
3075	"	17:37	18:37	3.6	4.3		3287	4630	857	85	771	57	1903	933	2387	1440	486	178
3076		22:42	23:52	6.0	6.0		4077	7857	1061	193	869	143	3094	1779	4306	2042	1029	322
3077		23:52	00:03	3.6	3.8		647	900	167	14	153	8	394	155	440	298	96	47
3078	20.3.80	00:35	1 45	5.7	5.7		4156	7845	1082	186	896	136	3235	1994	4098	1930	1265	394
3079	~~3.3.80~~	2:34	3,44	5.7	5.8		4104	7847	1068	164	903	116	3443	1495	3817	7882	7585	477
3080	20.3.80	3.49	4.52	3.6	3.9		3737	5418	972	75	897	43	2553	~~2109~~ 897	2408	1605	985	345
3081	20.3.80	11.28	12.09	5.2	5.4		2149	4889	559	108	452	71	2313	841	2179	1198	1139	197
3082	no data																	
3083	20.3.80	13.57	15.05	4.4	4.6		4030	7021	1049	132	916	75	3324	999	3082	1784	1644	402
3084	"	15:33	16:32	5.3	5.1		3514	7850	914	153	760	87	4096	1270	3189	1599	2572	411
3085	"	16.34	17.28	4.1	4.1		3220	4086	837	301	536	29	227	557	1484	1044	1232	258
~~3086~~	"	18.19																
3087		18.36																
3088		18.47																
3089	"	19.09	20.26	4.4	4.4		3413	6102	988	87	801	50	3095	935	2468	1586	1571	362
3090	"	21.41	22.34	5.3	6.4		3152	7849	820	153	667	95	4839	1153	2939	1589	2818	331
3091	"	22.37	22:40	5.3	4.2		130	284	34	4	30	2	185	37	78	59	133	17
3092	"	22:40	23.09	3.2	4.1		1696	2874	441	38	484	20	1472	390	1155	754	781	162
3093	21.3.80	0 58	01.56	5.4	6.0		3423	7848	891	159	732	105	3994	1183	3240	1613	2398	357
3094	"	01.57	3,22	3.9	4.2		4978	7860	1295	105	1190	58	4081	1079	3185	2222	2012	441
3095	"	3,22	3.36	2.7	3.0		811	1163	211	11	200	46	607	150	463	354	275	81
3096	"	5.12	6.06	5.7	6.0		3004	7842	782	151	631	93	4480	1040	2848	1422	3209	344
3097	"	6.07	7.12	3.9	4.3		3882	7859	1010	107	904	57	4572	847	2751	1664	3153	409
3098	"	7.13	7.44	3.1	3.5		1790	3084	465	36	429	16	1803	324	1055	~~6854~~	1035	170
3099	"	9.12	10.18	5.4	5.4		3907	7840	1016	172	~~458~~ 845	108	3758	1261	3564	1805	2001	345
3100	"	10.22	11.35	3.8	3.4		4383	6016	1142	140	1002	69	2737	901	2814	~~1887~~	904	354
3101	"	13:38	14:59	4.7	5.7		4767	~~7841~~ 6717	1241	227	1014	101	3503	1341	3582	2165	1387	338
3102	"	15:00	15:10	2.3	3.8		583	~~666~~	149	17	102	5	233	94	242	213	110	50
3103	"	15:51	16,37	5.4	5.7		3901	7844	1015	167	847	97	3907	1401	3436	1875	2072	386
3104	"	17.00	17.11	~~3.4~~	~~3.0~~		~~598~~	975	155	12,2	143	6,9	461	~~227~~ 164	397	284	211	63
3105	"	17.53	18.07	5.3	5.4		832	1918	217	40	177	28	956	327	837	483	481	79
3106	"	18.09	19.30	4.5	4.7		4787	7858	1246	126	1119	75	3736	1088	3520	~~2995~~ 2176	1618	452

T1 LUMI	$\langle L \rangle \times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM / TAPE	BP RATE	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (KHz)	REMARKS
T1 Lumi	$\langle L \rangle \times 10^{30}$	$\int L dt$ Run	$\int L dt$ Exp	IBM Tape	BP Rate	Bhabhas Σ 31	Multi-hadrons Σ	Energy E_B		
193	0.50	1.07	36.26	IBM	2.5	8	0	17.9 GeV		
84	0.36	0.85	37.11	"	2.0	2	0	"		
172	.49	1.54	38.65	"	2,2	11	0	"		reached 8000 evts
39	0,40	0,33	38,98	"	1,8	5	0	17,9		IBM Transfer stopped.
145	.36	1,19	40,17	"	2	8	0	"		will refill
100	0,21	0,86	41,03	"	1,7	13	1	"		Fe prepack with 30% density (soap Tasso)
16	0,21	0,13	41,16	"	1,7	1	0	"		Run ended for refilling of getas
89	0.23	0.94	42.10	"	2.8	12	0	"		new fill. High dead time, but about the 3. Tasso wants new fitting
148	0.32	1.31	43,41	"	2.5	14	1	"		
93	0.24	0.89	44.30	"	3?.7	14	0	"		Run aborted. Tasso wants a new fill
157	0.59	1.27	45.57	"		11	2	"		beam lost memory error in Nord 10 cable fixed it
186	.39	1.58	47.15	"	2.0	26	0	"		Tassa requested refill
170	.44	1.56	48.71	"		13	0	"		
104	0.28	0.89	49.60	"	1.4	7	2	"		IBM link gave almost no events in last 12 mins
				F11190						triggers tests. To all accept
				F11195						T_1 code, T2 forced acc.
				F11104						1 TOF
137	0.36	1.24	50.84	IBM		10	0	"		2TOF+LG>1GeV switched on after 12 minutes.
187	0.52	1.65	52.49	IBM	2.6	15	0	"		These two runs were also written to F22B63 F22B68
4	0.35	0.04	52.53	IBM	1.8	0	0	"		
65	0.34	0.58	53.11	"		3	0	"		
158	0.43	1.69	54.60	"	2.7	24	0	"		8000 events
128	0,22	1.12	55,72	"	1.9	7	0	"		" "
10	0.15	0.12	55.84	"	1.4	1	0	"		run ended for new fill
135	0.39	1.18	57.02	"	2.5	13	1	"		8000 events
103	0,24	0.94	57,96	"	1.9	10	0	"		"
42	0.22	0.39	58.35	"	1.6	3	0	"		dump & create 12 reset at start
148	0.32	1.26	59,61	"	2.4	16	1	"		
95	0.20	0.86	60.47	"	1.7	4	1	"		run ended for new fill
135	0.26	1.26	61.73	"	2.4	21	1	"		
7	0.12	0.07	61.80	"	1.7	0	0	"		run stopped for new fill
95	0.22	.85	62.65	"	2.5	8	0	"		
12	0.16	.10	62.75	"		1	0	"		Stopped because of low lumi, try to improve
38	0.40	.33	63.08	"		4	0	"		↓ new fill.
128	0.24	1.13	64.21	"		8	0	"		

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$\geq$1 $\geq$1 TR.	T1 LG$>$4 GeV

44 20/03 0.00

King R Krehbiel on shift.

0.30 Found out ToF Counters 2+3 were missing in the Histograms. Lemo Cables were pulled out at ANOlog Output. Replaced them during run after ca 1800 Evts of the current run 3078

4.00 There seem to be still Pedestal problems within Leadglass Hit Map Barrel II from channel 195 on upward.

8.00 Goddard + V. Kroh on shift ← power supply to quadrupole of Petra had to be repaired.

11.30 finally have a filling — Petra people suspect that had to do with the low Lumi.

Jade .62 $\times 10^{30}$

Tasso .52 $\times 10^{30}$

MJ 1.2 (not fixed)

13:30 1 hour after starting run 3082 run was terminated with message: Nord50 cannot be started. N50 busy

18:18 error log device of Nord10 was full. Many memory errors had occured. Clear and initialize memory with program MPM from floppy disk. Yesterday the power on Nord10 was off and afterwards this program should always be run!

15:40 ALL μ-CRATES NOW WORKING. PLEASE DO NOT IGNORE ANY FUTURE 'MISSING RESPONSE' MESSAGES. Ch. Ball / A MacBeth.

16.00 Diffmann and Hassard

16.54 Wolf (Tasso) requests refill. Optimal time for a filling is 90 minutes. If you look at the last few fillstimes, however, it's more like 2 hours. We agree to this request.

17.00 DESY Linac is broken; so no injection, no refill.

17.16 computer link busy for 45 second periods every 90 seconds. This persists until (at least) beams dumped (following fixing of Linac) at 17.28

18.49-19.08 Trigger studies.

19.08 Start physics run 3089.

19.20 2TOF + LG $>$ 1 GeV switched into system: before now, in trip on this was not enabled.

Rates up to now at $E_b = 17.9$ GeV (Σ over runs 3037 – 3089)

Theory $\sigma_{ee} = 15.5 \cdot \left(\frac{15}{E_b}\right)^2 = 10.9$ nb

$\sigma_{\mu\mu} = \frac{87}{(2E_b)^2} = 0.068$ nb

Exp: $N_{ee} = 526$, $N_h = 14$, $\int \mathcal{L} = 50.8$ nb^{-1} ⇒ $\sigma_{ee} = 10.4 \pm 0.5$ nb, $\sigma_h = 0.28 \pm 0.07$ nb ⇒ $R = \frac{\sigma_h}{\sigma_{\mu\mu}} = 4.1 \pm 1.0$

perfect!

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXP	IBT / TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan P66 on p151

45

21/1 run 3090.

21.3.80 Stephens, Totsuka on shift

PIA was broken. PKR cannot estimate how long it takes to repair PIA.

0.58 Run 3093 started

3.30 Our luminosity = $0.17 \cdot 10^{30}$, Tasso $< 0.3 \cdot 10^{30}$

6.00 Inner Detector trip.

7.40 Totsuka and Stephens go to replace one V34. for runs 1216-1232 ⇒ fuse +12V

7.45 Beams dumped for new filling.

8:00 Narodka, Chiedt

9.10 Beams ready, switch on, start running

L TASSO .6 $\cdot 10^{30}$ ← this discrepancy seems to have been

MARK J .4 ← there also yesterday

JADE .4

inquired with PKR, they say $L \lesssim 5 \cdot 10^{30}$ for everybody. At the moment they can't improve it.

10.15 LG thresholds adjusted to 40 mV.

11.00 Called Mönkemeyer because we lose a lot of time waiting for the IBT. He reduced the batch jobs on the machine. Looks better now.

11:30 TASSO counts a new filling in about 10 min.

13:40 New fill ready

15.00 TASSO counts a new fill in about 10 min.

at the end of run 3101 broken V34 found wires 496 – 512

15:50 New fill ready, V34 repaired

16:18 ID tripped (due to partial beam-loss)

16:30 Tasso and MJ have collected so far at 17.9 GeV 7 nb^{-1} and 9 nb^{-1} respectively compared to 6.2 nb^{-1} by JADE.

17.20 After run 3103 T2-trijet FPA card 2 ⇔ 3 exchanged. C. Wehlen

16.00 Goddard + Eicher on shift.

12.07 PKR is calling to run beambumps, cause to improve luminosity.

13.5 A → 12 A gives too much background for TASSO, therefore return to 13.5 A → run 3106

↗ run 3105.

20.01 Stop run 3107 because TASSO cannot refill. at 22.09 Restart detector because LINAC II in trouble, takes ca 30 min to repair.

20.27 Stop run 3108 for refill.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV
3107	21.3.80	19.31	20.01	2.9	3.2			2251	451	25	426	10	1052	306	961	768	324	150
3108	"	20.10	20.27	2.3	2.6		1041	1260	270	10	260	3.2	650	150	509	531	144	71
3109	"	22.35	23.50	5.4	5.5		4469	7840	1163	151	1011	102	3472	1350	3800	2046	1444	382
3110	22.3.80	23.51	0.43	3.2	3.5		3018	4199	766	63	733	27	1968	612	1896	1349	660	253
3111	22.3.80	01.37	01.52	5.4	5.1		1186	2228	309	64	245	47	1165	541	1358	602	566	115
3112	22.3.80	02.42	08.50	5.4	5.7		3941	7849	1025	151	874	101	3430	1445	3580	1910	1895	380
3113	22.3.80	03.52	4.59	3.0	3.4		3975	5450	1034	65	970	32	2690	763	2295	1842	904	356
3114	22.3.80	05.34	6.47	4.1	4.4		4340	7853	1128	160	968	105	3431	1481	3761	2018	1422	477
3115	—	06.49	09.30	3.4	3.7		2426	3313	631	34	592	20	1506	494	1551	1104	439	192
3116	"	8.06	9.35	5.5	5.7	$5.3\cdot10^{-9}$	1661	3489	432	86	346	54	1506	661	1697	827	695	158
3117	22.3.80	20.05	22.00	5.4	5.5		4117	7847	1071	124	947	72	4192	1171	3050	1958	2294	402
3118	"	22.35	23.05	5.3	5.4		1693	3432	440	63	376	40	1756	526	1445	917	833	139
3119	23.3.80	0.15		5.4	5.4													
3122	23.3.80	0.26	1.39	5.4	5.9		4248	7860	1105	145	960	96	3683	1191	3580	1898	1837	396
3123	23.3.80	1.39	3.39	3.8	3.5		6639	7659	17217	136	1590	32	7845	896	3338	2603	1141	603
3124	23.3.80	3.56	4.21	1.6	2.0		2696	2733	701	155	686	2	1374	213	1192	1132	251	194
3125	23.3.80	23.21	0.20	5.0	5.0		4251	7828	1105	144	961	89	3758	1177	3470	2095	1715	378
3126	23.3.80	0.21	1.30	3.5	3.6		4104	5756	1068	72	996	38	2737	737	2496	1826	1056	322
3127	24.3.80	5.34	6.57	5.6	5.7		3934	7840	1038	163	875	111	3551	1332	340	1183	1801	424
3128	"	6.51	8.16	3.8	3.8		5054	7043	1315	88	1227	46	3349	898	3113	2249	1164	387
3129	"	9.47	10.53	5.4	4.1		3495	7703	909	143	765	89	4124	2288	3005	1782	2383	468
3130	"	10.54	11.06	2.1	1.9		730	831	189	6	183	1.5	425	94	342	320	121	56
3131	"	13.04	13.23	4.7	5.4		1099	3037	285	122	163	24	1932	1181	793	416	1555	253
3132	"	13.28	14.51	4.3	5.0		4519	7594	1176	117	1058	69	3706	1425	3243	2001	1797	482
3133	"	15.45	16.50	4.6	5.4		3789	7846	986	155	831	98	3957	1330	3377	1802	2205	361
3134	"	16.53	18.15	3.5	4.3		4563	7857	1187	114	1073	53	4331	1435	2901	2045	2395	516
3135	"	19.05	19.49	2.7	3.3		2004	2687	522	27	494	12	1391	466	1089	910	520	175
NEW EXP					EXP 12			Energy scan from 17.5										
3136	24.3.80	23.25	0.55	3.6	4.8		5389	7861	1402	65	1338	3.0	4264	1160	2297	2401	1852	569
3137	25.3.80	0.56	2.35				5898	7809	1534	45	1489	1.8	4134	954	2539	2660	1624	569
3139	"	2.39	3.03	2.9	3.9		1439	1917	374	12	362	0.59	1072	270	611	627	431	147
3140	"	3.49	5.14	5	5		4743	7858	1234	53	1181	4.45	4308	1190	2121	2254	2141	600

RUN	T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM / TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS
3107	30	0.18	0.31	64.52	IBM	1.2	1	0	19.7?		Hopeless because TASSO wanted to fill
3108	15	0.13	0.13	64.65	"	"	1	0	"		see p. 45
3109	161	0.32	1.43	66.08	"	2.3	18	2	"		Refill finished at 22.33
3110	71	0.20	0.60	66.68	"	1.5	3	0	17.9		Run stopped for refilling.
3111	68	0.34	0.40	67.08	"	2.5	3	1	"		Inner detector trip due to beam loss.
3112	139	0.31	1.21	68.29	"	2.5 / 1.6	14	0	"		
3113	96	0.21	0.84	69.13	"	1.5	14	0	"		Run ended for refilling
3114	143	0.29	1.26	70.39	"	2.6	11	0	"		
3115	56	0.21	0.51	70.90	"	1.9	4	0	"		Run ended for refilling.
3116	64	0.36	0.60	71.50	"	2.4	8	0	"		new fill. 8:35 beams lost.
3117	164	0.35	1.43	72.93	"	2.0	16	0	17.9		new fill from 22.00
3118	78	0.40	0.67	73.60		2.3	4	1	17.9		beams were lost. 23.05; new filling
3119											no link available (also not for 3125, 3121)
3122	161	0.33	1.39	74.99	FILL 1070	2.5	21	0	"		
3123	150	0.19	1.28	76.27	IBM	1.5?	15	1	"		reconnect with ZBM
3124	30	0.10	0.28	76.55	"	0.9	1	1	"		low stop value to low intensity
3125	185	0.37	1.58	78.13	IBM	2.0	21	0	17.9		
3126	121	0.25	1.03	79.16	"	1.8	11	0	"		
3127	176	0.39	1.59	80.70	"	2.7	21	0	"		
3128	171	.28	1.41	82.11	"		12	0	"		
3129	83	.24	.83	82.94	"	2.4	8	0	"		
3130	8	.10	.08	83.02	"	2.3	0	0	"		Tasso requested refill
3131	18	.19	.20	83.22	"	3	3	0	"		refill requested
3132	128	.14	.65	83.87	"	3	16	0	"		
3133	129	.30	1.13	85.00	"	2.2	14	0	"		
3134	92	0.10	0.47	85.47	"	1.7	9	0	"		
3135	27	0.14	0.28	85.75	"		950	24			
3136	664	0.92	4.96	4.96	IBM	1.8	61	2	17.50		17.500
3137	495	0.62	3.65	8.61	"	1.3	35	1	17.50		1D-trip
3139	71	0.35	0.51	9.12	"	1.0	7	0	17.50		Refill requested
3140	745	1.15	5.45	14.57	"	1.8	64	1	17.50		

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 Acc + Postp. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1 TR.	T1 LG>4 GeV

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ Exp	IBM/ TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_{CM}	FREQUENCY (kHz)	REMARKS

Scan Pöb on p151

22.3.80

0:00 Sato & Darvill on shift.
0;43 Run stopped for refilling
1.05 LG High Voltage Distributor --- Bit set.
1:36 Run 3111 started
1:59 Inner detector Cup — Beam lost. Inner detector reset according to instructions in Inner detector Logbook.
3:05 our luminosity at the moment is 0,37, Tasso make Hours 0,5, Mark J also have 0,5 celle
Herr Rossbach in PKR says at the moment the beam currents are too high for him to be able to increase the high frequency and so improve our luminosity - he will do it when the beam currents are a little lower. He seems to be watching this for us and to have everything under control.
3:22 Beam current settings in rack updated.
4:28 Decay of beam currents with time according to T.V. display appears almost linear.
05:35 Stable beams again
06:35 EHT wrong on one counter from either Trigger lead glass or beam pipe - 1.9712 should be 1.9950 i.e. 24 volts too low. I think this must be a beam pipe counter since it seems to be too high a voltage for the Trigger system.
07:05 our luminosity, 0,29 compares well with Tasso at 0,3 but we just had a sudden drop to 0,18. will wait a few minutes and see if Tasso suffered the same loss.
07:15 Spoke to Tasso again and they say the have not suffered any obvious loss. Then spoke to Herr Rossbach at PKR. who says they did not change anything but will look into it. Tasso ring back almost immediately to say that they propose to request a new filling in 10 minutes - so I guess it is not worthwhile for PKR to make any changes until after the filling.
08:00 Brumm & McCann on shift.
08:06 Start run 3116 with new filling
08:35 Beams lost without warning. start new fill.
Problems with synchrotron DESY.
12:10 DESY-Problems not yet solved. PKR tells: probably ~~[illegible]~~ still down for more than 1 hour.
15:40 DESY-problems go on for an unknown time. We ~~make~~ switch off the JADE-magnet.
16 00 YAMADA HELM
16 45 Magnet ~~switched~~ switch up on again, magnet trip alarm line enabled on rackside.

[Switch off or run down?
Read magnet instructions before touching controls please]

23.3.80

0 00 Sato, Elsen
Problems with IBM. Operator is not able to give reason. ~~He~~ A technician has to come.
We write to tape. Runs 3119, 3120, 3121 were used in trying to get the link working.
(Why does the run number increment even if no event has been written?)

1 39 Run 3123 started. Data sent to IBM again.
2 25 ~~[illegible]~~ DESY is down. Run still continues in spite of low intensity.
3:36 intensity E^+ 1.6 E^- 2.0 but refill is still impossible
4:15 luminosity is 0.07, Attenuator is 0, beam current is 1.5(E^-) 1.2 (E^+) this Run will be impossible soon.
4:30 Desy still down. Rectifier broken. It is unlikely that they get it working during the next hours. Currents are below lowest attenuator threshold. We stop run. Tasso intend to have the beam dumped and to switch off their magnet.
4:45 Beams dumped. PKR will try a new fill soon so we do not switch off the magnet.
7:00 HKR still does not know when Desy will be up again. All magnets run down.
8.00 Kawabata & Clarke on shift
14:30 Desy still down.
16:00 Murphy & Komamiya on shift. No beam.
16:50 They begin to inject some beam. Off again.
22:40 Injection again.
23:07 Start run 3125.
23:45 Found that muon counter was not working. Reset. This counter does not give the event missing message.
0 00 Naroska, Helm
1 30 Tasso asks for new filling.
2.20 New filling was ready. Background was rather high BP ≥ 4.0. Before we could switch on the ID, the beam had disappeared.
2.35 Enquire with PKR: beam loss was due to some water leak which caused a transmitter to trip. They are trying to locate it now.
4.00 Nothing yet. Waterleak not yet fixed. Lower magnet.
5.00 Run magnet up again, Petra is injecting
5.35 ID tripped (trouble current 31.7 70).
5.40 Started painting the "Pommerwelle" from H. Wagner we repaired V3H (20) for wires 305 - 320 (+12 V had gone)
7.25 Only 35 more minutes till the next shift comes.
8.00 Steffen,
8.20 beam dumped for new filling
9.00 V. Krogh
9:30 start run 3129
13:03 new filling, BP current ~ 4, even though collimators in wait till it goes down to ~ 3.
13:05 start run 3131

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 Acc + Postp. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLOT RUN	SLOT Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_{CMS}	FREQUENCY (kHz)	REMARKS. Scan PGB on bis!

13.15 after ~10 in BP currents rose to ~3.4 but no ID trip. continue running
deadtime ~ 40%

13.27 IBM transfer error 54 link doesn't work
IBM people say they are having trouble he will check
OK again

NSO: 'TRIGGER BITS' HISTOGRAM: BIN 17 CONTAINS T3 ACCEPT TRIGGERS

15.47 Run 3133 started

16.00 Foster Yamada Here

Real time 19.7% total, 19.2% init. Lumi $0.32\ 10^{30}$. Events 2.5 Hz. Beam pipe ≤ 2.5

16.50 Run 3133 ended, Run 3134 started.

17.35 ID high voltage off due to over current.

~~18.47 3135 ended~~

19.05 Raw filling. Expected raw energy at next filling but one.

20.17 Yet another change of plan, Cello magnet is now ON so PKR will try and fill at new energy 17.5
- they are optimising orbit at present.

Between EXP11 & EXP12

21.40 Raised discriminator thresholds for TOF counters from 100 to 150 mV.
Please look at their distributions carefully.
adjusted HV of ToF counters.

23.25 The Beam now achieved at 17.50 GeV.
Start run 3136. Real times 11.3% , 13.3% seem good. BP monitor ≤ 2 V.
TASSO measures $\gamma \propto I_b^{1.1}$ we get $\gamma = 0.9$

25/3/80
00.00 Eichler and Hassard

2:35 ID-trip

3:56 compensating coils ~~off~~ switched off during run 3140 (after 560 events)

6:03 compensating coils are switched back on again, after ~4500 events in run 3141
luminosity doesn't seem affected greatly.

7:45 ID-trip

8:00 Elsen & v. Krogh on shift

9:59 PKR are repairing a horizontal spoke of Electron balun

10:45 Energy changed to ~~7.51~~ 6.51 GeV, Run 3143 started

14.30 Nord 50 busy for a few seconds
then Missing micro Crate for a few seconds.
these error messages stayed on only very briefly.

15 35 IBM down

15 50 we are writing on tape in order not to loose the high lumi
IBM phones are constantly busy (off the hooks?)

16.00 Clarke/Orito.

17.05 Run 3147 (Tape F11 102) stopped: IBM now up.

17.30 Tasso want new fill at 18.00 hrs.

19.05 New versions of ZDAS & YMENU loaded - tests seem ok. Changes were to remove
output statements from ZDAS to give more room for *new* facilities.
Also new histograms available. (+J.EM)

20.45 Tasso want to change energy - they say they have had 30nb^{-1} for some time now!
We have 22.50 nb^{-1} (cf 22.56 at 17.5 GeV) 20.52 Start at 17.52 GeV. -

21.25 PKR ask us to switch ~~off~~ our compensating magnets, CELLO magnet now on.
Hadrons seem to be hiding again.

26/3/80 0.00. Dieter Coords & Fred Loebinger.

0 10 IBM busy for several minutes; IBM operator reloaded our job

2 20 Tasso wants filling at 2^{20} and 3 minutes access to their detector. (actual delay to start of re-injection: 20 min).

2.30 Run 3154 ended — Beams dumped for new filling.

6.30 Beams dumped for refill

6.55 New beam: start run 3157

7.40 Nord-10 hangs up on link 14: Internal Hardware Status Interrupt = "memory out of range".

8 00 v. Krogh & Haidt

8 40 Tasso has 28 nb^{-1} we have 24 nb^{-1}. MarkJ ~ 35
Compared to the runs at 17.5 of 1.3.80 our lumi has not changed
previous run at 17.5 : SL = 16.0 N_{Bhab} = 204
present run : SL = 22.5 N_{Bhab} = 305

11 00 IBM down. Mensor unit is down.
The IBM people say the anticipate a lengthy repair and recommend
that we write on tape.

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 ACC+POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1TR.	T1 LG>4 GeV
52																		
3141	25/3	5:11	6.44	4.5	4.8		5339	7859 6846	1389	~~948~~	1342	2.6	4203	1103	2371	2425	1885	592
3A2	"	6.44	8.16	3.5	3.8		5284	~~6776~~	1375	47	1334	1.5	3573	873	2210	2360	1345	543
3143	"	10:~~50~~	12.11	4.4	4.4		4838	7860	1259	79	1179	4.2	4528	1081	2120	2324	2330	568
3144	"	12:11	13:15	4.4	4.4		3674	4980	956	33	923	1.6	2685	656	1556	1634	1123	401
3145	"	14.13	15,33	5.0	5.2		4657	7863	1212	89	1122	5,0	4393	1093	2026	2255	2228	602
3146	"	15:34	15:35	4.6	4.8													
3147	"	15:50	1705	3.8	3.6		4377	5987	1139	36.7	1102	1.75	3207	775	1860	1918	1403	441
3148	"	17.14	17,57	3.6	3.4		2542	3218	661	37.8	623	0.63	1717	398	1049	1148	623	254
3149	"	19.09	20,06	5.5	6.0		3410	5814	887	38.2	849	3.86	3270	883	1457	1658	1721	477
3150	"	20.10	20.42	4.5	4.9		1784	2773	464	18.3	445	1.38	1566	398	789	881	738	223
~~3151~~	"	20:32	22.27	4.3	4.8		5725	7862	1490	65.5	1425	2.76	4418	1073	2405	2622	1922	608
3152	"	23.01	0^{28}	5.4	5.7		5132	7861	1335	112.2	1223	5.0	4553	1282	2086	2438	2240	574
3153	26/3	0^{29}	2^{02}	4.5	4.7		5577	7863	1451	49.0	1402	2.7	4264	1104	2495	2550	1825	599
3154	"	2^{03}	3^{29}	3.7	3.9		1520	1933	396	12.9	383	0.50	1012	228	661	655	392	161
3155	"	3.27	4.49	5.3	5.8		4878	7860	1270	53.7	1216	5.3	4412	1151	2267	2379	2113	546
3156	"	4.50	6.23	4.4	4.8		5582	7859	1453	49.5	1403	2.8	4199	1123	2511	2507	1828	642
3157	"	6.35	7.40	5.2	6.1			~5000										
3158	"	7.47	9.14	4,5	5.4		5151	7862	1339	50	1289	3.4	4437	1128	2266	2445	2185	589
3159	"	9.15	9.56	3.8	4.5		2411	3530	627	21	605	1.0	2085	454	1023	1132	1024	234
3160	"	11.23	12.46	5.0	5.0		4907	7860	1276	52	1224	5.5	4424	1234	2272	2390	2129	589
3161	"	12.51	14.19	4.6	4.6		5030	6921	1309	74	1234	2.5	3883	962	2100	2288	1739	533
3162	"	14:41	16:03	5.2	5.8		4912	7863	1279	114	1165	4.9	4697	1187	2038	2295	2554	604
3163	"	16:15	16:37	4.0	4.7		1307	2003	340	13.5	327	0.7	1159	237	570	611	588	157
3164	"	16:39	17:17	3.7	4.3		2273	3100	592	25.1	566	0.9	1710	435	967	997	789	270
3165	"	17:53	19:09	5.3	5.6		4589	7859 1848	1194	54.2	1140	6.1	4661	1242	2105	2273	2515	548
3166	"	19.09	19:27	4.~~8~~	4.5			~~1875~~										
3167	"	19:39	19:51	4.0	4.4		699	1026	182	7.4	175	0.4	592	149	283	336	276	85
3168	"	19.59	21:00	3.8	4.3		3628	4986	944	29.9	914	1.6	2846	720	1506	1677	1259	389
3169	"	21.32	22:49	5.6	6.0		4592	7895	1195	59.9	1135	5.9	4740	1172	1955	2281	2588	616
3170	27/3	~~22.50~~ 00.19	00.19	4.5	5.0		5289	7862	1376	79.9	1326	3.1	4475	1155	2313	2390	2198	625
3171	27/3	0^{23}	0^{59}	3.7	4.1		2160	2917	562	18.1	544	0.78	1620	392	909	931	725	232
3172	27/3	02^{06}	03^{21}	5.4	6.1		4437	7860	1155	53.3	1101	5.8	4686	1166	2014	2126	2651	580
3173	"	03^{22}	05^{00}	4.4	5.0		5305	7861	1380	49.9	1330	3.35	4368	1141	2374	2372	2725	639
3174	"	05^{46}		5.5	6.0		4427	7855	1153	55.2	4098	6.70	4647	1223	2043	2167	2618	581

RUN	T1 LUMI	$\langle L \rangle \times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM/TAPE	BP	BHABHA	MULTI HADRON	ENERGY E_B
3141	638	0.90	4.83	19.40	IBM	1.4	63	1	17.5 Sched
3A2	427	0.60	3.16	22.56	IBM		40	0	17.5
3143	588	.90	4.36	~~24.36~~	"		78	2	17.51
3144	309	.63	2.31	6.67	"	1,5	37	3	17.51
3145	760	1.20	5.61	12.18	"	2,	59	2	"
3146								0	
3147	430	0.88	3.84	16.02	FII 102	2	43	1	17.51
3148	182	0.54	1.36	17.38	IBM	1.0	21	0	"
3149	521	1.12	3.81	~~23.33~~ 21.19	IBM	1.8	52	2	"
3150	173	0,73	1,31	22,50	IBM	1,5	15	0	"
~~3151~~	387	0.51	2.94	2.94	IBM	1.5	29	0	17.52
3152	581	0.84	4.31	7.25	IBM	1.8	59	0	17.52
3153	451	0.62	3.45	10.70	IBM	1.5	43	1	17.52
3154	91	0.44	0.67	11.37	IBM	1.4	9	0	17.52
3155	578	0.89	4.34	15.71	IBM	2.7	52	1	17.52
3156	455	0.61	3.40	19.11	IBM	1.5	52	1	17.52
3157			~2.8	~21.91	IBM	2.0	2	1	17.52
3158	504	.74	3,79	24.70	"	1.7	55	2	"
3159	173	.53	1,28	25.98	"	"	10	0	"
3160	507	.76	3.75	3.75	FII 103		61	1	17.53
3161	348	.52	2,63	6,38	IBM	1,8	33	2	"
3162	465	0.70	3.46	9,84	"	1,9	42	2	"
3163	99	0.59	0.77	10.61	"	1.3	9	0	"
3164	139	0.46	1.04	11.65	"	1.1	17	1	"
3165	482	0.78	3.57	15.22	"	1.9	44	0	17.53
3166									17.53
3167	55	0.60	0.42	$\geq$15.64	IBM ~~FII 129~~	1.~~7~~8	~~0~~5	0	"
3168	220	0.47	1.69	17.33	FII 129	1.5	18	1	"
3169	522	0.84	3.85	21.18	IBM	1.7	42	2	"
3170	408	0.59	3.10	24.28	IBM	1.5	44	0	"
3171	138	0.47	1.07	25.35	IBM	1.3	14	0	17.53
3172	517	0.86	3,83	3,83	IBM	1.9	55	4	17.54
3173	442	0.63	3.57	7.20	"	1.7	43	0	"
3174	535	0.91	4.01	11.21	"	2.0	49	2	"

RUN	REMARKS
3141	Scan PGB on bis1
3143	12nb 2276nb' 2700'e' 5 trad $\mathcal{L}_{Bh} = 23.7\ nb^{-1}$ $\sigma_{ee} \sim 11.9$ 17.510 [New energy]
3144	scalers not read
3145	17.510 New fill $\mathcal{L}_{Bh} = 26.8$
3146	17.520 [New energy]
3147	New filling
3148	"Hadron event" obvious cosmic shower.
3149	New filling (17.520).
3150	New filling Runs by NORD-10 hang-up ! no summary
3151	Tasso trigger! non empty
3152	$\mathcal{L}_{Bhabh} = N_{Bh}/\sigma_{ee}$ $\sigma_{ee} = 15.5 \times \left(\frac{45}{E}\right)^2$ 17.530 ID trip stop for new filling
3153	NORD CRASH RUN SUMMARY LOST. IBM link down — run stopped. WRITTEN TO TAPE
3154	On-line Bhabha cross section $\int Ldt = 28.9 \pm 1.6\ nb^{-1}$
3155	WRITTEN TO IBM.
3156	NEW ENERGY 17.54
3157	New filling.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$\geq$1 TR.	T1 LG$>$4 GeV

Checking our Luminosity

Summing the events for $17.50 < E < 17.52$ we have 644 Bhabhas. (stat.)

Using the theoretical cross-section of 11.4 nb this gives $\mathcal{L}_{BH} = \frac{644}{11.4} = 56.5 \pm 2$ nb

Our online $\mathcal{L}$ for these energies add up to $\mathcal{L} = 51.1$

Increasing this by 8% leads to 55.2 nb^{-1} and N_{BH}

Conclusion: Our lumi corrected by 8% is consistent with theoretical $\frac{1}{s}$ cc

JvK

12.45 IBM link up again. The run 3160 is on tape FM 103 (8000 events read)

13.28 IBM job error; IBM disc overflow;

16:00 Ball & Watanabe on shift

16:03 Run 3162 terminated at 8000. People here are doing test runs on tagging chambers (v. shift log)

16:14 Run 3163 started.

16:37 Inner detector trip (anode current, address 120)
End run 3163.

16:38 Start run 3164 Tasso wants a new fill at 17:15.

17:16 Stop run 3164

17:46 New fill ready. Thobbick + Narvska still doing tests on high T2 rate

17.48 Constants for event display modified for Muon display. YCLRTV changed regarding warning sound for no events - now sounds every 8 seconds - will change to 4 soon. H.S.F

17:52 Run 3165 started

19:09 Run 3165 ended after 8002 events. Histograms look OK.
Run 3166 started.

19:29 NORD crash. Everything stopped. Restarted Nord 10 + DAS.
Run summary for Run 3166 lost - had read 1848 events (I think!)
Started run 3167

19:55 100 secs of 'IBM busy'. Ring TASSO - same problem. Ring IBM - no time estimate for repair

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan Pob on b151

19:58 Decide to write to tape
Run 3168 started on tape F11129
New filling will be at 20:45.

20:38 Tasso say new filling will be at 21:00 - Hello require more time for calibration work.

20.59 PKR announce that they are ready to dump. Stop run 3168.

21:29 New filling ready. BP current 5. Ask PK2 PKR to check vertical collimators.
PK2 adjust collimators BP current 1.8. IBM link is OK now.

21:31 Start run 3169, which includes tagging drift chamber data. [The window during FOI function. If test pulse normally will take 8000 events. at end return to normal previous status (FOI start)] for F. Foster.
Test successful.

22:35 Get 'IBM DISC 96% FULL' message. Ask IBM people to dump it for us.

22:37 IBM phone to say IDUMP is running normally. message has now gone!

22:48 Run 3169 ended. Start run 3170

23:53 TASSO called. telling Mark J wants 5 min. access to fix a broken wire.

27.3.80
00.00 New filling (probably at new energy) will be at ~00:30.
Hollebeek & Newman on shift.

00.20 TASSO say beams now to be dumped at 01.00 HRS.

00.22 Run 3171 started.

01.06 Beams dumped for new filling and to allow access for MARK-J.

02.06 Run 3172 started with new beams at new energy.
During the last energy ~~scan~~ scan we collected 25.35 nb^{-1}
TASSO 30.5
MARK J 33.6

02.50 LG trigger signal ~~threshold~~ is ~40 mV

04.17 ID tripped, Run 3173 interrupted — CHAIN CURRENT (2) DATA 57.7 ADDRESS 10

04.35 TASSO called. New filling at 05.00 HRS.

04.40 ID tripped. Run 3175 interrupted — ANODE CURRENT (3) DATA 34.0 ADDRESS 44

05.00 END OF Run 3173 - Switched off ready for new filling.

05.40 Switched back on. Beam jittery (BP FLUCTUATING) waited until 05.45 to switch on the detector and started run 3174.

07.02 Run 3175 started.

07.27 IBM down Run 3175 stopped.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

0500 Museum disappears on shift
0526 End run 3176 for refill.

09.20 Colour TV program updated - now monitors IBM more closely.
11.37 LG thresholds checked ok
11.53 TASSO say new filling will be at 12:45
12.55 trouble with the IBM-link came from a slow IBM-track-down;
I also reloaded YIBM (D.C.)
14.10 TASSO Rate 30 nb^{-1} and would like to change energy. They will consult other expts. We have ~24 nb^{-1}
14.15 CELLO would like to continue ; TASSO agree to the request.

14.35 TASSO ask new fill in ~10 mins.
14.50 PKR did not dump the beams (Synchrotron is down)
BUT! There was no announcement for it. we lost ~15 min.
We start the new Run 3181
⇒ There are no TOF-ADC's in the Run 3181, because Naroska has started to repair them and she needs ~30 min. to do it. {we thought beam would be soon dumped after the Run 3180.}

15.30 Inserted ~6dB in all inputs for TOF ADC's. Left timing untouched. (~4 nsec difference)
15.35 Muon (T3) trigger sector 36 had group 4 set - should have been group 3. changed to group 3. - so now this results in a permanent subtrigger 2 from sector 36. Ostball.
15.50 Fatal hw. + Oltmann
125/sec is the rate ≥1 TOF with no beam.

Synchrotron down for some time

18.21 Error in T2 readout spotted and cured. Kreibich

20.15 Modifications to event display - TIMDEL and Lorenz angle slightly modified. Pedestal subtraction for Z now included. Major muon display reorganisation. For Z. Please watch it H.-J.M.

22.15 Bug in NSO-Program cured (interrupted goto-bomb in continuation records) before run 3185.
Runs 2751 - 3184 need a special kludge in L.H.O's reformatting step.
This caused the hole in the R1 of the I.D

T1 LUMI	<L> $\times 10^{30}$	SLOT RUN	SLOT EXP	IBM/ TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_{CM} (GeV)	FREQUENCY (kHz)	REMARKS	Scan PAB on

22.24 Start Run 3185 NEW ENERGY (W 17.550) (Use FOR for drift chamber tagging drift chamber test)
Problem: NO T2 Trigger phone Kreibich.
$\mathcal{L} = 0.7\ 10^{30}$
(cannot solve the problem on the phone Bateman goes to fetch Kreibich at DISCO 500
23.00 Kreibich here, investigating. Calls for T2 Gate start put back in place. Now everything should be o.k.
(Run 3186 - test run)
23.13 Start run 3186. Ok now. TASSO request refill at 23.30 - due to low $\mathcal{L}$.
23.32 Stop run after PKR warning that beams are to be dumped. at 23.39 beam still there!! we are getting beam (I see on TASSO) - 23.42 beam finally gone!
2355 This was a waste shift!
00.00. Duerdoth & Komamiya
00.21 Start Run 3187. $\mathcal{L} = 0.6\ 10^{30}$ (Used FOR for tagging chamber test).
00.55 e^+ and e^- currents both halved!
02.10 LG threshold looks O.K.
02.12 SDAS ERROR 000044 (OCT) SUBERROR 000701 (OCT) TASK 1
02.25 I.D. trip (beam pipe current water load beam flickering a bit).
07.15 Start 3190. the last fill took 2½ hr.
08.00 McCann & Otto on shift.
08.29 SDAS ERROR 56 (OCT) SUBERROR 272 (OCT) TASK 1.
08.44 " " 44 701 "

10.50 N50 Histogram display - you may now use ABORT-DISPLAY to abort histogram drawing i.e. if you ask for STD-HISTOGRAMS by mistake! H.-J.M.

10.30 Beams dumped. Delay in filling due to power supply problem.
11.30 New fill ready. Start run 3192. Many SDAS ERRORS. Herr Reisberg diagnosed problem as overheating of electronics due to air conditioning failure. Run stopped - 5 mins later beams were lost anyway.
Expert called to repair air conditioning in counting room. Repaired O.K.
Run 3192 only ~30 events.
12.18 New fill ready. Run 3193 started.
Many SDAS errors as follows: 44 SUBERROR 401 TASK 1
- Herr Reisberg working on it. DLS # 43 (run # 384-391) exchanged; Serial # 36 against # 223
12.25 Beams lost. Run 3193 only 399 events. Run Summary will not come off hardcopy machine. — Eventually got it.

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 ACC + POSTPR. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1TR.	T1 LG>4 GEV	SCANNY SWITCH THIS SPACE
3175	28/03/84	07 02	07 32	4.5	5.0		1470	2358	382.7	16.7	366	1.22	1339	373	633	698	702	194	
3176	"	07 39		4.2	4.6		2703	3903	704	56.7	647	1.43	2221	569	1103	1203	1089	345	
3177	"	09 53	11 22	5.2	5.2		5025	7856	1308	109.5	1198	4.53	4571	1116	2147	2263	2406	570	
3178	"	11 23	12 10	4.2	4.3		2633	3826	685	24.7	660	1.32	2188	514	1155	1256	1017	279	
3179	"	12 39		5.6	6.1		4027	7695	1048	80.6	968	8.2	4748	1258	1800	2032	2878	571	
3180	"	13 55	14 37	4.6	5.0		2495	4035	649	33.2	616	2.3	2354	589	1088	1177	1251	338	
3181	"	14 55	15 28	4.0	4.4		1970	3086	513	19.5	493	1.1	1121	39/~~882~~	882	956	897	224	
3182	"	15 29	15 39	3.7	4.1		568	832	148	4.9	143	0.3	462	113~~365~~	249	268	218	60	
3183			Tabrun			TOF		NO	BEAM										
3184																			
3185		22 20	22 38																
3186		23 13	23 32	4.7	4.7		1033	1838	268.6	12.9	255.7	1.02	1198	258	462	469	764	115	
3187	28/03/84	00 21	01 02	4.8	5.2		2373	4473	616.5	35.1	581.4	2.72	2940	589	1011	1110	1918	328	
3188	"	02 05	03 09	5.1	5.7		3493	7857	907.7	58.7	849.0	5.12	5360	1466	1565	1691	3750	512	
3189	"	03 10	04 19	4.0	4.5		3753	6899	974.8	51.0	923.8	3.39	4414	1688	1599	~~2371~~ 1741	2771	546	
3190	"	07 14	08 11	5.5	5.9		3865	7857	1005.9	61.6	946.3	10.0	6465	1286	1931	1960	3036	519	
3191		08 20	09 14	4.4	4.8		5440	8002	1416	71.3	1334.	4.3	4367	1447	2372	2068	2377	724	
3192	"							~30					Short Jumbo run						
3193	"	12 18	12 25	5.3	5.9		399	399	81.	7.9	63.6	0.6	198	97	123	137	46	26	
3194	"	15 54	16 56	5.5	5.3		3709	7854	963.7	60.3	8974	5.58	5340	1150	1599	1773	3734	525	
3195	"	17 00	17 50	4.6	4.4		2920	4492	799.7	30.7	7290	2.35	2630	768	1257	1270	1446	352	
3196	"	20 08	20 44	5.3	5.4		2093	4267	544.4	32.5	511.9	2.67	2707	682	953	1010	1831	294	
3197	28/03/84	0 54	2 51	4.4	4.8		~~3846~~ 3344	6647	871	~~1~~	821	4.2	4336	1040	1414	1621	2541	467	
3198	"	2 57	4 20	4.2	4.5		6913	11636	1278	51.8	1226	3.1	4554	~~1153~~	2157	2135	2501	382	
3199	"	6 23																	
3200	"	6 25	7 01	4.4	5.2		3252	11783	846	32.0	7911	4.9	6482	953	1444	1597	3850	476	
3201	29/03/84	8 26	9 42	4.6	5.4		4467	7860	1163	59.4	1103	6.3	4854	1344	2091	2041	2951	561	
3202	"	9 43	9 44	4.6	5.4		65	133	17	0.8	16	0.06	72	18	26	41	48	12	
3203	"	9 45	10 49	3.7	4.4		3844	5328	1000	35.7	964	2.6	2941	881	1708	1742	1284	442	
3204	"	11 22	12 37	4.7	5.0		4450	7841	1157	79.7	1078	9.9	4721	1666	2070	2208	2581	588	
3205	"	12 38	13 20	4.2	4.5		3123	4700	812	33.8	779	3.0	2593	881	1407	1448	1208	460	
3206	"	14 19	15 35	5.1	5.9		4445	7855	1156	66.6	1090	9.4	4687	1656	2130	2134	2641	605	
3207	"	15 35	17 07	4.0	4.5		5496	7863	1429	57.0	1372	4.3	4383	1483	2435	2463	2048	686	
3208	"	17 09	17 19	3.2	3.8		538	746	139	5.6	133	0.3	407	116	235	252	165	80	
3209	"		Test	Run		to	test	DL8	electronics.										
3210	"	18 33	18 37	5.3	5.2		177	417	46	2.8	431	0.4	244	65	83	102	179	23	

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM / TAPE	BP	BHABHA	MULTI HADRON	ENERGY E_B (GeV)	FREQUENCY (KHz)	REMARKS
141	0.71	1.05	12.26	IBM	1.7	11	1	17.54		IBM down.
204	0.58	1.56	13.82	"	1.6	27	1	17.54		IBM restored – clear run.
509	0.90	4.51	18.33	"	2.0	66	3	17.54		New fill.
186	0.54	1.41	19.74	"		21	0	17.54		
491	0.91	3.65	23.39	"	2.0	49	1	17.54		new fill
226	0.70	1.74	25.13	"		24	0	17.54		
137	0.56	1.11	26.24	"		16	1	17.54		NO TOF-ADC'S IN THIS RUN.
37	0.46	0.26	26.50	"		4	0	17.54		beam lost 32×10^{-7} from view Stalle
				IBM FA1105		365	(n)			
								17.55		NEW ENERGY 17.550. No TP trig in this run!
34	0.27	0.28	~~2.2~~ 0.28	IBM	2.0	2	0	17.55		TASSO request new filling.
162	0.53	1.25	1.53	"	2.1	17	0	"		beam lost
349	0.75	2.63	4.16	"	1.9	34	0	"		
240	0.50	1.89	6.05	"	1.6	18	1	"		⇒ new filling
390	0.75	2.91	8.96	"	2.	31	2	17.55		
376	0.51	2.80	11.76	"	2.3	30	1	"		
30		~0	~0	"						new filling, Beams lost. Air conditioning failure anyway
32	0.68	0.22	11.98		20					
342	0.7	2.70	14.68	"	2.4	35	1	17.55		New filling
209	0.57	1.67	16.35	"	2.0	25	0	17.55		run stopped (beams lost)
230	0.81	1.70	16.05	"	1.9	16	2	17.55		Beam lost (see next page)
331	0.76	2.55	20.60	"	2.1	42	2	17.55		
325	0.52	2.58	23.18	"	1.9	23 (42)	1 (10)	"		New fill
280	0.67	2.19	~~2.19~~ 2.19		2.2			17.56		New Energy 17.560
372	0.63	2.83	5.02	IBM	2.2	37	1	17.56		
5	0.67	0.04	5.06	"		2	0			Aborted early – muon crate missing. Starting another run cleared it.
225	0.45	1.73	6.79	"		25	1	"		beams dumped
418	0.71	3.14	9.93	"	2.2	26	1	17.56		new beams
214	0.52	1.62	11.55	"		16	1	17.56		beams dumped
389	0.63	3.03	14.58	"	2.0	41	3	"		new beams
316	0.45	2.46	17.04	"	1.9	21	1	"		
22	0.32	0.17	17.21	"	1.6	2	0	"		Stop. because TASSO wants to refill
										New filling
19	0.72	0.18	17.34	"	2.0	2	0	"		test run with 1 DC8 missing see p. 61

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 ACC+POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 T. R.	T1 LG>4 GeV

13^{20} 2 memory boards on NORD10/50 exchanged (Delfs + Groß)
15^{15} Tagging chamber readout back in standard procedure (F1)
15.54 New fill ready. Run 3194 started
16.00 King, Heier on shift
16.30 Tagging HV wrong (reset → o.k.)
16.45 Peak in Histogr. 6 (Jetchamb.), called Heinzelmann, not important
17.50 Beams lost
19.25 called PUR (First no et 'Senderausfall', they will try to restart in 20 min)

Problems with DL8's during Runs 3194 and 3195

1) The DL8 #48, serial # 223, which was introduced this morning has a faulty chaining operations (wires affected 392-4). About 10% of the events have non-increasing wire number. Therefore I change back to DL8, serial #36 which has been repaired meanwhile by Mr. Matsumura.

2) The DL8 # 69, serial #3 got defective, too, by the over-temperature of this morning (28°C instead of 14°C). It shows only odd wire numbers and has probably chaining errors. This unit was repaired by Mr. Matsumura and is ok in the test.

Please watch wire maps during the next runs 19^{30} Reinberg

20.05 new start
20.15 HV-Error in Tagging-S. (HF 60, Ch. 22, 0.0420, should 1.429), ~~reset~~ reset HV by hand!
20.25 JETC Wire map looks like ever!
20.15 Beam lost again.
22.00 Problems ~~with~~ at HKR since the thunderstorm, will be at least 1 hour until new beam... possibly all night! ... they are trying to locate the problem (ie. what was struck by lightning!) ... PETRA IS A FAIR WEATHER MACHINE !!!
24.00 No beam so far!
0.00 Petersen and Sölt on shift
1:54 RUN 3191 Start
2:30 Hassard ½ crate 1 and ½ crate 2 in Muon system disabled by high-voltage trip. This corresponds to chambers 22–94 (ie. bar side-wall). When chambers # 23 and 55 were isolated, the volts were reset at 1650 and 1700 V ΔV respectively. If crate 1 will be slightly less efficient (v 9.2% per chamber). System working by 3:13

8.00 29/3/80 Munowa, Allison
9.40 Run 3202 aborted early (after ~30 events) because μ-crate was missing. Ending run & restarting cleared the fault.

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan Prob on bis1

10:37 Tasso say new filling will be at 10:50.

11^{24} During the fill, we brought μ-chambers 23 back in. Chamber 55 still shorting. (See 2^{30} note).
μ-boxes 1 and 2 now at normal operating voltage ΔV = 1700V.

12^{05} JDAS ERROR - time out on branch 3 crate 2
12^{31} TBM Problem 44 — Recovered.
16^{00} Nozaki, Cieles on shift.
17^{15} Nozaki notes new holes in I.D.-histogramm: Drumm suspects defect of two DL8 or one V34 unit. Try to find defect while PETRA is being refilled after run 3208.
18.33 Filling finished. Still trouble with missing cell.
18.46 Trouble eliminated by Drumm. Start run 3211
DL8 # 126 was broken and its chaining worked only occasionally, so that DL8 # 127 was also influenced.
DL8 # 126 changed. OK.
23.00 Muon crate missing. → muon crate #12 is reset. OK
0.00 Heinzelmann & Hoidt on shift
0^{52} Run 3215 with new energy 17.57 GeV in progress
0^{58} Beam lost for unknown reasons
2^{19} Run 3216 in progress
2^{26} ID alarm
4^{20} Error 44 Suberror 302 Task 1. Pause / continue → o.k.
4^{40} Tasso requests new filling. 5^{14} new filling ready
6^{32} JDAS ERROR 56 SUBERROR 2/2

8^{20} Barth & Goddard.

8^{40} JDAS ERROR 44, SUBERROR 302 while displaying MS0 histogram
↳ nothing to do with displaying - it's the CAMAC reading (muon crate)
8^{43} TASSO request new filling.
Both all histograms for run # 3219
observations: Tagging counter #5 seems to be dead
1 dead wire in JETC - last wire ~ # 120
8^{52} Start run 3220
8^{54} repeated JDAS error 44, suberror 302 and muon crate missing displayed on TV ~~out~~ but does not stay on.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV
62																		
3211	29/2/80	18.47	20.19	5.3	5.2		5519	7851	1436	66	1370	5932	4288	1929	2385	2501	1886	725
3212	"	20.19	20.56	3.8	3.8		2158	2791	561	19,5	541	1173	1468	476	942	939	591	245
3213	"	21.20	22.49	5.7	5.8		5264	7831	1369	78	1291	7488	4286	1511	2360	2411	1958	667
3214	"	22,51	23.42	4.0	4.1		3036	4064	789	27	761	1634	2185	630	1308	1332	899	378
3215	30/3/80	0.53	0.58	5.1	5.1		229	386	59	3	56	0.5	209	63	100	119	110	31
3216	"	2.19	3.50	5.1	5.3		5290	7836	1375	69	1306	6.861	4314	1436	2471	2408	2002	616
3217	"	3.52	4.43	3.8	4.0		3042	3932	791	39	753	1.761	2123	679	1288	838	1800	340
3218	"	5.14	6.42	5.5	5.9		5061	7832	1315	67	1247	8.233	4399	1446	2366	2380	2064	602
3219	"	6.43	8.17	3.9	4.2		5556	7032	1495	58	1387	2.8	3716	1119	2348	2324	1501	667
3220	"	8.48	9.50	5.8	6.0		3746	6187	475	83	891	6.8	3594	1127	1695	1767	1865	455
3221	"	9.52	10.35	4.1	4.3		2460	3387	640	30	610	2.0	1819	610	1112	1072	805	280
3222	"	10.36	11.33	3.8	4.0		3928	4379	891	30	861	1.7	2257	677	1957	1429	990	425
3223	"	11.58	13.21	5.5	6.0		4850	7853	1277	64	1272	8.2	4377	1403	2284	2233	2180	682
3224	"	13.21		4.1	4.3		3079	4093	801	28	773	1.9	2285	1258	1258	1360	982	356
3225	"	14.40	16^{12}	5.8	6.9		5213	7852	1355	67	1288	8.6	4270	1362	2376	2303	2008	687
3226	"	17^{21}	17.47	3.6	3.8		5176	6711	1846	45	1302	2.4	3545	943	2244	2229	1409	612
3227	"	18^{09}	19^{37}	4.2	4.4		4860	7853	1265	59	1206	6.5	4401	1237	2234	2104	2415	669
3228	"	19^{37}	20^{04}	3.8	4.0		1896	2584	493	26	468	0.8	1378	333	814	794	676	228
3229	"	20^{05}	20^{23}	3.7	3.9		1050	1421	273	10	262	0.4	769	169	431	453	360	139
3230	"	21^{07}	21^{29}	6.0	6.2		1844	3267	478	24	455	2.8	1772	475	854	821	1087	251
3231	"	22^{04}	22^{32}	6.0	5.5		1580	2708	2711	22	389	2.1	1544	418	742	715	849	188
3232	"	22^{58}	0:16	6.2	5.8		4624	7850	1204	63	1141	9.4	4462	1072	2174	2224	2317	590
3233	31/3/80	0:20	1:29	4.2	4.5	$6.2\cdot10^{-9}$	4158	5382	1082	37	1045	3.0	2842	644	1742	1830	1054	466
3234	"	2:37	4:16	4.4	5.2		5827	7861	1515	51	1463	3.1	4199	1036	2383	2574	1731	743
3235	"	4:18	4:45	3.4	4.0		1624	1955	422	11	410	0.4	985	223	673	644	373	194
3236	"	5:10	6:57	5.5	5.6		5314	7862	1383	54	1329	4.7	4293	1222	2249	2354	2021	676
3237	"	6:40	8:02	4.1	4.4		4880	6382	1277	41	1230	1.8	3294	751	2010	2079	1824	587
3238	"	08.52	10.25	5.4	6.0		5422	7860	1413	74	1339	4.8	4180	1208	2314	2370	1906	709
3239	"	10.24	11.17	3.7	4.3		3062	3683	797	38	759	1.1	1850	525	1279	1213	691	328
3240	"	11.39	13.00	6.0	6.1		4880	~~7856~~ 7856	1270	60	1210	5.4	4408	1135	2127	2224	2298	638
3241	"	13.00	13.48	4.1	4.3		2714	3755	707	49	658	1.9	2031	466	1100	1111	1017	347
3242	"	13.51	14.07	3.5	3.8		893	1122	232	8.4	224	0.3	575	155	367	342	256	112
3243	"	21.56	23.13	5,7	6.1	$-/5.6\cdot10^{-9}$	4948	7856	1288	61.1	1227	5.04	4309	1174	2099	2167	2240	649

RUN	T1 LUMI	$\langle L \rangle \times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS
											Scan PbG ar
											pist
											63
3211	410	0,56	3.10	20.44	IBM	1.8	33	1	17.56		
3212	116	0,41	0.89	21.33	"	1.6	13	0	"		
3213	469	0.68	3.58	24.91	"	2.2	43	1	"		New filling
3214	178	0.44	1.35	26.16	"	1.6	17	0	"		Stop run to refill.
							278	10			
3215	24	0.74	0.17	0.17	IBM	1.7	2	0	17.57		New energy.
3216	404	0.58	3.08	3,25	"	1.9	41	4	"		
3217	164	0,41	1.25	4.50	"	1.5	17	0	"		
3218	423	0.64	3.22	7.72	"	1.8	39	2	"		
3219	277	0.39	2.18	9.90	IBM	1.6	24	1	"		
3220	348	0.72	2.68	13.58	"	2.3	44	0	"		
3221	158	0.47	1.16	14.74	"	1.6	14	2	"		
3222	183	0,40	1.36	16.10	"	1.5	21	1	"		beam lost
3223	444	0.68	3.35	13.45	"	2.0	45	0	"		
3224	175	0.44	1.34	20.79	"	1.8	19	1	"		
3225	467	0.73	3.83	24.62	"	2.2	43	2	17.57		
3226	976	0,40	2,10	26.72	"	1.5	24/342	0/13	"		
3227	490	0,77	3,74	3,74	"	2.2	50	2	17.58		New energy, new fill
3228	146	0,60	1,14	4,88	"	1,3	9	0	"		} μ data not for this run
3229	75	0,54	0,57	5,45	"	"	10	0	"		
3230	257	1.07	1.97	7.43	"	2.0	19	1	"		beam lost, transmitt. failure
3231	207	0,99	1,57	9.00	"	2.0	24	1	"		beam lost, vacuum problem
3232	575	0,95	4.41	13.41	"	2.2	64	1	"		
3233	300	0,56	2,34	15,75	"	2.0	26	2	"		dump for new filling
3234	493	0.63	3.70	19.45	"	≈1.8	44	0	"		
3235	92	0,44	0.72	20.17	"	1.6	6	0	"		dump for new filling
3236	575	0,80	4.23	24.40	"	2.0	49	1	"		
3237	347	0,53	2,59	26.99	"	n.m.	37/62	0/2	"		End of 17.58 GeV Run
3238	587	0.81	4.40	4.40	"	2.1	51	2	17.59		New filling. New Energy
3239	201	0.48	1.48	5.88	"	1.5	23	3	"		
3240	601	0.93	4.55	10.43	"	2.0	46	2	"		New "
3241	214	0.59	1.61	12.04	"	1.6	22	1	"		Stop, because I.D. trips.
3242	63	0.54	0.48	12.52	"	1.2	6	0	"		" for refilling (FASSO-request)
3243	716	1.11	5.49	18.01	IBM	2.7	72	4	"		New filling
							$\Sigma = 229$	$\Sigma = 12$			

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

There seems to be a couple of dead lg-blocks.
Look at the expanded scale lg.-hit maps.

9^{10} Message 'Mu crate missing' comes up frequently although we pushed all reset buttons of the μ-crates. call K. Stephens.

9^{20} Call Wriedt for missing tagging counter. He says it is ok and has no influence on the luminosity

10^{25} K. Stephens arrives to solve our μ-chamber problems. He left the system switched off because not enough spare modules are at hand. No serious problem

10^{45} Have found NIO MONITORING bug that caused this not to work and prevented subsequent event & histogram displays (HEM)

10^{05} Timeout on branch 7 crate 1 ~~Bankglocke~~ 7

11^{33} Beams lost,

11^{53} Start run 3223
Lg. thresholds checked: all ok
Histograms of run 3222 ok

13^{41} Print out on the printer:
Error 38 in 32251 Memory parity P.a 177777
P.s 70107

Data taking seems not to be affected by this error.
Probably it is in a rarely used part of the NSP programs

JDAS ERROR 205 Last glass time out
i was 4056 272 wrong ToF bank length occurred 2x

14^{15} Ask for new filling

14^{40} filling ready

14^{55} Nord 10 monitoring now works (HEM)

15^{12} Message: IBM On line
Printer: IGEVM SEASEG ERROR check 33

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan Plob on plst

data taking continues unaffected.

16^{00} ID tripped

16^{00} Assm, Feist on shift

16^{40} ref 15^{13} The IBM msg on printer IGEVM SEASEG - if you exchange characters reads GIVE MESSAGE which is an error response from the IBM. The habit of swapping bytes sound like a PDP-11 which has bytes ordered differently to other computers. Curiously it used to be OK so we dont want to change our end. D.C. knows about this & will tackle computergroup. If data takings is unaffected then theres probably nothing to worry about. HEM

18^{35} PKR wants to make an orbit correction

18^{30} muon-crate Mu3 was missing, O.K. after reset

18^{40} " " Mu3 " not O.K. after reset, call expert

19^{45} μ crate missing. Reset (Mu3) doesn't help. Reset is flickering at start only, but not in each 17. Call expert. J. Harvard comes. μ-data now scrambled for a while (R 3228–38)

20^{15} N.F.K wanted by Celle. To be at 20^{30}!

20^{47} Changed Muon interface #3. The system works on a T3 trigger.

31.3.80, 0^{00} Seto and Drimm on shift.

1^{00} the filling requested by Tasso for 1^{30}. Ready at 1^{55}

2^{00} During switching on of JO: anode-current alarm at about all 17.1 (100). This is repeated at immediately at every switching on.
→ Broken wire from 17.3/4 touches again anode-line 17.1. We pointed it as already once before (beginning of March).

2^{35} Problem solved. We start runs.

4^{00} Tasso + PKR announce new filling for 4^{55}. Ready at 5^{05}. (We wanted same energy 17.58 GeV. It will stay at this value).

5^{00} after dumps, Mark J goes in the ~~ring~~ ring for 5 minutes, then new filling with next energy.

08.00 McCann & Weber on shift.

08.52 Run 3238 started. New energy 17.590 GeV/beam.

09.05 Attenuator had not been reset to 12. At event no. ≈ 1207, was reset (Pause)

09.05 JDAS error 44 (OCT) SUBERROR 205 (OCT) TASK 1.

09.11 Herr Reiseberg checked Lg thresholds — all OK.

09.50 Pause. Turn down att ^{t}. CONTINUE
— then same JDAS error as above (9.05)

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

66 31.3.80

13^{05} JDAS error 44 Sub 302 Task 1

14^{30} Rebuilt all JDAS in order to expand common block in sec 70B. This will enable Nord 50 'special events' to be intercepted by the event display.

16^{00} Orito and Riesberg on shift.

Before the beam dumps, at around 14^{20}, the beam energy was ramped to over 18 GeV : At ~18.1 GeV the currents were less than 0.5 mA/beam. The beams were so low, because one of the transmitters tripped off.

16^{30} At the moment the injection is not possible. There is a vacuum leak in the injection line.

18^{20} Leak is found. Restart is foreseen for 20-21 o'clock

20^{20} Restart between 21 and 22 h.

21^{15} Since PETRA breakdown provided the opportunity I did the disc check and backup today rather than tomorrow (HERM)

21^{30} Injection starts

21^{53} New filling ready

21^{56} Start Run 3243 , $L = 1.45 \times 10^{30}$, Rate ~ 1.9 Hz

23^{20} Run 3244 started

24^{00} Bartel & Nirnova

0^{15} TASSO say new fill will be at 0:30

0^{45} New filling ready

2^{15} Check all histograms + print them look ok except for some more noisy wires in the tagging system

2^{15} ask for new filling

4^{15} Beams lost due to HF-failure

6^{00} Histograms of run 3248 plotted ok! tagging chambers are getting noisy LG-thresholds ok

6^{45} ask for new filling

7^{20} filling ready, however beams got lost again before we could start

failure of a transmitter

7^{40} filling ready

3 X time out on μ-crate in succession then ok again.

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS . Scan Prob on bis1

1.4.80 8^{00} Hedgecock, Febt on shift

8^{40} Beams Out, in Run 3257 1 Multihadron event but 3 entries in monitor, how that?

Above effect due to ye olde traditional April fool!

Run 3253 thrown away due to startup problems

Run 3254 stopped when YIBIT crashed - page fault for non-demand p137 after a lot of IBM BUSY. ~~restart~~ starting a new run cleared it.

12^{30} THE BEAM PIPE CURRENT APPEARS TO BE RATHER "JITTERY". STILL.

13^{15} ID tripped

15^{50} noticed that the time on the display is wrong (by ~ 50 min) but is O.K. on the output, HEM knows the reason and will correct

15^{20} on bin job error check 3 (= bad event -)?

16^{00} Orito and Riesberg on shift.

16^{15} Run 3258 started

16^{50} Beams lost without ID alarm

Nord was reloaded to correct the time by H.E. Mills

18^{10} New filling ready, but low I^+ current (4.1 mA) , $L = 1 \times 10^{30}$

Run 3259 started Attenuator of pick-up signal 9 db

18^{20} BP-rate : Several fluctuations observed . No jumps of the ID current seen

18^{30} LG-Thresholds readjusted . Histograms cleared

Noticed 4 blocks in one of end Cap always firing

1948 Run 3260 started

Crazzy LG-blocks have disappeared

LG Thresholds readjusted, since pulseheight came back from 45 mV to 40 mV

20^{00} Stops Run for refilling

21^{00} New filling ready

2102 Run 3261 started

Muon crate 7 missing, reset

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 Acc + Postp. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

~~15.05 SDAS error 44 SUB 302 Task 1.~~

1.4.80

22,21 Run 3262 started
22 25 2 HV wrong by 5 Volts Tag : MFR = 61 , Channels 25 and 26
22 42 Main Magnet trips . Stops Run
No indication on color TV
Reason : Rücklauf > 80°C . Not to waste luminosity, I do not "complain bitterly at the cooling service", but reset . I cannot read the temperature, logger is off
22 54 Run 3263 started
22 58 Second Magnet trips . Now I call the people

23 13 Start Run 3264
23 16 Tag : MFR = 61 Many HV wrong (up to 16 V) Channels 8, 9, 10, 16, 17, 18, 19, 20, 21, 22, stopped ...
~~23 41~~ 2343 JOBERROR 56 in 272 (Task 1) No action since Mr. Hughes is coming at mid-night.
↳ TOF Bank wrong length.
23 50 Beams lost.

2.4.80

0 00 DITTMANN & WRIEDT
1:50 New filling ready
Muon-crate IR missing, reset
3:20 Sends ans fall
4:15 Problems with transmitters (some cannot be switched on).
For half an hour we had 11.453 GeV.

'MUON CRATE MISSING' message may not be reliable. Watch CAMAC modules.

8.00 am. O'Neill + King on shift.

09 09. We get beams again.
9" Start Run 3270 : stopped after 200 events : IBM down.
We get ready to write to tape : IBM comes back up.
925 Run 3271 started, to IBM.

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan PbG on bis1

11 15 Stop run. Agree to new energy.
12 13 Get beams again 17.62 GeV
12 37. Beams Lost. Inner detector alarm.

~13 15 PkR gave "water pressure" message, but energy was only 17.500
13 23 Get 17.62 again
13.25. MUON CRATE 9 gives NO RESPONSE : ⇒ reset OK.

13.57. W. BARTEL phones to say that at 13.20 the CELLO magnet tripped off. They are making comparisons and will switch it back on once they are finished.
14.25 Cello magnet switched on.
15.49 Stop Run 3275 for new fill

16:00 Peterson & Watanabe on shift
16:40 Still waiting for new fill.

17.45 We believe that MUON Crate Missing messages are now valid (HEM)
17:50 The new fill finally ready. Start run 3276.
19:40 Tasso wants refill at 19:55.
20:31 New fill ready. run 3278 started.
22 32 Stop run 3279 for new fill
22 50 New fill ready 3280 started.
23 30 Red sign IBM busy stays on. Waited for a few minutes but did not clear.
The console did not respond. Looked like NORD HANG.
NORD reloaded, no run summary for 3280.
Run 3281 started, linked to IBM successfully.
00 00 Matsumura and Hassad
00 14 Run 3281 ended due to no triggers. Error message "13 in ~~3[illegible]~~34323 at 102576 Page Fault for non demand Page № 137.

We stop run and restart successfully. Triggers look fine in Histogram.
01 12 Run 3282 ends abruptly when beams are lost seconds after TASSO rang enquiring if we'd accept a new run. Beam lost due to Interlock broken! ID trips off.

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 Acc + Postp. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1 TR.	T1 LG>4 GeV

~~13.05 SDAS error 44 SUB 302 Task 1.~~

1.4.80

22,21 Run 3262 started

22.25 2 HV wrong by 5 Volts Tag : MFR = 61 , Channels 25 and 26

22 42 Main Magnet trip . Stop Run
No indication on color TV
Reason : Rücklauf > 80°C . Not to waste luminosity , I do not "complain bitterly at the cooling service",
But reset , I cannot read the temperature , logger is off

22 54 Run 3263 started

22 58 Second Magnet trip . Now I call the people

23 13 Start Run 3264

23 16 Tag : MFR = 61 Many HV wrong (up to 16 V) Channels 8, 9, 10, 16, 17, 18, 19, 20, 21, 22, stopped...

~~23 31~~ 2343 JOB ERROR 56 in 272 (task 1) No action since Mr. Hughes is coming at mid-night.
↳ TOF Band wrong length.

23 50 Beams lost.

2.4.80

0°° DITTMANN & WRIEDT

1:50 New filling ready
Muon-crate R missing, reset

3:20 Sendas ans fall

4:15 Problems with transmitters (some cannot be switched on).
For half an hour we had 11.453 GeV.

'MUON CRATE MISSING' message may not be reliable. Watch CAMAC modules.

8.00 am. O'Neill + King on shift.

09 09. We get beams again.

9" Start Run 3240 : stopped after 200 events : IBM down.
We get ready to write to tape : IBM comes back up.

9 25 Run 3241 started, to IBM.

T1 LUMI	<L> $\times 10^{30}$	SLott RUN	SLott Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (KHz)	REMARKS . Scan Pbb on p151

11 15 Stop run. Agree to new energy.
12 13 Get beams again 17.62 GeV
12 37. Beams Lost. Inner detector alarm.

~13 15 PKR gave "water pressure" message, but energy was on/y 17.500
13 23 Get 17.62 again
13.25. MUON CRATE 9 gives NO RESPONSE : ⇒ reset OK.

13.57. W. BARTEL phones to say that at 13.20 the CELLO magnet tripped off. They are making comparisons and will switch it back on once they are finished.

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16:00 Peterson & Watanabe on shift
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22 32 Stop run 3279 for new fill
22 50 New fill ready 3280 started.
23 30 Red sign IBM busy stays on. Waited for a few minutes but did not clear.
The console did not respond. Looked like NORD HANG.
NORD reloaded, no run summary for 3280.
Run 3281 started, linked to IBM successfully.

00°° Matsumura and Hassad
0014 Run 3281 ended due to no triggers. Error message" 13 in 34323
at 102576
Page fault for non demand
Page nº 137.

We stop run and restart successfully. Triggers look fine in Histograms.
0112 Run 3282 ends abruptly when beams are lost seconds after TASSO rang enquiring if we'd accept a new run. Beam lost due to 'interlock broken'.
ID trips off.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$\geq$1 $\geq$1 TR.	T1 LG$>$4 GeV
70																		
3244	31.3.80	23.20	0:31	4.0	4.4		4175	5807	1,086	48.1	1038	1.90	3179	737	1743	1795	1506	492
3245	1.4.	0:54	2:12	6.0	6.2		4682	7850	1.418	65	1353	5.5	4423	1170	2028	2042	2545	636
3246	"	2:13	3:11	4.0	4.3		3649	5127	949	41.2	908	1.55	2771	602	1578	1532	1340	447
3247	"	3:32	4:19	6.0	6.3		2143	4030	558	30.9	527	3.57	2369	621	962	1043	1378	296
3248	"	4:46	6:03	5.7	6.2		4588	7854	1193	65.9	1127	5.8	4502	1123	2030	2085	2511	686
3249	"	6:03	6.42	3.9	4.4		2233	3488	582	23.2	558	1.2	1730	447	969	941	841	276
3250	"											probably 1						
3251	"	7.41	ϕ^{48}	5.4	6.0		3305	6624	1077	70.4	946	4.8	3648	1025	1729	1873	2138	512
3252	"	9.27	10^{45}	5.5	6.0		4610	7657	1200	101	1089	5.5	4316	1056	1856	1995	2481	679
3254	"	11^{36}	11^{46}	6.3	5.5		531	1374	153	10.7	135	1.2	873	168	299	255	639	90
3255	"	11^{48}	13^{10}	4.7	5.4		4863	7853	1266	69.7	1196	4.57	4409	1080	2108	2116	2415	721
3256	"	12.30		3.5	4.2		2637	3462	686.8	37.25	649.6	0.98	1795	430	1107	1057	803	327
3257	"	14^{50}	16^{12}	5.7	6.0		4895	7848	1274.8	112.7	1162.1	4.944	4358	1195	2074	2115	2379	705
3258		16^{12}	16^{52}	3.7	4.1		2305	3301	600.4	30.7	569.7	0.919	1762	397	946	998	842	307
3259	1.4.80	18^{13}	19^{47}	4.2	6.3	5.5×10^{-3}	5444	7856	1418.0	~~59.2~~ 1358.7	1358.7	4.143	4173	1195	2412	2393	1905	678
3260	"	19^{48}	19^{58}	3.0	4.0	extended	557	726	145.1	4.3	140.9	0.196	347	92	231	242	124	69
3261	"	21^{02}	22^{21}	6.0	5.3		4597	7856	1197	61.0	1136	4.69	4493	1146	2036	1999	2608	651
3262	"	22^{21}	22^{44}	3.8	3.9		1239	1809	322.4	11.6	311	0.516	933	228	507	555	442	187
3263	"	22^{55}	22^{59}	3.4	3.5		227	316	59.0	1.85	57.1	0.074	170	43	91	113	70	29
3264	"	23^{15}	23^{51}	3.2	3.3		2135	2855	555	16,9	538	0.517	1459	343	920	949	595	273
3265	2.4.80	1^{54}	3^{14}	5.3	5.1		4708	7860	1224	70	1154	6.8	4434	903	2136	2136	2421	612
3266	"	3^{15}	3^{23}	3.7	3.7		417	676	108	4	104	0.3	322	53	191	203	161	61
3267	"	4^{24}	4^{40}				this is a completely useless run at E_b = 11.453 GeV											
3268	"	4^{48}	6^{08}	5.4	5.7		4744	7853	1235	58	1176	6.8	4366	928	2138	2150	2358	649
3269	"	6^{08}		3.6	3.9		2202	3079	573	21	552	1.0	1551	346	873	913	757	~~380~~
3270	"	9"	9.20	5.5	5.4		176	195	22.8	1.5	21.2	0.2.	108	33	45	50	63	11
3271	"	9.25	10.52	5.0	4.9		5137	7656	1336.6	55.8	12609	5.19	4302	918	2239	2301	2162	640
3272	"	10.52	11.19	3.4	3.5		1531	1943	398.4	12.4	386.0	0.54	983	217	638	654	354	177
3273	"	12.16	12.34	5.5	5.5		1079	2017	280.7	19.5	261.2	4.92	1105	~~268~~	550	526	601	166
3274	"	13.26	14.41	5.7	5.7		4896	~~7862~~	1274.6	69.7	1204.9	9.795	4205	929	2349	~~2187~~	2187	648
3275	"	14.48	15.50	3.7	3.8		3611	4717	939.8	35.5	904.3	2.138	2498	554	1567	1583	1041	413
3276	"	17:53	19.11	4.5	4.6		4713	7857	1226	70.4	1155	12.0	4609	1033	2240	2216	2512	578
3277	"	19:12	19 58	4.1	4.2		2731	3805	711	27.1	684	2.6	2131	487	1183	1223	969	329
3278	"	20:32	21.47	5.5	5.6		4505	7860	1172	63.3	1109	10.5	4618	1042	2181	2086	2647	630
3279	"	21.49	22:33	4.0	4.2		2731	4701	711	30.7	680	249	2339	480	1221	1193	1232	376

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM / TAPE	BP	BHABHA	MULT. HADRONS	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan PGB on p151
71										
354	0.63	2.64	20.65	IBM	2.0	23	2	17.59		dump for new filling
631	1.01	4.74	25.39	"	2.2	66	1	"		
293	0.62	2.27	27.66	"	1.6	31/340	0/6	"		dump for new filling
353	1,22	2.61	2.61	"	1.9	25	1	17.60		new energy beams lost
580	0.95	4.38	6.99	"	2.0	58	2	"		
189	0.66	1.47	8.56	"	1.6	24	0			
469	0.92	3.58	12.14	"	2.0	43	1	"		beams lost transmitter failure
548	0.81	4.19	16.33	"	2.3	42	0	"		NEW FILLING. beams lost transmitter failure
92	1.21	0.72	17.05	"	2.2	10	0	"		3253 LOST DUE TO STARTUP PROBLEMS. Mini dump (?)
545	0.87	4.22	21.27	"	2.1	62	2	"		
203	0.57	1.50	22.77	"	1.6	26	0	"		BEAMS DUMPED FOR NEW FILL.
642	1.00	4.90	27.67	"	2.0	58	0	"		
226	0.74	1.71	29.38	"	1.6	27	3	"		beams lost
536	0.75	4.09	4.09	IBM	2.1	46	1	17.610		New energy
37	0.48	0.27	4.36	"	1.5	5	0	"		Refilling
616	1.01	4.65	9.01	IBM	2.3	64	1	"		
121	0.73	0.91	9.92	"	1.6	14	1	"		end by magnet trips
17	0.50	0.11	10.03	"	1.5	2	0	"		ended by magnet trips
151	0.53	1.12	11.15	"	1.4	8	1	"		beam loss
611	0.98	4.63	15.78	"	1.8	60	3	"		
49	0.76	0.32	16.10	"		8	0	"		
		0.12	—	"				11.453		PETRA couldn't get higher for ½ hour
622	0.99	4.72	20.82	"		50	5	17.610		
194	0.68	1.50	22.32	"	1.8	20	1	17.610		
16	1.25	0.11	22.43.	"		0	0	"		IBM problem.
602	0.9	4.60	27.03	"		61	1	"		
131	~~0.66~~ 0.62	1.02	28.05	"		9	1	"		
164	1.15	1.24	1.24	"	2.8	23	0	17.62		New Energy Beams lost
601	0.93	4.57	5.81	"	2.8	49	1	17820.		
213	0.47	1.68	7.49	"		27	1	"		
389	0.64	3.01	10.50	"	2.5	32	2	"		
149	0.43	1.17	11.67	"	2.0	19	0	"		stop ~~beam~~ for new filling
363	0.63	2.82	14.49	"	2.4	32	2	"		
141	0.41	1.12	15.61	"	1.9	14	2	"		stop for new filling

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 BR.	T1 LG>4 GeV	T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLott RUN	SLott Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

03/04/80

03^{12} Run 3283 starts. ~~Attenuator~~ has to be set to ϕ to get a green light! After a minute we lose even that. The beams look terrible. TASSO are OK but kindly agree to a beam steering. PLR say they'll do what they can. We stop run.

03^{22} Green light again so we start run 3284. The beams get better. $L = 0.73\ 10^{30}$ ER = 1.8 Hz

05 10 TASSO requests new fill.

0722 **Beams lost, ID trip**

08:00 Ball, Eichler on shift.

08:20 Stable beams, but IBM very sick. After ~3 mins of IBM busy + 'IBM problem 44', we decide to write to tape. Run 3288 has only 20 records written to IBM.
Start run 3289 on tape F11092

08:37 Run 3289 stopped automatically by TDAS error 51 – false interrupt from a DL8.
Start Run 3290 on tape F11092

09:45 TASSO wants to refill + raise energy at 10:00. OK by us. We have ~ 27 nb^{-1}. TASSO have ~30 nb^{-1}

10:10 Run 3290 ended after 8002 events.

10:11 Beams dumped.

11:19 New filling : energy 17.630 GeV Start run 3291

12:47 Run 3291 ended after 8000 events. Start run 3292
Histograms for run 3291 OK, except for tagging LG hit map, which shows noise in channel 116

14:03 Stop run 3292. Refilling.

14:59 News filling, start run 3293

16.00 Stoplers / Kawabata

16.21 Run 3293 ended 8002 event

17.36 Run 3294 " new fill No T.V. monitor information.

19.03 Run 3295 started

20.30 Run " ended.

20.35 Run 3296 started

4.4.80 7^{45} Gaswarning system channels 1-4, 8 disconnected (A.W.)

4/4/80 Re-adjusted magnet water flow ~~Switches~~ Switches ① ④ ⑤ ⑦ ⑨ ⑩ ⑪ & ⑫ where possible. are now actively in the circuit which makes me feel a little happier. OK Hildreth.

9.4.80. Cosmic tests

Runs 3311, 3312 varying trigger conditions BP HV low (like in Petra runs)

3313 Coll width 3, Metr. width 13
BP HV like in old cosmic runs
Only TOF PM ON + side in Latch (Only 2)
rate ~ 2 Hz

3314 T_0 = Prepulse
TOF on "OR" Counts 1-8 on ~~Latch~~ E Only 2 (broken)
Rate ~ 0.2 Hz

This last trigger gives a good z-distribution. But it is terribly slow. Stop run after ~2000 ev.

3315 T_0 = Prepulse
TOF on "OR" (now all)
Rate ~ 0.9 Hz Only COll = 1 trigger, no matrix

Note on ID: Gas is not circulated
Gas temperature is 0.8°C lower than normal
For DL8 # 48 (wires # 384-391) there is a replacement unit ready

3321 18:30 IBM problem → Run stopped → just after IBM was cured!
(IBM transfer error)

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1 TR.	T1 LG>4 GeV
74																		
3280	4.4.80	22:50																
3281	"	23:33	0:14	4.6	5.0		2281	~2185 ~~3055~~ ~~3255~~	593 ~~3255~~	27.4	566	1.63	1724	452	964	1012	786	326
3282	5.4.80	0:16	1:42	4.6	5.0		3280	4394	854	289	824	1.35	2335	572	1394	1425	988	445
3283	"	3:42	3:45	5.9	5.5		74	128	19	0.9	18	0.12	73	20	34	24	48	11
3284	"	3:23	3:34	5.9	5.5		585	1041	152	8.7	144	0.74	634	134	263	265	395	77
3285	"	3:34	5:02	5.9	5.5		5257	7860	1638	53.4	1315	3.58	4470	972	2264	2317	2299	690
3286	"	5:03	5:20	3.9	3.8		974	1250	253	8.5	245	0.36	643	140	413	402	267	136
3287	"	6:07	7:21	4.8	5.5		4369	6209	1137	49.4	1087	3.54	3386	854	1899	1847	1657	537
3288	"	8:27	8:27															
3289	"	8:30	8:38	4.6	5.3		435	681	113	5.7	108	1.4	341	118	240	178	173	59
3290	"	8:39	10:10	3.7	4.4		5446	7861	1418	59.2	1358	8.3	4290	992	2537	2454	1962	647
3291	"	11:20	12:47	5.1	5.4		5157	7861	1342	64.2	1278	8.9	4472	1042	2286	2289	2324	700
3292	"	12:48	14:03	3.6	3.9		4427	5785	1152	40.1	1112	2.4	3089	612	1935	1898	1342	546
~~3293~~		~~13:00~~ 15:00	~~16:21~~ 16:21	~~5.7~~ 5.7	~~5.7~~ 5.7													
~~3293~~	"	~~14:22~~	~~16:21~~	~~5.7~~	~~5.7~~													
3294	"	16.22	17:36	3.9	4.0		4791	7858	1247	78	1169	11.4	4564	1003	2230	2157	2552	649
3295	"	18:03	20:30	5.3	5.5		4416	5964	1149	42.8	1106	3.2	3244	716	1906	1803	1575	590
3296	"	20:35	21:06	3.6	3.8		5131	7861	1335	67.3	1268	11.1	4391	1027	2365	2303	2255	701
3297	4.4.80	21:39					1794	2326	466	16.8	449.8	1.4	1262	293	744	~~774~~ 774	540	224
3310	"		22:40															
3311									EV									
3312																		
3313		COSMICS																
3314																		
3315		"																
3316	11.4.80	5:54							12948									
3317	"	9:03							10720									
3318	"	12:22							14176									
3319	"	14:32 acc	14:49 rec						1102									
3320	"	15:11 acc							130									
3321	"	19:13	19:31						12985									
3322									827									
3323	12.4.80	5:45	7:57						16216									

IBM TAPE F11100

T1 LUMI	$\langle L \rangle \times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (KHz)	REMARKS
			15.61 No Summary							NORD HANG. NO RUN SUMMARY.
170	0.57	1.31	16.92+	IBM	1.7	18	0	17620		
176	0.41	1.34	18.26	"	1.7	17	0	"		
7	0.66	0.05	18.31	"	2.1	0	0	"		
53	0.70	0.41	18.72	"	2.1	3	0	"		
375	0.55	2.81	21.63	"	2.1	40	3	"		
52	0.42	0.41	22.04	"	2.0	4	1	"		
319	0.54	2.38	24.42	"	2.0	32	0	"		"
				IBM	2.4					3 beam-gas events only. Stopped due to IBM problem
37	0.63	0.27	24.69	TAPE F11092	2.4	3	0	"		stopped automatically by JDAS error 51.
342	0.49	2.64	27.33	TAPE F11092	2.3	34	0	17620		Beams dumped.
357	~~0.54~~ 0.54	2.79	2.79	IBM	2.4	41	2	17630		NEW ENERGY
183	0.32	1.44	4.23	IBM	~~1.9~~ 2.3	25	1	"		Beams dumped. Refilling.
366	0.59	2.85	7.08	IBM	2.3	46	3	"		
195	0.36	1.59	8.67	IBM	2.0	16	1	"		Beams dumped. New Fill.
353	0.53	2.74	11.41	IBM	2.4	42	0	"		
86	0.37	0.66	12.07	IBM	2.0	6	0	"		

LG-TEST (Minora) Mag. Tapes

IBM problem

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1TR.	T1 LG>4 GeV	T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan 986 on p151
76 RUN																												
3324	12/4-80	10^{02}	18^{05}	-	-	187	28980	26465																				
				Continuation of the energy scan																								
				Ignore. no T2 trigger (not T3)																								
3325	22/4 80	9.34	10.05																					1.5		17.600		Stop run after beam loss.
3331	22/4/80	18.00	18.13	8.18	6.82		2271	7858	541	129	462	8.7	5453	4004	1260	1320	3912	654	425	1.38	3.14	3.14	IBM	2.4	37	3	17.600		
3332	"	18.45	18.48	7.4	6.1		185	545	48.1	7.04	41.1	0.68	322	312	90	112	225	49	38	1.41	0.26	3.40	IBM	2.0	6	1	17.600		
3333	23/4/80	3.47	4.38	8.0	8.1		2854	7860	742	82.9	660	11.0	5206	5065	1345	1945	3061	725	473	1.25	3.56	6.96	IBM	2.1	51	0	17.600		
3334	"	4.40	5.39	7.0	7.1		3528	7859	918	63.5	855	10.3	4830	5116	1556	2142	2583	824	558	1.22	4.31	11.27	IBM	1.8	55	3	"		← 11) 12)
3335	"	5.40	6.55	6.1	6.1		4454	7859	1159	103.3	1055	8.6	6454	4588	1850	2175	2195	870	618	1.06	4.72	15.99	IBM	1.5	69	1	"		
3336	"	9.42	9.53	7.8	8.8		645	1802	168	15.7	152	2.7	1163	846	292	414	709	133	155	1.74	1.12	17.11	"	2.1	6	0	"		Beam lost
3337	"	15.35	16.06	8.1	8.7		1192	4750	310	91	219	9.1	3465	4062	573	912	2445	425	199	1.23	1.46	18.57	"	2.3	14	0	"		Magnet tripped off twice. Stopped after 2nd trip.
3338	"	16.51	16.58	6.59	7.07	838	218	679	57	6.9	50	1.6	422	812	135	168	264	79	37	1.30	0.28	18.85	"	2.1	4	0	"		Beam lost
3339	24.4.80	8.53	9.23	9.2	1.1	$5.3 \cdot 10^{-3}$ 2.2 $\cdot 10^{-3}$ 1.0	1538	6509	400	175	225	15.8	4575	5840	813	1146	3161	742	295	1.32	2.04	20.88	"	4.0	35	2	"		Beam lost. Paused the run for a few minutes to reset an HV
3340	24.4.80	15.48	16.45	8.2	8.4		2050	7853	533	150	384	27.0	4681	11852	1372	1796	2615	1454	290	1.04	2.13	23.02	IBM	4.0	23	0	17.600		
3341	"	16.47	17.34	7.2	7.4		2127	7851	563	90	463	30.5	4468	13248	1583	2157	1907	1651	322	1.13	2.40	25.42	"	3.5	26	0	"		
3342	"	17.35	18.06	7.0	7.2		1556	5124	406	58	347	22.5	2685	10176	1188	1517	1080	999	211	1.02	1.59	27.01	"	3.0	15	3	"		Beam lost
3343	"	19.09	19.14	9.1	9.5		256	856	67	20.2	465	3.5	454	1326	170	243	187	144	42	1.18	0.30	0.3	"		1	0	17.610		Beam lost
3344	"	21.48	22.23	9.4	9.2		2061	7854	536	99.8	436	33.0	4339	12208	1577	2014	1912	1475	432	1.60	3.30	3.60	"	4.0	45	2	17.610		Max. Pil
3345	"	22.24	22.46	8.8	8.6		1021	3696	266	42.8	223	15.6	1969	6206	795	968	700	697	167	1.36	1.39	4.99	"	3.5	19	3	17.610		Beam lost
3346	25.4.80	0.33	0.57	8.2	9.7	$6.1 \cdot 10^{-3}$	1419	5208	369	66.6	303	26.3	2785	6682	1152	1235	1340	987	221	1.13	1.68	6.67	"	4.0	28	2	17.610		Beam lost
3347	"	4.44	5.34	9.0	9.5		2429	7848	652	92.2	540	33.3	4246	11651	1856	2187	1750	1346	373	1.17	2.84	9.51	"	3.0	27	2	17.610		
3348	"	5.36	6.26	8.0	8.5		2901	7847	755	106	649	31.9	4212	12813	1945	2388	1721	1269	339	1.05	3.04	12.55	"	3.0	36	0	17.610		beam partly lost in middle of run
3349	"	6.26	6.45	5.3	6.4		1023	2798	279	24.9	254	8.8	1259	4078	651	812	465	347	122	0.85	0.92	13.47	"	2.2	11	0	"		beams lost
3350	"	7.45		8.8	9.4		2249	7842	585	138	447	38.0	4507	10386	1781	1895	2058	1214	308	1.00	2.25	15.69	"	≥4.0	25	2	17.610		
3351	"	9.00	9.30	6.6	8.0		1361	2748	355	158	197	11.9	1396	3976	635	3976	571	539	132	0.74	1.01	16.70	"	~4.	16	2	"		
3352	"	9.31	9.50	6.1	7.4		920	195	240	239.8	0.20	0.004	3	20	0	15	46	189	0	0	0	16.70							Ignore: lead glass problems.
3353	"	9.51	10.16	6.1	7.4		1169	1346	304	197	106	5.5	6.5	2071	345	390	261	303	69	.43	0.50	17.20	"	3.	6	0	"		} two high lead rate due to two many hits in lead glass.
3354	"	10.26	10.44	5.4	6.5		952	880	248	186	64.4	3.1	427	1260	185	310	180	218	30	0.24	0.23	17.43	"	3.	5	0	"		
3355	"	10.55	11.38	5.0	6.0		2339	5209	609	578	521	19.8	2661	8629	1400	1650	1019	898	224	0.76	1.78	19.21	"	3.	21	1	"		
3356	"	1:59	15:03	8.2	9.0		2739	7840	713	589	589	40.8	4165	11615	2059	2302	1558	7193	392	1.10	3.00	22.21	"	3.5	37	2	"		
3357	"	15:05	15:31	7.0	2.5		3159	7839	823	136	686	37.3	4044	13039	2055	2419	1522	1220	441	1.04	3.29	25.50	"	3.0	47	1	"		
3358	"	16:05	16:32	6.1	6.6		1423	3347	371	49	322	14.8	1687	5841	906	1042	589	550	192	1.02	1.45	26.95	"	3.5	22	1	"		←HV switched in LG beam TOF 16.55!
3359	"																											

TOF 13 + broken

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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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM / TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan PRB on p151

21.4 80 - 06^{00} HRS. I called PKR when I arrived on shift. They asked me to stay and switch on the luminosity counters when they achieved stable beams. When this was done I attempted to get the system going, but could not do so. (There does not appear to be a simple restoration guide to the system.) PKR said they could live without this and since they do not require the magnet on now I am going home.

Richard Hedgecock.

11:00 PKR says they have a problem with vac. chamber, and PETRA access time is extended until 14:00. Probably no beam during this shift (Y. Watanabe)

15^{30} still searching for vacuum leaks in the synchrotron, they had to exchange a vacuum chamber there.

16.00 Heiko Dierdorf. Machine Studies in progress.

18.00 Tagging LG - HV: Board in MFR 62 (~~B~~ Channels 0-3) exchanged. (Channel 1 was dead)

Remark concerning gas-safety: in the past there was 2 times accidental alarm on channel 9 (probe between coil and (?) yoke), therefore Mr. Schwickert has installed a second probe in the same gas flow. The probe of the second probe is situated on the balkony at the foot of the wall. If there is an alarm on channel 9, please check if the second probe also shows a signal.

No beam all shift!

0:00 Stephens, Komamiya

2:00 still no beam

3.15 Still no beams

5 30 I.D. temperature (sticks) 23.6[°C], 10.108 mbar [atm]

2 HV WRONG ?

~0.600 PKR ask to switch on HV. so that they can check luminosity at (7 GeV) Pipe current ~11ma. However we cannot get Bp a ToF H.V on. Error 2 Beam pipe current ~ 80-100. Phone Naroska who cannot help with "error 2" problem. Suggests use phone Krehbiel but we cannot awaken him!!

6,25 beam again lost.

LeCroy - high voltage distributor (No 3) for ToF is something wrong.
H.V. indicator LED is on but H.V. value = 0. → this is the reason for 'error 2'.

Background still high Bp ~ 70 Ask PKR again to do something about this. They say they are minimizing background on TASSO first and then JADE.

7.30. NAROSKA arrives

Error 2 light due to wrong voltage from one of ToF LeCroy modules replaced and all is now OK. In fact the problem proved to be the whole crate, replaced with the spare.

8.00 Watanabe, Weber on shift

9^{00} PETRA TV display switched off for repair.

9.15 Optimize beam: "left outside" 16 A, left middle 22 } BP ~15
Right " " 22 right " 20

Magnet temperature: Magnet inlet 40° } Second magnet trip for
" outlet 46° } this recovery
Water temperature 20° } Pillat and Bartel come in:
that thermo-couples respond too early

9.34. Finally start run 3325

9.43: Interrupt run 3325: I.D trip.

P.K.R still optimizing collimators for TASSO and MARK J: Gas-outburst cause large jumps of B.P.-instrument reading

10.05 Beam lost, due to power supply failure at PETRA,
No T2 (and no T3) for this run. Phone Mr. Krehbiel at home.
At the start of run, YVOLTS error saying LG/BP ch 16 overload. Tell Naroska & Mr. Tolksdorf investigating — no problem. H.T. to

Krehbiel: Reason for missing T2: 3 coax cables from rucksack to rear bottom of crate box

15.58 STILL no luminosity since 10.05! No data taken at all!

Attention Next Shift: Please call Krehbiel as soon as there is luminosity!

16^{00} Clarke, Herve on shift

17^{00} Beams on!
background: 2 - 2.5 V for BP-counter
~8% for 3 ToF / T_0-accept
~2 μA for ID, mainly in Ring 1

PKR says, they want to do an Orbit correction, therefore the collimators are not yet in their innermost position

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLOT RUN	SLOT EXP	IBM / TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan PØD on p151

Minowa adjusts LG-timing
+Onito

Problems with the IBM link → Littmann
Medical is fiddling with the trigge

18^{02} Start first Run of this period
background still relatively high (~3.5 Hz, dead time 20-40%), but
PKR is still making orbit corrections ← μ vacc missing all the time, call A. Ball + B. Kuijf, they fixed it by exchanging a card

18^{43} Run stopped with 8000 evts, start new run

18^{50} Beams lost, power supply failure

Comparison of Run 3331 with Run 3247 (also at 17.0 GeV) shows that all trigger rates are comparable beside 2TOF-1GeV, which causes the higher dead time alone can of course also be seen from the Kiso-rams!

22^{40} New beams available: 11.78, 11.69(!!), beams lost after a couple of minutes at 11.66

24:00 Noroska finds one of compensating magnets had tripped; reset "ventilation", now on again

23/4/80

0:00 Bell Kawaniya on shift

1:43 PKR asked us to turn on the H.V. of beam pipe counters
now BP ~ 9 volts. PKR tried to optimize our collimators first

1:47 Beam lost and high voltage of beam pipe counter switched off.

2:50 PKR optimizes the position of collimator again
BP ~ 2.8[V] I^- ~ 11mA I^+ ~ 11mA

2:55 They cannot optimize the beam pipe current below 2 Volts. PKR are colimating the other experiments and are then coming back to us to try to get < 2 Volts.

3:28 Bp = 2.45 [V] I^- = 8.57 [mA] I^+ = 8.47 [mA]
TASSO started the run without drift chamber.
MARK J and CELLO started. but we cannot start!

3:30 TASSO switched on their drift chamber. but they say it is noisy.

3:40 PKR. correcting the vertical beam amplitude to lessen background

3:41 Bp = 2.10 [V] I^- = 8.24 [mA], I^+ = 8.14 [mA]

3:44 PKR corrected the horizontal beam amplitude to lessen background
B.P = 2.05 V I^- = 8.16 I^+ = 8.04

3:47 Run 3333 started, I^+ = 8.03, I^- = 8.12, E = 17.6 GeV

3:49 Error message 2 HV WRONG 3 HV READ ERROR (thought to be due to error in DVM)

3:55 2TOF/Tp ACCEPT ~ 6%

4:00 checked LG threshold, looks O.K. 40mV

4:08 Total Dead time = 10.7%. I^+ = 7.57 mA I^- = 7.65 mA

4:14 3 TOF / TØ ACCEPT = 3.8%

4:38 Run 3333 stopped

4:40 Run 3334 started I^+ = 7.0, I^- = 7.07, E = 17.6 GeV

5:10 Temperature & pressure of IrD
{ 0.4 × 10.117 [atm]
{ 24.4 [°C]

5:39 Run 3334 stopped

5:40 Run 3335 started I^+ = 6.08 mA, I^- = 6.12 mA, E = 17.6 GeV

6:10 MarkJ Fukushima says they have ~30 nb^{-1} for 17.6 GeV. They want to increase energy but we told him to leave it at 17.6 GeV, and the control room are going to drop the beam at 7 a.m. We have only ~15 nb^{-1} for 17.6 GeV

6:54 Run 3335 terminated

6:55 High voltage, beam pipe etc switched off to await new fill around 7:00 a.m.

7:00 Luminosity of the last filling

JADE	12.59 nb^{-1}	from 3:47 ~ 6:55	of 380 data so far taken
MARK J	18 nb^{-1}	from 3:28 ~ 7:00	
TASSO	17. nb^{-1}		
CELLO	20 nb^{-1} ⇐ $\mathcal{L}$ = 1.7 × 10^{30} ⇒ T = 11520 (s)		

According to of-line end cap Bhabha ~88 events, the correction factor is more like ~1.15. As we lost first 20 min of the filling, the number becomes close to that. The factor should be 1 otherwise, verified by Mr. Wiedenmann (Watanabe)

7:12 Beam dumped

7:43 Error message "1 MAGNET FLUCTUATION" but could be nothing wrong with them

8.00 Watanabe & Haidt on shift

9:20 Beam finally ready, but BP = 2.8 V. Call PKR and ask to improve them. Finally start at 9:41

9.51 Beam lost. No Jet chamber book. ID trip due to Anode current 305 at 054.
During this run (3336) the energy jumped from 17.600 to 17.628 for unknown reasons, but the run lasted only 10 min.
DL8? is dead #435. Rieseberg and Matsumura investigating.

13:15 Still no beam. just lost another filling.

13.52 Filling ready. BP = 3.2 V. ask PKR to improve (TASSO has also high background)

14.18 beam lost before we could turn on. According to Mr. Drumm, they would like to study if we can run at this high background or. So please call experts next time, when fill is ready.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

15:15 New filling ready, but BP = 4V.
15:33 BP = 2.5V Start 3337. Dead time ~35% Event rate 1~4Hz
15:50 Magnet tripped off. >80°C light came on. Reset OK.
16.00 Peter Steffen & John Allison
16.00 " " " Run 'paused".
16.06 Run stopped
16.21 Magnet on. low current -4220G
16.50 High magnet current now -4534G
16.51 Run started #3338.
16.56 Beam lost.
19.13 T3 triggs crate serving μ-crates 1 & 2 (for side wall) had lost power. ~~changing~~ the socket used by the power plug cured it. It has been like this since run 3331 — ie. since the shutdown.

Note: The NORD has given several 'FALSE INTERRUPT's. It does not appear to stop data-taking. It was correlated with the magnet trip.

19.30 Fred Loebinger replaces John Allison on shift.

~22.00 17.600 GeV with ~12mA e^+ & e^- but our beampipe counter ~4V.
PKR trying to improve. (TASSO background also too high to switch on chambers).

23.05 Beam lost (before we could even switch our counters on — during the beam on time of ~1 hour, Mark J managed to get 4 nb^{-1} and now have 44 nb^{-1} to run 1864)

Present collimator setting:

	left	right
outside	25 mm	25 mm
inside	25 "	20 "

0.00 THURSDAY 24/4/80 Peter Dittmann & Fred Loebinger.

0.15 Beams refilled ~11 mA e^+ & e^- beam pipe counter ~9V
0.30 Beam lost.
03.30 Beams still off — transmitter problems
08.00 Bartoli and Belli on shift
08.05 Magnet accidentally tripped by magnet people. Having problem with the cooling water. Status of temperature measuring device.
1/2 of the Hungarian monitors are operating. The other half is off due to a failure in a NIM crate power supplying (-12V necessary).
* We do not have any spare NIM crate in this experiment !!
(with -12V)

RUN	T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLOT RUN	SLOT EXP	IBM / TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan PRB on p151

8.25 PKR: difficulties with the injection system. They cannot fill the 4th bunch.
8.44 Beam filled 17.6 GeV $I^+ = 9.42$, $I^- = 11.61$
8.50 Run 3339 started BP = 4
8.51 Beam pipe lead glass. H.V. error.
D.V.P. broken !? according to R. Eichler
9.12 ID - trip with anode current
9.21 ID - trip beam lost
9.22 Beam lost. Run 3339 finished
9.38 TASSO have access to expt. again

Trigger investigations: compare runs 3394 and 3393
scale with time (-3)
T1 = 2 TOF 42 K 7 K
T2 " 3 K 0.3 K
Tag ATR 346 K 140 K
" T2 5.2 0.9
2 TOF 6 0.4
" " 11 K 0.7 K
TASSO LG scales with Lumi (Pads 1-4, 5)
T Lumi = pads 2 higher now ≙ currents of pads 2 higher

Note: Lg. thresholds have been changed.
They should be set to the old values for the next run.

10.15 NIM-Crate for temperature measurement exchanged.
(pos.) HV for tagging drift-chambers switched on: now they can be operated remotely again.
(They were switched off during all runs after the center shut-down, Runs 3324-3339) HV
10.30 Peter back with beams
13.00 Fraction of events entering into Histogrammes changed from 5.0% to 10%
Lg. thresholds switched back to old values.

* 14.33 PHR informed us that there will be access to the machine from 8-12 on Monday 28/4/80, as TASSO & CELLO require access.

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 Acc + Postp. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan PbG on p151

15^{00} PKR-news: The main problem with PETRA is to accelerate high currents. During energy ramping the RF-frequency has to be adjusted continuously. That seems to be very critical and the operators have not yet found the proper procedure for energy ramping and RF-change.

15:35 Beam filled. $I^+ = 9.8\,mA$ $I^- = 9.9\,mA$ E = 17.6
switch on ID with BP-counter at 5V
Dark current comes for lg and esp counters
After ~5 min BP-down to 4V switch on again

15:40 Run 3340 started. $I^+ = 9.45\,mA$, $I^- = 9.65\,mA$
16:49 Inner detector tripped. BP=4
Rate ~ 3.8 Hz

switch 2 TOF LG ATT to 2TOF LG $\geq$ TR

Rate =	4.1 Hz	3.6 Hz
deadT =	78%	78%

15:55 ID tripped when we lost some beam.
loss was confirmed by PKR. They do not know why it occurred

Rate =	4.0 Hz	4.6 Hz	4.1 Hz
	60%	57%	51%

16^{00} D. Haidt and R. Marshall on shift.

Increase lg thresholds 4+3 to 1.5 GeV $\triangleq$ 1.0 V DVM reading

Rate	3.8 Hz	3.5
dead	16%	15

17^{25} I/D trip - reset.

18.08 Beam lost
19.00 New fill Energy = 17.610.

20^{00}? I/D Trip reset
At start of run 3345 "num crate missing" comes up on screen together with FAULTY PART 3.
Remedy — go to rucksack and press white reset button on crate number denoted by FAULTY PART ... If this doesn't work — call expert (H. Ball or B. King).
20^{45} 22^{33}? I/D Trip — this time beam lost.
22^{45} Beam lost again.

End of shift remarks: I/D trips are more frequent than before. — They can occur at any time of run.
BP currents are now typically 4V at start of run when currents are 10 mA.

25.4.80
0^{00} Lords and Downs on shift
0^{25} the filling is ready.
BP ~ 4V at ~ 3 mA currents. The 3 TOF rate on the scaler seems very high: ~35% of the T0 accepted!
rate: 3.7 Hz, deadtime: 18% for run Is this normal?
0^{55} beam lost, ID tripped with anode overcurrent.
2^{10} still: Tandemausfall (since about 1/2 h in work, 1 sector trips quite frequently), water problems near this sector, and DESY-problems.
3^{50} Neue Füllung; but positrons disappear within 5 minutes.
4^{55} +5^{00} 2x ID trip with anode-overcurrent.
5^{05} We adjust the LG thresholds to those values of the new table, that correspond to 50 mV (read on the scope) now).
According to this table (fixed at the scope) the old settings corresponded to 40 mV at threshold 1+2 and to ~ 48 mV (10 V DVM) at thresholds 3+4.
(probably 16^{00} at 24.4.80)
6^{05} ID trip with anode overcurrent, as beam got partly lost.
Otherwise conditions of this filling were good (BP ~ 3.0V), rate = 2.5-3 Hz, dead time = 14%) and data taking smooth.

8^{00} Melzer & Nozaki on shift
8^{20} ID trip. anode current 30.5
BP current is fluctuating 40 ~ 70 % Ask PKR to reduce the background.
Beam is parked until stable beam is coming

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 Acc + Postp. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS	Scan PbG on PbSt

8.00 Bertel calls us from PKR to switch off the LG-trg.
PKR changed frequency by 200 Hz to get the stable beam.
8.50 BP current ~3.0 stable. We restart measuring

9.00 New Run 3351 starts.
Message From W. Bartel
Conditions at our intersection got worse by at least a factor 1/2 ie BP rate when asymmetric beam bumps were touched in the CELLO area.
The beam became much more stable when the R.F. frequency was changed by 200 Hz (kHz?) to all experiments
9.15 Tof channel in unit 54 is now at 2.8 kV – won't set back to nominal value 3.0 kV K.S.
9.25 Dead time ≈ 10 % stop the run. due to too many hits on LG
9.40 Run 3352 lead glass is completely lighting up – giving Nord errs etc
Ignor this run. Tokyo expert called.

10.18 Run 3354 ~~started~~ ~~Heat run~~ Thesis ~~run~~ still lead glass problems or too many hits

10.55 Run 3355 start
Data seems to be OK? BP ≈ 2.5
11.05 M.J calls us. Tasso wants to access 15 minutes before new filling.
We send OK.
11.37 Run 3353 ended normally.
The problem of the too many hits disapeared without any access.
Tokyo & HD people are searching for the understanding of the problem.

12.15 TOF PM 13+ seems to be dead. It draws so much current that the HV breaks down. Even at lower current it does not work.
Broken since run 3351.

13.50 Start new run 3356 New filling is ready.
14.05 ID trip due to high voltage sparks for all's 17, 18, 21, 22, 23, 24 ~~Hits~~ in rng 3.
call Drumm. Heim. Hinrichsen. They checked ID and nothing wrong was found.

Related

14.23 restart measuring
Dead time = 17 %. Event rate = 3.5 Hz BP = 3.4 stable Beam pipe current.

14.27 PKR have changed frequency from 63.8 kHz to 63.7 kHz.
Δp_e (MeV) = ~~0.66~~ 0.66 × p_e × Δf − 0.66 = 0.50 MeV/c.
(p_e in GeV/c, Δf in Hz)

~~14.30 Chamber HT alarm in all cells Ring 3 except #19,20. Chamber switched on again by expats, (pickup??)~~

15.07 Run 3357 starts.
15.23 ID trip over current.

16^{00} – 24^{00} Ornde, Velen on shift 25.4.

16.35 Just after starting Run 3359, NORD50 busy occured due to the events with many lead glass firing. Looked at the lead glass linear sum signals in front of the linear gate. Semi-periodic noisy signal was observed, typical to a pick up of a high voltage spark. By switching off the high voltages one by one, found the noise came from T.OF. high voltage. By disconnecting cables one by one located the spiking H.V. cable to be #55. Start the run 3360 with the cable disconnected. Ornde
Later found that the problem is related to the bad TOF PM (13+), see the left page.

17.15 Inner chamber trip.

21.15 New filling 1962 GeV. BP current 10 ~~Hits~~. ~~Asked~~ the beam pump. Went down to 5.

26.4.80
0.00 Meier, Warming on shift
2.55 Beams dumped on request of Mark J
3.50 new fill ready
LG gives error message 2 on Krehbiels Central Control Box
LG Powerpack #10 has no power, fuse is OK, but plug of cable is halfside black
Called Kowaniya and started to replace plug
Kowaniya sets LG HVoltages Values, checks histograms and thresholds
4.22 start new run 3371
5.01 Run 3371 ended due to 'Senderausfall'

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV	T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan PAB on p151

26.4.80

6.41 new Fill ready
after switching ~~on~~ on two error messages from magnets found:
1) "Sammelstörung" at compensating magnet ~~e~~ reads, magnet is off } no akustic warning! why?
2) yellow lamps of "Vorlauf Pumpe 2 sek" is burning
for the time being, we decide ~~to~~ to take no action, we will call K after the next beam loss

7.25 Mark 7 asked, how much luminosity we have so far. ~~JADE~~ 22 (% ~~loss~~ due to LG power)
MARK J 35
TASSO 22 (loss due to Nord problems)

08.00 SATURDAY 26/4/80. Matsumura & Fred Luebijer.

09.00 I.D. Trip.
09.45 I.D. Trip.
09.50 PKR will dump beam at 10.00 & refill at 17.630.
10.15 Compensator magnet fixed (ventilation problem).

12.20 New filling 17.630 GeV. Beam Pipe temp ~ 3.7. Stat run 3377. Dead time ~20%
12.30 I.D. Trip
12.50 Ask PKR to try & improve beam, but nothing they do effects it.
13.00 Large fluctuations in B.P current. PKR see nothing wrong and after 5 mins (with PKR doing nothing but watching) BP rettles back to 3.6.
Start run 3378.
13.30 Nord Hangs — run summary lost.
Restart computer.
Start run 3379. — At start of run MUON CRATE MISSING message came on screen, but no "faulty pcb number" was given. Has this pcb of the NORD program been changed recently? (μ crate reset with no problem). — Simulating a missing μ crate we do see faulty pcb message — probably we just didn't see it last time!

14.40 Beam lost.

16:00 Boll & Muirow on shift

18:00 Signs of beam at last — famous last words.
19:30 Still no beam
20:00 New filling. BP current fluctuating 4 → 5 (sometimes 6)

20.11 B.P current now approx steady at ~3.6 - 3.7
Start run 3381
20:22 I.D. trip — B.P current off scale — beam lost. Stop run 3381

21:20 New filling BP ~3.5 and steady.
21:23 Start run 3382
21:25 ID trip, high B.P current, beam lost. Expert phoned re sparking in Ring 1. Should be OK. We should watch histograms next run.
23:26 New fill BP ~7 → 8
~~23:35~~ 23:35 BP now stable at 3.0 Start run 3383
23:40 Jetchamber histos look OK.
23:42 ID trip

00:00 Heinzelmann & Sato on shift

0.23 ID trip Anode current 0.47 beams lost
1.30 V34 & 22.4 dead Run 3383, 3384. 12V fuse broken. Repaired now.
1.55 NF ready. Start Run 3385
2:15 found that compensation right is down: "Schlüftung fehlt". Since filling is stable we decide just to switch it on now.
2.50 Nord hang up. Load 14. Restart Nord. Run summary 3386 lost.
5.45 beams dumped. Compensation coil right switched on again.

8.00 Goddard, Naroska
Nothing happening in Petra. They have a vacuum problem. Experts are trying to repair some short circuit.
8.45 Petra filling again.
11.10 Got a filling again BP 6.5
PKR forgot to move collimators
11.25 ID trip.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2 TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV
90 Run	Date	Start	Stop	I^+	I^-	Vac	Time (sec)	Nord Evts Acc	All Trigger $\times 10^6$	TØ Reject $\times 10^6$	TØ Accept $\times 10^6$	Acc + Postp. $\times 10^6$	T2 Acc	T3 Reject	T3 Acc	T2 Collin	T2 $\geq$2 TOF LG>1 $\geq$1 H	T1 LG>4 GeV
3360	25.4.	17:13	17:26	5.1	5.8		359	953	93	12	81	3,5	501	1445	230	298	210	168
3361	"	17:27	19:18	4.9	5.6		3054	6956	795	81,5	714	29	3654	11908	1838	2272	1465	1111
3362	"	22:25	23:12	9.3	9.6		2243	7840	584	92,4	491	26	4550	13402	1692	2507	1648	1093
3363	"	23:17	23:25				85	279										
3366	"	23:32	23:42	7.2	8.0		566	1737	147	17	130	5,9	940	3223	400	545	345	277
3367	26.4.	23:43	0:32	7.7	8.0		2738	7841	712	86	626	26,3	4231	14657	1830	2415	1667	1252
3368	"	0:33	1:26	6.8	6.9		3098	7844	806	112	694	24,8	4259	13968	1841	2555	1644	1295
3369	"	1:27	2:23	6.0	6.1		3299	7833	859	76.8	782	24.4	4217	13896	2023	2591	1583	1227
3370	"	2:23	2:53	5.3	5.4		1784	3932	464	40.9	424	11.7	2107	6640	1010	1308	820	641
3371	"	4:25	5:01	8.2	8.4		2192	7854	570.6	83.6	486.9	25.9	4453	11856	1618	2123	1914	1275
3372	"	6:42	7:19	9.8	10.0		2242	7854	583	99,3	484	27,8	4526	11733	1577	2052	1965	1279
3373	"	7:20	8:03	8.6	8.9		2551	7855	664	123	540	26.9	4384	12239	1713	2202	1821	1227
3374	"	8:03	8:48	7.5	7.9		2654	7854	691	80.5	610	26.1	4381	12668	1727	2226	1907	1271
3375	"	8:50	9:44	6.7	7.0		3095	7852	806	80.4	725	25.6	4338	13309	1882	2509	1707	1200
3376	"	9:45	10:04	5.9	6.2		997	2424	260	24.2	235	7.4	1325	3825	622	782	521	360
3377	"	12:22	13:03	9.2	9.4		2255	7847	587	98.1	489	37.1	4487	9202	1768	2169	1837	1093
3378	"	13:07	13:30	~8	~8.			5201										
3379	"	13:41	14:26	7.5	7.6		2692	7860	701	87.2	613	32.4	4212	10706	1904	2250	1658	1220
3380	"	14:28	14:42	6.7	6.8		809	2243	211	27.2	183	8.6	1168	3239	541	665	493	364
3381	26/4	20:15	20:24	8.8	9.7		427	1584	111	20.6	90.2	8.2	894	1618	336	487	355	185
3382	"	21:23	21:25	9.8	9.9			insufficient events for run summary entries										
3383	"	23:35	0:17	9.7	10.0		2251	7846	586	90.7	495	29,3	4363	11784	1615	2198	1694	12975
3384	27/4	0:19	0:49	6.5	8.6		1431	4325	372	48.4	324	19.3	2364	7654	1020	1273	854	592
3385	"	2:00	2:41	9.7	9.8		2430	7857	633	86.3	546	31,6	4467	12981	1761	2253	1603	1058
3386																		
3387	"	3:03	3:49	8.1	8.2		2742	7861	713	83.1	630	29.7	4382	13671	1804	2408	1610	1102
3388	"	3:50	4:42	7.1	7.2		3102	7846	807	81,4	725	28.7	4292	13911	2008	2510	1527	1074
3389	"	4:42	5:42	6.3	6.4		3498	9855	910	98.7	832	26,7	3981	13469	2208	2563	1253	1082
3390	"	11:22	12:09	9.2	9.5		2643	7840	688	93	595	32.7	4217	11907	1799	2364	1469	1271
3391	"	12:09	12:59	8.1	8.4		2952	7862	788	83	685	30	4208	13108	1962	2501	1314	1128
3392	"	13:02	13:58	7.0	7.3		3367	7854	875	80	795	27	4040	12447	2144	2539	1199	1052
3393	"	13:59	14:44	6.1	6.3		2641	5623	687	56	631	17.8	2848	9058	1559	1920	723	720
3394	"	14:52	15:58	5.5	5.6		3877	7260	1008	69.8	938	21.3	3575	11475	2081	2529	918	1036
3395	"	16:54	17:39	9.4	9.4		2688	7842	699	119	580	52.3	4439	10726	2298	2409	1117	901

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt Run	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS
T1 Lumi	$\langle L \rangle$ $\times 10^{30}$	SLdt Run	SLdt Exp	IBM/Tape	BP	Bhabha	Multi Hadron	Energy E_B		
41	0.93	0.33	27.28	IBM	3.5	8	0	17.610		
342	0.85	2.59	29.87	"	3.5	38	0	"		
470	1.58	3.55	3.55	"	3.5	33	1	17.620		
	1.14	0.10	3.65	"		5	0	"		IBM problems !
115	1.51	0.88	4.53	Tape	2.5	8	0	"		
493	1.34	3.66	8.19	IBM	2.3	42	1	"		
420	1.01	3.14	11.33	"	2.2	48	1	"		
341	0.80	2.64	13.97	"	1.9	29	1	"		
163	0.69	1.24	15.21	"	1.9	15	1	"		
463	1.54	3.38	18.59	"	3.0	54	4 6	"		Sendeausfall
492	1.60	3.58	22.17	"	3.4	55	1	"		
489	1.42	3.62	25.79	"	2.8	40	0	"		
444	1.24	3.30	29.09	"	2.5	35	1	"		
400	0.98	3.04	32.13	"	2.2	34	0	"		
108	0.80	0.79	32.92	"	2.1	10	0	"		
470	1.57	3.54	3.54	"	3.7	36	1	17.630		
		2.41	5.95	"	3.5					Nord Hang-up.
487	1.33	3.59	9.54	"	3.2	63	1			
127	1.12	0.91	10.45	"	3.0	14	1			Beams lost.
85	1.47	0.63	11.08	IBM	3.7	9	0	"		Beams lost ID trip
						1		"		Beams lost ID trip total 48 events
486	1.56	3.52	14.60	"	2.8	39	2	"		
299	1.53	2.19	16.79	"	2	20	2	"		Beams lost
581	1.62	3.93	20.72	"	2.8	35 55	0	"		~~Nord hang up beam abnormal~~ Nord hang up beam abnormal end.
				"						
538	1.46	4.01	24.73	"	2.4	38	1	"		
448	1.09	3.38	28.11	"	2.2	35	2	"		
569	1.20	4.20	32.30	"		55	3	"		
498	1.39	3.69	3.69	"	4.	58	0	17.640		
525	1.34	3.94	7.63	"	"	44	4	"		
580	1.25	4.21	11.84	"	2.1	62	1	"		
470	1.32	3.49	15.33	"	1.9	44	1	17.640		
551	1.07	4.14	19.47	"	1.8	55	1	"		
484	1.35	3.63	23.10	"	4.3	41	1	17.640		

Scan 966 ab

p151

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

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12:00 Motical compensator is again down
14:30 I.D. TRIPPED. RESET NORMALLY.
16:05 Minerva, Wiedl
16:40 New filling ready, very high beam-pipe-counter currents: $\geq$ 10 V (although collimators are in)
PKR is going to look into it
16:50 After some adjusting (vertikale Ablagen im Bereich der NW-Halle auf Null gestellt):
current < 4.5 V and stable
16:52 Run 3395 started, 3.3 Hz trigger-rate, ~ 18% dead-time (at run-start)

17 53 ID tripped.

18:00 Strange structure in Jet-chamber's anode-current display observed. Due to too many entries (> 32 k) into same bin of that plot
Has partially away in Run 3396. Expert not available at the moment.
18:30 This anode-current phenomenon is gone at the end of Run 3396.
HD-experts, please have a look into standard histograms of Run 3395 ! → overflow → negativ. 28.4.80
19:43 MARK-J wants a new filling & new energy at 20:00.
histogram software Matsumura
21:05 New filling ready
23:15 ID tripped
23:58 During start of new run 3403, beams lost due to Sandsturm
New luminosity-record for this decade & during last shift: 25.7 nb^{-1}

The histogram software may give negative numbers. The correct value can be calculated:
$N = 65536 + N_{negativ}$

28/04/80
0:00 Steffen & Sato on shift
0:40 ID tripped
8:00 Peterson ; Matsumura on shift 8°-312° seems to Petra

16.00. King, Nanseka on shift.

17.40. PKR have been trying to fill, but have so far been unsuccessful.

20.45 Finally we have beams again. In the beginning the LG>4 rate was 1.1/sec. Raised thresholds to level of 50.
BP 3.2, L = 1.45 · 10^{30}
20.50 I.D. tripped
22.00 2 ID trips, spikes on BP current
22.15 ID trip again. — beam pipe current steady, but with spikes
Talked to PKR, changing RF didn't help
They lowered the vertical Q-value, that seems to improve things.
No more spikes.

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_{CM} (GeV)	FREQUENCY (kHz)	REMARKS. Scan PMB on p151

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22.58 beams lost

29 April 1980
0001. Orito and Murphy on shift.
0045 Muon crate 12 missing: reset - OK.
0050 "Muon crates missing", but no number. Try resetting crate 12 - OK.
0053 Save again.
0120 Everything has stopped. Computer gives no response. Reboot NORD 10.
0130 IBM fault.
NORD says "run summary *LOST*!!" for run 3417
0145 IBM back. Start run 3419. (Yes, 3419; according to NORD both 3417 and 3418 don't exist).
0731 Mark-J want to change energy soon. They agree to let us get $\int Ldt = 30\ nb^{-1}$ for this energy. They will check with us after ~1 hr. of running (beam off at this moment).

8.00 Drumm & Cords on shift
PETRA has transmitter problems
1400 Synchrotron slowly recovering from water leaks

16.00
S. Kawabata and R. Marchall

Beam transport problems, K are working on it and when problems are solved, filling can start, in theory

✳ I notice the magnet has been switched off, which is admirable since it saves energy, cooling lake water and about DM200 per hour on the running budget (shared by all institutes) However, the magnet had been switched off by flicking the OPERATE/RESET switch in direct violation of the operating instructions which are hanging about 10 cm from the switch. Please read them, everybody, and also devote 5 mins of your time to the RAISE/LOWER buttons and help keep the coil alive for a few more years — and help stabilize the Pb glass. Your attention to this will be appreciated. R.M. ✳

19.37 : PKR start filling

23.37 : All promising fills disappear before even accelerator

Boring shift.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV
3396	27.04	17:43	18:32	8.20	8.19		2799	7852	728	99.2	629	43.0	4150	12484	2167	2613	1058	1031
3397	"	18:37	A.31	7.10	7.00		3167	7840	824	92.5	731	38.2	4007	13495	2252	2597	1137	1052
3398	"	A.31	20:01	6.20	6.10		4128	4128	463	46.0	417	18.0	2058	7057	1204	1402	589	576
3399	"	21:09	21:44	9.40	10.20		2043	7840	532	116.4	415	43.6	4593	8190	1793	1818	1876	1001
3400	"	21:48	22:27	8.30	9.00		2280	7849	593	100.4	493	40.2	4429	9114	1819	2009	1844	1128
3401	"	22:27	23:09	7.45	8.02		2475	7848	644	93.7	550	35.6	4382	9989	1865	2079	1837	1147
3402	"	23:09	23:58	6.70	7.20		2783	7845	724	92.2	631	32.5	4155	10777	1965	2217	1723	1224
3403	28.04																	
3404	"	0:37	1:23	8.7	9.7		1891	7849	492	91.5	400	21.6	4854	9692	1266	1825	2278	1316
3405	"	1:25	2:00	7.5	8.6		2133	7853	555	81.7	473	22.5	4707	10418	1393	1891	2218	1264
3406	"	2:11	2:52	6.6	7.5		2455	7857	639	77.3	561	22.2	4467	10861	1595	2089	2073	1308
3407	"	2:58	3:40	6.0	6.8		2753	7852	717	83.0	634	21.4	4394	10836	1675	2126	1991	1279
3408	"	3:42	4:30	5.3	6.1		3016	7858	785	78.6	710	21.1	4272	11184	1785	2200	1948	1344
3409	"	6:03	~~6:40~~ 6:50	~~7.0~~ 9.5	9.9		2154	7848	561	93.2	467	27.7	4661	10475	1482	1944	1901	1195
3410	"	6:41	6:42	8.4	8.8		105	357	27	5.1	22	1.2	190	445	79	87	77	58
3411	"	6:47	7:32	8.3	8.6		2626	7854	683	102.5	581	28.3	4328	11652	1777	2332	1585	1141
3412	"	7:31	8:00	7.3	7.7		1680	4578	437	47.3	390	16.5	2441	7186	1096	1364	894	648
3413	"	20:35		9.46	9.35		2514	7846	655	96.5	556	31.5	4164	11365	1668	2278	1383	1316
3414	"	21:22	21:55	7.9	8.2		1957	5510	509	64.5	445	20.1	2988	8162	1274	1567	1025	798
3415	"	22:00	22:58	7.1	7.3		2712	6347	705	65.2	640	21.5	3315	9796	1685	2053	1046	870
3416	29/04	0:18	0:55	9.0	9.5		2207	7850	574	113.	460	40.6	4485	7800	1733	1864	1718	1139
3417	"	0100	0120					~2300?										
3418			non-existing															
3419		0125	2224	7.2	7.3		2293	6789	597	88.	509	27.6	3850	7885	1571	1797	1711	1012
3420		0452	0524	9.6	9.9		1865	7857	485	144	341	36.5	5005	6896	1414	1433	1732	1038
3421		0525	0536	8.3	8.7		624	2224	162	29	133	11.5	1222	2258	541	543	421	301
3422	30.480	1.00	1.45	9.9	10.3		2125	7161	553	122	430	42.9	3600	6500	2266	1884	992	778
3423	"	2.46	3.30	9.6	9.7		1985	7035	511	110	401	26.3	4184	9732	1353	1901	1214	1025
3424	"	03:35	4.21	8.12	8.23		2093	7838	544	124	420	25.6	4974	10173	1338	1888	1799	1111
3425	"	04.22	04.37	7.0	7.1		728	2653	189	39	151	8.4	1638	3561	498	622	618	389
3426	"	0540	0614	9.6	9.6		1982	7856	516	150	365	25.5	5052	8992	1254	1626	1999	1118
3427	"	06:14	06:37	8.44	8.53		1048	4088	273	66	206	13.6	2524	5073	724	876	999	621
3428	"	13:56	14:15	8.13	8.19		1161	2866	302	67	235	9.1	1591	3314	631	836	530	392

T1 LUMI	$\langle L \rangle \times 10^{30}$	$\int L dt$ Run	$\int L dt$ Exp	IBM/TAPE	BP CVI	# Bhabhas	# multi-hadrons	Beam-energy	REMARKS
487	1.32	3.69	26.79	IBM	3.6	47	0	17.640	
508	1.22	3.85	30.64	"		37	1	"	
280	1.19	2.12	32.76	"	2.9	30	2	"	beams dumped
410	~~2.35~~ 1.40	2.87	~~35.12~~ 2.87	"	4.2	35	1	17.650	
433	1.36	3.11	5.98	"	4.0	39	1	"	
414	1.21	2.98	8.96	"		39	2	"	
468	1.25	3.47	12.43	"	3.3	41	4	"	
371	1.31	2.47	14.90	"	3.3	26	0	"	
					2.9				
436	1.39	2.97	17.87	"	2.9	40	0	"	
452	1.32	3.23	21.10	"	2.4	43	2	"	
484	1.24	3.43	24.53	"	2.3	39	2	"	
419	1.01	3.05	27.58	"	2.2	40	1	"	
464	1.48	3.19	30.77	"	3.5	44	1	"	
27	1.63	0.17	30.94	"	3.0	3	0	~~17.650~~	
564	1.58	4.14	4.14	"	2.7	60	4	17.660	new energy
372	1.61	2.70	6.84	"		31	0	"	
525	1.52	3.82	10.66	"	3.2	61	2	"	
390	1.43	2.80	13.46	"		37	0	"	
449	1.22	3.30	16.76	"	2.4	50	1	"	beams lost (Sandwave fault)
456	1.43	3.16	19.92	"	3.5	50	0	"	
		≈1.0-1.5	≈21.00				about 1	"	NORD hangup (no IBM); run summary lost.
333	1.1	2.50	23.50	"	2.8	34	1	"	
366	1.2	2.18	25.68	"	3.9	37	0	"	
138	1.50	0.94	26.62	"	4.2	10	1	"	Beam lost
478	1.66	3.53	30.15	"	4.0	36	0	17.660	Beams lost ID trip
417	1.51	2.97	2.97	"	3.2	46	2	17.670	new energy
372	1.21	2.54	5.51	"	2.9	31	2	"	
98	0.91	0.69	6.20	"	2.8	1	0	"	beams lost.
384	1.30	2.58	8.78	"	3.0	27	1	"	
194	1.25	1.31	10.09	"	3.0	16	0	"	beams lost
156	1.01	1.18	11.27	"	3.7	15	0	"	beams dumped after PKR request.

P.T.O.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV
96																		
3429	30.4	15 14	16.11	9.6	9.6		2728	7822	710	101	609	29	4310	11499	1803	2435	1673	1308
3430	"	16^{11}	16^{59}	7.6	6.9		2715	7850	707	109	598	28	4445	12006	1739	2343	1831	1424
3431	"	17^{00}	17^{37}	6.6	5.9		2191	~~7853~~	571	126	444	18	4958	9489	1212	1732	2023	1430
3432	"	17^{39}	18^{00}	5.9	5.4		1323	4170	344	40	304	10	2452	5487	779	1085	1072	753
3433	"	21^{52}	22^{29}	8.9	8.9		2173	6429	562	76	489	25	3407	10346	1534	1897	1305	964
3437	"	22^{29}	23^{31}	7.3	7.3		2602	7725	677	76	601	27	3713	12990	1767	2280	1765	1145
3438	1.5	2.44	3.24	8.9	9.1		2391	7852	621	102	518	33	4365	11485	1832	2232	1652	1141
3439	"	3.25	4.01	7.9	8.1		2108	7856	548	250	297	17	5172	8577	962	1483	2203	1414
3440	"	4.03	4.40	6.8	7.0		2052	7856	533	140	392	17	4446	8934	1165	1581	2925	1417
3441	"	4.41	4.50	6.2	6.3		473	1793	122	31	91	3.8	1092	2022	257	349	651	347
3442	"	11.20		9.79	9.57			~ 6500										
3443	"	12.07	12.19	8.44	8.24		640	2888	167	33	134	11	1153	2258	540	590	495	328
3444	"	12.22	12.31	8.10	7.88		782	1395	125	20	105	8	696	1513	373	372	305	226
3445	"	12.33	13.14	7.8	7.6		2767	7858	719	104	615	37	4179	9785	2017	2265	1639	1200
3446	"	13.20	13.38	6.9	6.7		1048	2564	273	57	215	11	1345	3388	646	752	502	369
~~3446~~	"	~~13.40~~	~~13.55~~															
3447	"	13.40	13.55	6.5	6.3		929	2589	242	33	209	9	1435	3195	591	727	634	433
3448	"	16.05	16.44	9.4	9.1		2335	7843	607	102	505	26	4455	10273	1589	2070	2182	1242
3449	"	16.45	17.30	8.3	8.1		2513	7859	654	88	565	24	4383	10861	1632	2116	2141	1357
3450	"	17.30	18.15	7.4	7.2		2623	7856	683	79	603	21	4580	10390	1611	2154	2148	1425
3451	"	18.15	18.32	6.7	6.5		972	2725	253	26	226	7	1524	3665	576	748	758	484
3452	"	19.39	19.46	9.3	9.1		84	182	21	14	7	0.40	120	193	37	40	61	20
3453		20.04	20.15	8.6	8.4		686	3519	178	93	84	4	946	0	2201	360	505	292
3454	"	20.16	20.52	8.2	8.1		2089	7862	544	123	420	19	4765	9041	1256	1756	2649	1445
3455	"	20.53	21.29	7.5	7.4		2128	7858	553	120	432	17	4910	8779	1200	1718	2820	1403
3456	"	21.31	22.00	6.87	6.80		1743	6342	455	91	364	13	7757	6774	983	1404	2385	1069
3457	2.5	0^{55}		9.0	9.0			~ 6000										
3458	"	1^{45}	2^{25}	7.8	7.8		2357	8002	612	92	520	32.4	4544	10727	1538	2019	2353	1369
3459	"	2^{26}	3^{07}	7.1	7.1		2480	8002	644	81	563	20.7	4535	10595	1545	2046	2342	1415
3460	"	3^{07}	3^{44}	6.4	6.4		2163	6428	562	64	497	16.0	3636	8590	1319	1695	1938	1153
3461	"	4^{54}																
3462	"	5^{15}	5^{45}	8.5	8.9		1644	7229	427	84	342	19.1	4611	8474	1117	1644	2421	1214
3463	"	5^{48}	6^{21}	7.6	8.1		1958	~~7859~~ 7854	509	87	422	20.4	4892	9743	1342	1850	2555	1335
3464	"	6^{21}	6^{59}	6.8	7.2		2219	~~7853~~	576	78	498	20.2	4968	10233	1392	2019	2326	1401
3465	"	7^{01}	7^{42}	6.4	6.8		2504	7859	650	73	577	19.9	4525	10674	1584	2093	2200	1452
3466	"	7^{42}	7^{53}	5.8	6.2		581	1640	151	14	136	4.1	975	2252	319	487	447	284

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt. Run	SLdt Exp.	IBM/TAPE	BP.	BHABHA	MULT HADRON	ENERGY E_B	REMARKS (Scan P66 ff p151)
97									
374	1.07	2.92	13.99	IBM	3.1	34	2	17.670	Beam energy increased by 18 MeV at ~ 16^{h}
217	0,63	1,72	15,71	"	2.8	20	0	"	~~p crab muting is begin~~ p crab tuning is begin
234	0,66	1,45	17,16	"	2.5	22	0	"	" " " " "
150	0.84	1.11	18.27	"		12	0	"	
474	1,69	3,68	~~27,45~~	"	2.7	48	1	17,670	" " " " " R 3434-36 only pedestals!
457	1,42	3,70	25,85	"	2.4	40	4	"	beams lost
483	1.57	3.76	29.61	"	~~3.0~~	47	ϕ	17.670	
272	0.78	1.65	31.26	"	3.4	26	1	17.670	
305	1.1	2.27	~~3.27~~ 2.27	"	2.7	28	ϕ	17.680	NEW ENERGY.
58	0.46	0.45	~~3.48~~ 2.70	"	2.7	10	ϕ	17.68	Beams lost.
	1.44	3.60	5.72	"	3.7	~~1884~~		17.680	RUN SUMMARY LOST. (NORD HANG UP)
113	1.28	0.82	6.54	"	3.7	10	0	"	stopped due to error 64 = 706
79	1.26	0.61	7.15	"	"	9	0		
446	1.23	3.41	10.56	"	3.3	44	1	"	
135	0.94	0.98	11.54	"	3.3	12	0	"	stopped err 44 - 302
113	0.94	0.87	12.41	"	3.2	9	1	"	beams lost
461	1.56	3.64	16.05	"	3.2	46	1	"	
455	1.4	3.51	19.56	"	2.7	42	2	"	
410	1.22	3.21	22.77	"	2.7	46	0	"	
131 ~~188~~	1.08	1.05	23.83	"	2.5	14	1	"	beams dropped by PHR
7	0.72	0.06	23.89	"	3.1	~~40~~	0	"	
74	0.4	0.61	24.5	"	3.0	11	0	"	
357	1.28	2.67	27.17	"	3.0	38	1	"	
308	1.08	2.3	29.47	"	2.6	24	1	"	
205	0.91	1.60	31.07	"	2.5	15	0.8	"	beams dropped by PHR. Will fill at new energy.
	2.63	2.69	2.68	IBM	3.0	~27	21	17.690	Kind 10 Ramp up Run summary lost
364	1.19	2.82	5.51	"	3.0	27	1	"	
329	1.02	2.54	8.05	"	2.4	28	1	"	
33	0.87	1.88	9.93	"	2.2	17	0	"	Beams dumped for new Fillung
	.92	~~0.72~~	10.65	"	3.4	?	~0	"	Kind 10 Ramp up Run summary lost
256	1.11	1.82	12.47	"	3.0	18	0	"	
242	0.99	1.95	14.42	"	2.7	24	0	"	
267	0.93	2.05	16.47	"	2.6	20	1	"	
275	0.81	2.02	18.49	"	2.4	28	0	"	
59	0.24	0.43	18.92	"	2.4	3	0	"	Beam dump

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

30/4/80

00:00 Ball & Minowa on shift

00:10 New filling ready BP ~ 7 → 8

00:16 Beam lost. Noticed that our lights flickered as beam was lost. Possible glitch in mains power?

01:04 New filling BP steady 4.0 Start run 3422.

01:05 Jr crate 12 missing. Hardware reset has no effect. 'Faulty part' message eventually disappears of its own accord for no apparent reason? Problem was faulty fast serial interface. Replaced. crate 12 now OK.

01:25 ID trip. Reset OK.

01:44 ID trip. Beams lost.

01:35 Tagging - lead-glass threshold on +z changed in order to cure high tag * 1track trigger rate. Effect could not be studied because of beam-loss. Will be investigated further. (Wrong direction!)

01:50 Magnet trip.
We see no lights on the 3 interlock modules. Switch to reset.
Try pressing reset buttons and switching to operate. Fault light comes on immediately.
Lamp test indicates that Rücklauf Hitzeschutz >60°C indicator lamp is not working - perhaps this is the problem. After a few minutes, the Rücklauf <35°C light (green) comes on, as expected (I think!) as everything cools down.
Unfortunately, the instructions by the magnet interlock panel are a little out of date, since the FLUKE data-logger has now disappeared! Don't know how to check input cooling water temp etc, now. After a few more unsuccessful attempts to reset, phone R. Hedgecock. He is on his way.....

02:00 Mark J call. Next filling will be at new energy 17.670 GeV. We agree. We have 30.15 nb^{-1}

02:46 Magnet fixed by Richard. New filling at 17.670 GeV BP ~ 3.3. Start run 3423
Dead switch had caused trip. Probably vibration. Bleep door after docking. CTH

02:53 ID trip. Reset OK. Richard H. decides to make a night of it, and is scrutinising ID histos.

02:59 ID trip - no sign of high B.P. current - so reset Reset OK.

03:04 ID trip

03:10 Yet another ID trip - but BP. current is quite steady at ~3.1. Reset OK.

03:20 ID trip Reset normally.

03:30 'No events' message after following message appeared on line-printer.
'Error 13 in 34323 at 10264.1[illegible]: Page fault for non-demand
Page number 1 137.'

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_{CM} (GeV)	FREQUENCY (kHz)	REMARKS. Scan PAB on p151

Do DAS-STAT 5, + reboot DAS. Start run 3424.

0347 ID trip - Reset

04:15 ID trip - Reset.

04:20 Run 3424 ended normally after 8002 events.

04:30 ID trip - Reset

04:35 Beam lost. Tag * 1 tr (T2) rate is faster 5 x LUMI (T1) rate in run 3425.

05:35 New filling BP ~3.4, with occasional spikes. Start run 3426

05:50 Dead-time very high ~30%! Event rate ~4.2 Hz. Tag * 1 tr / LUMI still ~5:1

06:12 Run 3426 ended after 8000 records. Start run 3427.

06:25 ID trip. Reset OK.

06:37 Beams lost

13 *0 Power supply fixed, Petra will have beams soon.

13 55 Start Run 3428 This run with deflit Chamber current measuring, Matsumura testing faulty Kammerstein register.

14:20 After run 3428: tagging - lead-glass threshold on +z changed again (to decrease high trigger-rate).
Investigation not yet finished. Needs beams.

1415 Beams dumped after PRR request. RF-trouble.

1511 Beams in again

15 25 3 * ID Trip

15:40 During run 3429: tagging - lead-glass threshold on +z increased again.
At the moment the following trigger-rates are seen:
event-rate 3 Hz, int. dead-time ~ 10-12%, I^+: 8.6 mA, I^-: 8.0 mA
tag * 1track ≈ 82% of all ~~accepted~~ triggers
tag * 1track ≈ $1.6^{+.17}$ * lumi

After the latter-start-down the tag * 1track-trigger rate has been increased by a factor of 2-4. This is due to 3 innermost blocks on +z (which are in, and immediately above and below the plane of the beams on -x, i.e. outside the ring). During a fill the ratio $\frac{\text{tag} * 1\text{track}}{\text{lumi}}$ drops by a factor of 2, on average. Conclusion: the increase of the trigger-rate is due to real beam-(background conditions, not to faulty lead-glass channels.
Therefore the specific threshold has been increased and will be adjusted if necessary. HH

16:00 Olsen+Hassard

16:37 Spikey beam pipe current. We expect an ID trip any minute.

16:46 ID trip. Reset OK. We ask Mark J for a refill. They haven't any idea of beam conditions because their computers dead.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV
100																		

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLott RUN	SLott Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS	Scan PØ ø

Expt 12
Run 3430
30/4/80

17.49 Degele: Try moving in Cello collimators to investigate whether background is due to synchrotron rad. or high energy stuff. This may cause beam loss.

Kollimator position: links minus ~~15 mm~~ ~~remove~~ bei 10 mm wird Strahl angekratzt
rechts plus
at the end of a filling

18^{40} DEGELE ON SHIFT AT PETRA: Beam studies to reduce backgrounds at TASSO and CELLO
These studies started 3/4 h after last filling (at 16^h) with changing beam energy by +18 MeV(!) and collimator tests etc.
We did not get this! Felst complained at PKR.

These studies will go on for some time (several hours? maybe ~~also~~ until tomorrow (1. Mai))
Please stay in contact with PKR
Call Felst, if our conditions get worse

Wasserleak in PETRA

19^{50} Something happened: Magnet + both compensators tripped
many error messages on, we press RESET, but not all messages go off. K (Tel 3389) does not answer the phone.

20^{00} PKR says K-people are still looking for a waterleak in PETRA
We wait. There's no devices water cool.

20^{45} K-people are on the way! 15 minutes til beam! Its the door microswitch again.

21^{15} Error still not found. John Hayward leaves, to fetch Richard H. Petra back with beams now.

21^{31} Petra back with two beams. BP = 3,6

21^{32} Petra calls, say something (not understandable what) was changed for short time; we have now BP = 4,6

21^{33} Now BP = 2.8, both currents 9,26 mA

21^{44} Degele: everybody has now good beam conditions

21^{47} Hedgecocks fixed the switch and we begin to raise the magnet. We've saved 400 DM.
We are now running without compensating magnets, on Degeles request, same with Cello. They cannot switch this on, switch doesn't work.

22^{33} ZDAS error. We try reloading - it doesn't work
So we start the computer N10 again.

22^{40} Beate Naroska comes to check computer. The ID has tripped — it wasn't noticed because alarm was switched off. This had been done before, this shift presumably when beams blew up at 1800. Its a practice to be discouraged.

23^{10} Mark J + Tasso have now 30 nb^{-1}. We have 24. Wait till new fill with new energy.

23^{31} Beam lost, ID trip. They want to ramp the energy up a bit now.

24^{00} Wasserleak in Petra, magnets off. 21 hour repeated till beams.

0:00 Nozaki + Bell on shift.

0:05 Magnet (current) ramped down to 250 mA to save magnet wear, as there should be no beam for ~ 1 hour.

1:31 Beam is being filled, so magnet current is switched back to 700 mA.

2:21 High voltages switched on, for start of a run. energy now 17.67 GeV

2:30 High BP = 5.0
We call PKR. PKR says the beam conditions are completely same as before.
They will contact with Cello and phone back us.
Cello asked us whether our compensation magnet is on or off. Answer is "no compensation magnet".

2.40 BP = 4.8 we decide to switch on ID.

2:44 Run 3438 started $I^+ = 8.9$ mA, $I^- = 9.11$ mA $E = 17.676$ GeV.
BP = 3.0 Event rate ~ 2.4 Hz. Dead time = 13%
PKR says they have readjusted the collimators.

3:24 Run 3438 ended. start run 3433, $I^+ = 7.9$ mA, $I^- = 8.08$ mA

3:30 Muon crate missing crate 12. reset power sw. OK.
BP = 3.0. Ev rate = 4 Hz. Dead time = 25%

3.37 MJS called us # Beam energy will be increased in ~ 15 minutes.

3:46 P.K.R. shall change energy in ~ 10 minutes.

3:60 BP = 3.5 dead time = 6%. We got more background since several minutes.
PKR says they changed Beam orbit because Cello has been getting high rate high background

4:00 Run 3439 finished

4:02 Energy changed to 17.68 GeV

4:03 Run 3440 started, $I^+ = 6.84$, $I^- = 7.03$, $E = 17.68$ GeV
Lead glass threshold is adjusted.
BP = 2.5 Event rate ~ 4 Hz. dead time = 30%

4:40 Run 3440 finished

4:40 Run 3441 started, $I^+ = 6.18$ mA, $I^- = 6.33$ mA BP = 2.6

4:48 Beam lost. Run 3441 finished. I.D. tripped off and reset when beam was lost

7:03 I.D. tripped off due to beam lost as PKR tried to accelerate. I.D. ~~tripped~~ reset
alarm set off. Reset.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (KHz)	REMARKS. Scan PØ6 on P15?

08^{00} TOTSUKA & HEDGECOCK

8^{00} Sender ausfall.
11^{00} Signs of activity indicated by status TV screen.
11^{15} Filling complete. Waiting for background to go down.
11^{20} Run 3442 started.
11^{28} ID tripped
11^{50} DL8 (wire 1096 - 1103) was replaced (dead from 11.20) ⇒ still dead
BP shows high background (4.9 V). But Dead Time and Background looks normal.
LG Threshold set to 35mV-range.
12^{00} Nord hungup during the cursor operation of the terminal-34. Run summary lost.
12^{20} ~~Explore~~ Stopped Run 3444 & replaced defective DL8 (Varmin & Hedgecock)

12^{40} JDAS ERROR 47 SUBERROR 302
13^{55} beams lost, ID trips
14^{15} Water leak → Magnet Interlock was broken.
16:00 Bartel + Bell on shift.
16:01 Beams filled, high voltages switched on.
16:05 Run 3448 started. I^+ = 9.39, I^- = 9.07, B.P = 3.2
Our compensators are off
Took at some Lumi-counts: CELLO magnet is on between 3 and 10 kGauss
ID is quite clean about 50 random hits. There seems to be a pick up problem in 3 neighbouring cells of the 3rd ring. They are always on. Hardcopies are in the ID-folder. Try to mask an event.
Compare STD-Histograms of Run 3448 to those of Run 3433:
a) mean hit multiplicity of BP went down.
b) Tag Lg hit maps cleaner, only 1 really noisy block compared to ~6-8
c) cells which are always on have 0 timing # 52, 54, 56, 60 in JET time maps
d) Lg barrel hit maps much cleaner only 6 noisy blocks
Rissberg looks at the R3-cells which are always on with 0 timing.
It is the 'old' pick up problem, however now it has become more pinmanent.
16:44 Run 3448 ended
16:45 Run 3449 started. B.P = 3
17:08 Run paused for one minute.

17:13 Run paused again for one minute.
Events # 4695 to # 5445 ; ID wires # 1056-1063 are off for diagnosis ; still reason (for pickup) not found. Finally
17:27 Run 3449 finished
17:30 Run 3450 started
18:00 We have had a nice warm day with temperatures around 17°(?)
Water from the lake 22°
Heat exchange inlet 41°
Magnet outlet 66°
18:14 Run 3450 ended
18:15 Run 3451 started
18:32 Run 3451 stopped as PHR wish to refill.
18:35 Beams dropped by PHR
19:38 Beams filled and run 3452 started
19:40 Muon coils ~~time out~~ time out. Run stopped
μ-wedges 2, 3 could not be reset. call J. Harvard.
Start Run 3453 without μ-chambers Read out pattern: 77708
remotely controlled by P. Dittmann
19:59 Run 3452 stopped. no μ-chambers !!

J. Harvard arrived he thinks it is serious.
20:03 Run 3453 started (μ chambers are off)
20:15 Run 3453 stopped to allow King + Harvard to reset the fault giving μ chambers
20:16 Run 3454 started. μ chamber fault has been rectified.
20:51 Run 3454 stopped
20:53 Run 3455 started.
21:28 Run 3455 ended
21:31 Run 3456 started
22:00 more filling requested
22:50 Difficulties in getting beams: PHR says beam losses occur for various reasons, RF, magnet failure, regulator failure etc. no principal difficulties.

2.5.80 Nozaki, Felst on shift

0^{15} waiting for beam
0^{55} Filling OK

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV

104

01 30 Nord tells things during the operation of changing view options at
01 45 Nord program loaded. Run 3458 started. Bp = 2.6. Evaluation = 3Hz Deadtime = 75%
02 25 Run 3458 ended.

|| 5^{00} at beginning of fill deadtime ~ 50% though beam pipe current an trigger rate normal. Reason: when rebooting Nord the N50 histogramms (100%) every event changed this to 5% (I don't know what was the norm before changing) => deadtime ~ 25%

5^{45} Data aquisition stopped: Error 13 in 34323 at 102641, (no trigger ↔ 100% deadtime) page fault for non demand page Nr. 137

2.5.80 8^{01} Murphy + Totsuka on shift.
9^{47} Run 3467
9^{54} ID tripped
1100 Koch (PETRA coordinator) phones. Machine physics shifts are not needed next week, so we can run until Pentecost. We agree. W. Bartel is making a temporary shift list.
This is cancelled because CELLO need to make a repair; they would lose a weeked running and we have to give the machine shifts back some time.
1241 Stop run 3471; MARK J want to change energy.
13^{30} Beam lost right after the filling → Sender ausfall.
1538 Trim compensating magnets off at PKR's request, ∵ CELLO magnet is being shutdown.

2.5.80 16^{00} Uing, Heier on shift
16^{29} ID tripped
16^{47} Mark-J wants 5 min time after this ~~exp~~ filling for access to the experiment (we agreed)
17^{02} e^--Beam Current in Run-Summary wrong (should be 8.0 instead of 0.8) sorry!
17^{04} Mark-J wants to dump in 15 min
17^{16} Run 3475 stopped for new filling
18^{50} checked Standard-Histogramms of run 3476 (seems to be o.k.)

To μ-crew: I found an error in the N50 program which produces the ILCEGEL CHAMBER NUMBERS. Will be corrected next week.
I put a description into the 3DAS-folder how to select events with MU CRATE MISSING
PDi

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_{cm} (GeV)	FREQUENCY (kHz)	REMARKS. Scan P66 on P151

105

19^{40} N10 hang-up on LEVEL 14. Restart
19^{50} Tagging-HV Error (1.523/1.518 and 1.404/1.410)
19^{58} ID-Trip
20.20. Run 3479 ended after 2002 events. Started Run 3480; but the ID tripped after 5 EVENTS:- tried to PAUSE RUN, ⇒ it terminated itself!! SO RUN 3480 DOES NOT EXIST.
20.22. Run 3481 started
20.30. Run stopped for a new filling.
21^{10} At the beginning of run 3482 Dead-Time ~ 50%, Event-Rate ~ 4 Hz we phoned PKR, they said they changed nothing ~~dur~~ since the last run.
21^{20} We phoned TASSO, they have now ~ 17% Dead Time (we have 33.3%), they don't want a new filling
21^{37} Tagging-HV Error (1.419/1.424)
21^{52} Dead-Time now 26.7%, Event-Rate 4.5 Hz
22^{25} Dead-Time now 18.8%, Event-Rate 4.2 Hz
22^{50} ID-Trip
23^{28} We agreed to new filling with 17.7 GeV

3.5.80

0^{00} Kawabata and Rieseberg on shift
0.10 New filling ready
IBM down for 5 to 10 min
0.22 Run 3488 started, output to mag. tape.
0.54 Run 3489 started, output again to IBM

1.05 We observe that our luminosity is low.
At the present energy (17.70 GeV) Tasso has accumulated 32 nb^{-1} and we only 26 nb^{-1}
Actual luminosity, as communicated by PKR, is:

Cello	1.6×10^{30}	
Tasso	1.6×10^{30}	this lumi is not gated
MarkJ	1.5×10^{30}	this lumi is not gated
Jade	1.1×10^{30}	this lumi is gated

PKR cannot improve our luminosity
Histograms are more or less normal, rates too.
I think, I was too long not on shift! Our luminosity is o.k. The Tasso on-line luminosity is by a factor 1.20 (page 55) or 1.22 (page 81 with correction) higher than our on-line luminosity. Rag

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1Tr.	T1 LG$>$4 GeV
3467	2.5.80	9.49	10.26	9.5	9.7		2105	7853	548	107	441	27	4675	10262	1437	1937	2386	1297
3468	"	10.26	~~11.02~~	~~8.6~~	8.8		2118	7857	552	86	466	25	4623	10534	1447	1961	2517	1368
3469	"	11.02	11.41	7.8	8.0		2260	7854	589	80	508	24	4557	11182	1532	2030	2380	1373
3470	"	11.42	12.24	7.1	7.2		2473	7856	644	77	567	23	4496	11173	1600	2086	2369	1407
3471	"	12.24	12.46	6.4	6.6		1137	3185	296	42	255	9.1	1830	4667	672	868	930	548
3472	"	15.05	15.38	9.6	9.5		1970	7855	513	131	383	44	4640	7470	1763	1843	2410	1036
3473	"	15.39	16.13	8.5	8.4		2033	7852	529	105	425	39	4619	8278	1702	1936	2278	1101
3474	"	16.13	16.50	7.7	8.0		2077	7861	541	97.8	443	31	4718	8382	1570	1934	2433	1238
3475	"	16.51	17.16	6.8	6.8		1462	5253	381	67.0	314	19	3182	6039	1000	1275	1683	897
3476	"	18.31	19.02	9.0	9.4		1830	7860	477	133	344	39	4917	7398	1536	1767	2518	1092
3477	"	19.02	19.35	8.0	8.4		1914	7849	498	112	387	34	4938	8047	1506	1790	2620	1102
3478	"							~300										
3479	"	19.46	20.20	7.0	7.3		1926	7854	501.5	107	394.5	25.7	5058	8026	1322	1725	2844	1238
3480	"																	
3481	"	20.22	20.30	6.2	6.6		454	1817	118	24.7	93.3	5.5	1141	1974	318	400	644	312
3482	"	21.05	21.36	9.6	9.7		1847	7854	481	218	263	33	5303	6690	1340	1527	3063	936
3483	"	21.37	22.09	8.2	8.4		1912	7856	497	143	354	32.5	5041	7662	1401	1646	2847	1120
3484	"	22.08	22.52	7.3	7.5		2053	7851	533	123	410	28	4999	8176	1405	1809	2756	1185
3485	"	22.52	23.23	6.3	6.5		1835	7853	477	96	381	24	4859	11283	1328	1788	2893	1468
3486	"	23.23	23.29	5.8	5.8		384	1182	73	13	60	3.67	728	1831	201	269	422	218
3487		no data																
3488	3.5.80	0.22	0.52	8.1	8.3		1772	6876	461	75.5	386	17.7	4399	7533	1165	1536	2456	1001
3489	"	0.54	1.31	7.2	7.5		2197	7851	572	81.2	491	18.7	5054	9204	1308	1826	2865	1170
3490	"	1.32	2.13	6.4	6.6		2441	7857	635	73.6	561	18.0	4824	9577	1443	1908	2651	1292
3491	"	2.13	2.39	5.7	5.8		1515	4609	394	40.8	353	9.7	2836	5456	883	1194	1561	738
3492	"	3.49	4.23	8.1	8.45		2239	7853	583	101	482	27.7	4743	9571	1547	1942	2604	1229
3493	"	4.30	5.13	6.6	7.1	1.2/6.3	2570	7858	669	78.2	591	23.3	4516	11433	1690	2141	2306	1323
3494	"	5.14	5.55	5.7	6.2		2437	6593	634	62.6	572	18.6	3757	9588	1483	1847	1916	1110
3495	"	6.57	7.37	8.2	8.7		2404	7849	625	90.8	534	24.8	4687	10010	1575	2000	2440	1193
3496	"	7.38	8.24	6.7	7.1	1.1/6.0	2780	7862	723	75.9	647	23.6	4591	11687	1738	2203	2274	1214
3497	"	8.24	8.8	5.9	6.3		2315	7489	760	70.2	690	21.1	4244	11060	1776	2168	2091	1193
3498	"	10.12	10.57	8.30	8.37		2428	7835	633	85.3	547	29.1	4441	11483	1647	2150	2260	1273
3499	"	11.00	11.46	7.3	7.3		2730	7860	811	99.9	633	25.9	4273	12041	1850	2280	1991	1234
3500							—	—										
3501	"	11.53		6.4	6.5		3085	7843	803	78.0	725	23.7	4235	12128	1868	2402	1478	1274

T1 LUMI	$\langle L \rangle \times 10^{30}$	SLdt RUN	SLdt EXP	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_{CM} (GeV)	FREQUENCY (kHz)	REMARKS
411	1.53	3.22	22.14	IBM	3.5	24	0	17.69		New fill.
350	1.35	2.86	25.00	"	3.0	29	1	"		
359	1.24	2.81	27.81	"	3.0	27	1	"		
325	1.04	2.57	30.38	"	2.5	31	0	"		
126	0.88	1.00	31.38	"	2.5	11	0	"		Beams dumped
382	1.47	2.89	2.89	"	4.1	42	0	17.70		New energy
390	1.43	2.91	5.80	"	4.0	37	3	"		
293	1.41	2.94	8.74	"	3.5	32	2	"		
156	0.83	1.21	9.95	"	3.5	19	0	"		Beams dumped
282	1.19	2.18	12.13	"	4.0	25	1	"		New Fill
269	1.04	2.00	14.13	"	4.0	19	3	"		~~run summary lost (N~10 hang-up)~~
		A	14.13+A	"	3.8					run summary lost (N~10 hang-up)
208	0.81	1.57	15.70+A	"	3.5	20	0	"		
										ID trapped after 5 events. Run terminated.
44	0.76	0.35	16.05+A	"	3.5	6	0	"		Beams dumped.
236	1.00	1.85	17.90+A	"	4.5	18	1	"		New filling.
261	1.04	1.99	19.89+A	"	4.1	15	1	"		
240	0.93	1.90	21.79+A	"	3.7	27	0	"		
180	0.77	1.41	23.20+A	"	3.0	12	1	"		
31	0.83	0.24	23.44+A	"	3.0	2	0	"		Beams dumped
283	1.26	2.24	25.68+A	Tape (F11127)	3.0	36	1	"		New Fill Tape F11127
289	1.03	2.27	27.95+A	IBM	2.7	30	2	"		
270	0.88	2.14	30.09+A	IBM	2.6	36	1	"		
144	0.79	1.20	31.29+A	"	2.4	11	1	"		Assuming A=0.07 we have $\int Ldt_{Exp}$ = 31.36 nb^{-1}
302	1.08	2.42	2.42	IBM	3.8	26	0	17.71		New filling New Energy
298	0.94	2.41	4.83	"	2.7	26	2	"		
221	0.71	1.74	6.57	"	2.3	27	0	"		
355	1.18	2.83	9.40	"	4.6 (923)	31	2	"		New filling
307	0.88	2.45	11.85	"	2.6	17	1	"		
249	0.75	2.17	14.02	"	2.1	31	0	"		
438	1.43	3.46	17.48	"	3.0	54	2	"		
459	1.30	3.54	21.02	"	2.8	52	0	"		
										N50 hang up. (4 potential events)
423	1.07	3.30	24.32	"	2.4	54	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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV	T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_{cm} (GeV)	FREQUENCY (kHz)	REMARKS. Scan Prob on p151

3.5.80

1.32	Run 3490 started
2.13	Run 3491 started
2.40	Stop Run for new filling
3.45	New filling is ready. New energy 17.71
3.49	Run 3492 started.
4.30	Run 3493 started
5.14	Run 3494 started
5.55	Stop for new filling
6.52	New filling is ready. Cello Magnet is still on → our compensating magnets stay off
6.57	Start Run 3495
7.37	Start Run 3496
8.00	Sato, Oviedt
9.15	Beams dumped
10.10	New filling ready, at start of run 3498: p-crate 12 missing, reset.
10.20	Water temperatures: Lake 21° inlet 40.5° out 66°
10.45	ID trip
11:10	PKR phased: the HF has been decreased by 200 Hz (from run 3498 on)
11:46	Nord 10 hang-up on LEVEL 14 after 4 events of run 3500
11:48	at start of run 3501: p-crate 12 missing
11:58	ID trip
14:31	Beams dumped
15:00	New filling ready, new energy: 14.95 GeV
15:05	ID trip
15:12	Beams lost & ID trip
16:00	Elsen Kawamiya
16:13	Run 3505 started. Deadtime 40% at the beginning. Phoned PKR and asked them to put the collimators to their old values 22/20. They ~~were~~ are at 30 now. The rate for TAGG. 1TR is very high. Edge blocks -z for tagging system are high.
16:37	Collimators now at old position. Deadtime 20%-30%. PKR looking at orbit.
16:39	Run 3505 ended, Run 3506 started
17:00	PKR said: Orbit okay. They will close the collimators a further millimeter. (Dead time now 16%)
17:10	ID tripped: beam pipe current is struggling 3mA⇔10mA

The ID trip occured during the collimator setting. old positions

	inner	outer
left	24	21
right	27	19

They are now 2 mm further in.

17:30	"Beulen fahren". Dead time did not change. I.D. current profile ↦ 1 did not change. PKR looks further into beam position.
17:45	Data logn.: Error 13 in 34323 at 102641. Stopped run.
18:20	New orbit "calculated" and changed. Dead time still 15%. They will now optimize at Cello. I.D. anode current has still ϕ dependence ↦ 3mA / 2mA
18:25	p crate 4 missing. Reset.
18:50	Orbit correction at Cello drastically improved their background conditions (factor 30). Since our dead time is now 9% we wait for the new filling before changing orbit again.
20:30	IBM PROBLEM 54 (OCT) occurs IBM Link failed. (we lost ~30 minutes)
≈ 20:50	When trying to get the link working, I.D. had to be switched off (3.7. current > 6. mA) TASSO had the same problem.
≈ 21:00 ?	Run 3511 was terminated though only 1 (calibration) event had been read.
21:20	Run 3512 started. NORD/10 hung up! → restart NORD (run summary for run 3512 is missed) level 14

21:25 at start of Run 3513 muon crate 7 missing, reset.

Background for this filling much better than before. Collimators now:

	inner	outer
left	22	22
right	25	20

Dead time ≈ 8%. Anode chamber current distribution okay.

22:11	Run 3513 stopped
22:15	Run 3514 started
23:57	" " stopped

4.5.80

0.00	O'Neill Oviedt
1:50	New filling ready
03:09	Mark J calls, want to change energy. I point out wastefulness of dumping after barely more than 1 hr. They see point.
3:28	Energy changed to 14.96 GeV per beam. Same fill.
6.10	Beams dumped for new fill
6:39	Get new fill but dump again ~ 6:45. Currents very asymmetric. Mark J killed by background. Our rate > 4 hz.
07:20	High background this fill at first. Now going again BP = 2.6
09:60	Run 3523. Very bad background conditions. Run paused most of the time as PKR Beulen Fahrenecl.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV
110																		
3502	3/4/80	12.48	13.47	5.8	5.8		3497	7848	911	174.9	836	22.6	4120	12128	2843	2406	1825	1247
3503	"	13.48	14:32	5.2	5.2		2620	5552	682	49.6	633	14.6	2909	8431	1500	1799	1187	862
3504	"	15:04	15.18	8.1	8.2		652	1995	170	16.2	153	4	1295	2028	367	518	711	255
3505	"	16:13	16:39	8.6	7.3		1506	7860	392	125.7	266.5	12.0	5710	10842	809	1473	3292	1473
3506	"	16.40	17.11	8.1	6.6		1829	7857	476	849	391.6	26.7	4544	18631	1553	2129	2226	1372
3507	"	17:11	17:43	7.4	5.9		1700	7329	422	849	357.6	32.2	3794	21822	1792	2755	1753	1450
3508	"	17.48	18:22	7.1	5.6		2029	7857	528	79.3	448.9	33.7	4087	23007	1963	2488	1669	1468
3509	"	18:23	19.09	6.6	5.2		2737	7851	712	74.0	638.3	29.7	4033	21234	2019	2613	1439	1222
3510	"	19:09	19:32	6.1	4.8		1316	3192	343	29.7	312.8	11.8	1568	8498	888	1143	491	491
3511	"																	
3512	"																	
3513	"	21:25	22:12	7.5	8.2	7×10^{-9}	2786	7862	724.5	63.1	661.3	17.6	4423	14256	1564	2662	1707	1073
3514	"	22:15	23:14	6.6	7.2		3514	7856	914.0	61.2	852.8	16.7	4187	13808	1851	2794	1402	1004
3515	"	23:16	23:58	5.9	6.4		2537	5155	660.2	39.4	620.8	10.1	2656	8364	1298	1798	860	671
3516	4/5/80	01:53	02:37	9.0	9.7		2563	7849	666.3	74.2	529.1	26.3	4283	13449	1761	2574	1694	1122
3517	"	2:39	3:21	7.9	8.8		2547	7856	661.9	68.9	593.0	22.2	4492	16103	1624	2723	1680	1062
3518	"	3.21	3:28	7.1	7.9		285	842	74.0	7.0	67.0	2.3	449	1634	185	286	164	115
3519	"	3:28	4:16	7.0	7.8		2860	7851	744.2	66.1	678.1	21.1	4228	15497	1722	2634	1666	1139
3520	"	4:16	5:13	6.3	7.1		3354	7856	872.9	64.9	808.1	20.9	3985	15477	1980	2743	1341	1070
3521	"	5:13	6:10	5.7	6.4		3365	6883	875.6	55.8	819.8	17.5	3380	1290	1867	2382	1081	961
3522	"	6:39	6:47	7.5	9.6		387	1826	100.3	16.4	84.5	3.8	1204	284	256	455	661	270
3523	"	7:20	7:57	9.2	8.7		1042	5136	271.1	75.4	195.7	11.1	3460	7883	674	1121	2066	721
3524	"	8:04	0834	7.8	7.0		1753	7862	456.2	76.8	379.4	21.5	4981	15323	1311	2044	2723	1263
3525	"	8:34	8:38 9:58	5.8	5.6		196	966	50.5	11.3	39.2	2.58	669	1956	148	218	392	144
3526	"	9:16	9:58	8.88	9.6		2280	7846	593.4	84.9	508	23.0	4609	15732	1488	2250	2199	1164
3527	"	9:55	10:48	8.0	8.3		2699	7856	696.9	69.1	627.8	21.3	4357	15474	1780	2659	1646	1124
3528	"	10:41	11:34	7.3	7.6		3192	7854	830.5	66	764.5	20.3	4217	14826	1906	2766	1470	1006
3529	"	11:34	11:51	6.59	6.88		911	1970	237.1	15.4	221.7	5.02	973	3696	503	713	294	274
3530	"	12:52	13:34	5.8	6.0		2449	4514	636.7	34.9	601.8	9.93	2192	7450	1281	1670	567	577
3531	"	14:25	16:26	7.8	7.1		120	119	13.4	1.12	12.3	0.26	66	183	24	50	18	12
3532	"	21.57	22:55	8.4	8.7		3228	7841	839.4	80.8	758.6	22.9	4234	16272	1851	2844	1446	1047
3533	"	22.55	23.52	7.6	7.8		3373	7849	877.5	67.4	810.1	22.4	4084	16152	2004	2766	1360	1048
3534	"	23.52	0:55	6.84	7.07		3723	7854	968.5	75.7	892.8	21.2	3908	15137	2141	2785	1174	995
3535	5 5 80	0:55	2:03	6.2	6.3		4057	7856	1055.4	82.8	972.6	23.3	3846	13936	2150	2803	1116	1006

RUN	T1 LUMI	$\langle L \rangle \times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (KHz)	REMARKS
111											
3502	413	0.94	3.27	27.59	IBM	2.1	48	1	17.110		
3503	264	0.81	2.12	29.71	"		22	2	"		
3504	122	0.97	0.63	0.63	"	1.7	9	0	14.950		beam lost
3505	266	0.94	1.41	2.04	"	3.0	23	0	"		
3506	366	1.08	1.98	4.02	"	3.0	38	1	"		
3507	304	1.01	1.71	5.73	"	2.5	32	0	"		Nord error 13 in 34323 at 102641 → stopped the run
3508	374	1.03	2.09	7.82	"	2.0	33	1	"		
3509	551	1.10	3.02	10.84	"	1.5	50	1	"		
3510	252	1.04	1.37	12.21	"	1.2	22	0	"		Beam dumped for new filling
3511					"				"		Run ended before calibration finished. (I.D. switched off)
3512					"				"		Nord hang up level 14 after ≈ 1000 events
3513	759	1.47	4.10	16.31 + *	"	1.0	73	0	"		
3514	776	1.19	4.18	20.49 + *	"	0.8	75	2	"		
3515	511	1.08	2.75	23.24 + *	"	0.7	46	1	"		Beam dumped for new filling
3516	640	1.37	3.51	26.75	"	2.3	71	3	"		
3517	637	1.32	3.37	30.12 + *	"		71	1	"		
3518	66	1.33	0.38	30.50 + *	"	1.1	9 552	0	"		Run stopped for energy change
3519	715	1.35	3.87	3.87	"	1.2	71	3	14.960		
3520	788	1.25	4.19	8.06	"	1.0	70	1	"		
3521	645	1.03	3.46	11.52	"	0.9	82	2	"		
3522	93	1.31	0.51	12.03	"	2.8	6	1	"		beams dumped
3523	210	1.13	1.17	13.20	"	2.6	37	1	"		Very dirty
3524	280	0.88	1.53	14.73	"	2.5	27	0	"		normal end 8000 events
3525	23	0.62	0.12	14.85	"		1	0	"		Run ended for new fill
3526	542	1.34	3.06	17.91	"	2.3	50	0	"		Normal end 8000
3527	547	1.11	2.46	20.87	"	1.3	63	2	"		normal end 8000
3528	670	1.14	3.64	24.51	"	1.1	59	2	"		Normal end 8000
3529	181	1.05	0.96	25.47	"	0.9	19	0	"		ended due to magn. trip
3530	445	0.97	2.37	27.84	"	≈1	45 530	2 14	"		ended for new fillings
3531	15	1.63	0.08	0.08	"	≈1	1	1	14.970		beam unstable and dumped.
3532	669	1.15	3.72	3.80	"	2.0	62	0	"		
3533	672	1.10	3.70	7.50	"	3.0-6.0	62	2	"		
3534	767	1.10	4.11	11.61	"	2.0-6.0	80	2	"		
3535	814	1.10	4.45	16.06	"	2.0-6.0	78	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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV	T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_{cm} (GeV)	FREQUENCY (kHz)	REMARKS

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0800 Stephen / Sato
Run 3524 Muon crate 12 missing at run start. reset OK.

08.30 Mark J says their beam is dirty and wish to have another fill. They will let us know when.

0832 Run 3524 ended
0834 3525 started
0838 3525 ended for new filling

09.16 Run 3526 started beam pipe fluctuated between 1.8 and 3.0 in Fields so that dead time changed from ~34% to 14% and event rate 5.3 - 4.0 Hz.

0955 Run 3526 ended
" #3527 started
10.40 " ended
10.41 #3528 started
11.34 #3528 ended

11.50. Inner Detector Trip. Magnet trip. High ~~current~~ temperatures Run ended. We have called the experts who are investigating cause of kicking >80°C alarm. The temperature from the coke is high but they cannot say how high. Anyway after a while the >80°C went to <35°C and magnet came on OK. ⇒ we restart.

13:10 Mark J and Tasso want to start next run with new energy and we agreed.

14:20 New filling completed. But background level is bad 5 or 6
16:24 Run started ~~for~~ but ~~stopped~~ soon stopped due to new filling.

μ Crate 7 missing at start - no time to reset!

16^{00} S. Komamiya, A. Wagner
no beams since 14^{26}, beams are always lost during acceleration or shortly after acc.
PKR does not know why.
18^{16} still no beam. PKR announces break until 7^{30} pm

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19:50 still no beam and no announcement.
21.56 We finally got beam !!
22:25 LG. threshold looks o.k. ~40mV
23.50 General beam conditions good, but strongly fluctuating beam pipe currents

5.4.80
0.00 Olsson, Ulrich
3^{00} Everything OK, still same good fill
3:18 Beams dumped
4:20 New fill ready
6^{45} No events during run, Page no 137 ennon 13 pause/cont. doesn't help, but start new run OK.
8^{00} Run 3540 ended. A quiet night, no ID trips, no rolling, just lumi: ~26,5 nb^{-1}. New record?

Switched off computer and ran down magnet: that caused an ID alarm although I followed the instructions I think.

For comparison of x-section with old beam look ups Log book II. p 119.

7-5-80
N.B. The μ chamber H.V's have been turned down. KS/AB.

7-5.80 Old setting of TDC COMMON STOP 122 nsec ≙ 93 nsec delay.
For TDC-CAL RUN INSERT 34 nsec delay box into BP Start instead of cable

8.5.80 Luminosity tests
In order to perform luminosity tests in the 4×4 - bunches - mode, the switch in the TØ - monitor in rack 6 (with the red/yellow/green lamps on) in rack 6 has been set to 4 bunch operation.
1 ① It has to be reset to 2 bunch operation for the 2×2 - bunches mode. Lumi tests which are scheduled for saturday, 15.00 (and for the physics shifts) and the cable labelled "P3 Pipeline" has to be * The HV's of the tagging drift-chambers ~~and scintillation~~ (for side of the ball) have been switched off.
✓ ② This will have to be switched on 2pm on monday morning.

* ~~changed back from "Σ" to "P3".~~

(cont. on p. 116)

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS ACC.	ALL TRIGGER $*10^6$	TØ REJECT $*10^6$	TØ ACCEPT $*10^6$	T1 ACC + POSTP. $*10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG> 4 GeV
114																		
Run	date	Start	Stop	I^+	I^-	Vac.	time [sec]	word evts accepted	all triggers $*10^6$	TØ rejected $*10^6$	TØ accepted $*10^6$	T1 accepted + postpr. $*10^6$	T2 accepted	T3 rejected	T3 accepted	T2 2 TOF collin. / track	T2 $\geq$2 TOF LG>1 $\geq$1 tr.	T1 LG > 4 GeV
3536	5.5.80	2.03	3.18	55	57		4430	7842	1151.6	61.2	1090.4	17.9	3779	13432	2125	2866	987	1019
3537	"	4.23	5.10	9.14	9.48		2759	7859	718	68	649	11.6	4364	14734	1683	2425	1868	1139
3538	"	5.10	6.12	7.74	8.40		3670	7860	954	62	893	11.6	4105	13469	1949	2251	1387	986
3539	"	6.12	6.46	6.8	7.4		1999	4035	520	30.7	489	8,3	2017	6496	1113	1453	599	462
3540	"	6.47	8.00	6.35	6.92		4382	7859	1140	60	1081	16.4	3828	19878	2209	9816	1079	958

3541 −3560 TDC CALIBRATION TO IBM
3551 not ok

T1 LUMI	$\langle L \rangle$ $*10^{30}$	$\int L\,dt$ Run	$\int L\,dt$ Exp	IBM/TAPE	BP EVT	BHABHA	mult. hadron	ENERGY E_B [GeV]	REMARKS
832	1.00	4.42	20.48	IBM	14	83	3	14.970	Dump
641	1,25	3,44	23,92	"	9.5	66	0	"	
768	1.12	4.10	28.02	"	1,0	77	2	"	
907	1,08	2,16	30,18	"	0.8	35	1	"	ended by enum 13 page 137.
826	1,01	4,41	34,59	"	0.8	93 (631)	3 (17)	"	

$\int L\,dt_{Run}$ = 467 nb^{-1} × 1.12 = 523 nb^{-1}

= $\frac{1}{2}(K_{Vradt} + K_{Hadron})$

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 ACC + POSTPR. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1TR.	T1 LG>4 GeV

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9.5.80

(cont. from p. 113)

~~The~~ Petra-injection is enabled independent of the status of the HV-control box (in order to allow
✓ ③ PKR remote-control of tagging HV's). The switch will be reset after lumi-tests.
✓ ④ Remote-control of tagging-HV is given to PKR. This will be changed after lumi-tests.
From now on PKR is able to measure our luminosity. ℓ 15:50 HW
The attenuator for TØ is set to its lowest value, i.e. 0, and should stay there for the whole lumi-tests.

⑤ Lumi-accidentals switched off (impossible to cope with 4×4 bunches mode in the present state) because they
✓ ⑤ disturbed the lumi-measurements. They will be switched on again for the 2×2 bunches tests on saturday.
19:10 HW

9.5.80 19h The adjustable potentiometer for (TØ-T1) delay was replaced by a fixed cable length in order to avoid a drift in the relative timings. H. Krehbiel + A. Wagner
old setting reestablished to ±2 ns.

23:40 PKR seems to be happily measuring luminosities, since I did not get a single call after Mr. Wriedt made sure that our value makes sense (around 18:30)
Probably I did not have to have stayed here. (They finally get a stable beam an hour ago)
Mr. Wriedt has a midnight shift, but he phoned that he is going to be on call.
The person who comes on shift at 8:00 should be not be surprised to see nobody here.
He/she should phone PKR what they want and could also be on call in case they
want him/her. ~~He~~ was instructed to call Mr. Wriedt in case they have trouble with
their luminosity measurements, after checking HV (if 9999 or 0, reset it. HV is on the
other side of the detector), or pushing the Krehbiel's box (it has to be ~~in~~ in run mode
10.5.80 manually). SMZ·SPZ lumi is the relevant scaler.
1:10 I phoned PKR at ~ 0:10 to give them my telephone-number in case of trouble. They
claimed not to see any data from JADE.
Anyway now everything looked fine & PKR said that this was the status for the last 10 min!?
Should there be any Strahlungsmessen around? I go home again (left my number to PKR).
Our lumi is in good agreement with MARK J and ~ 20% below TASSO's. HW

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan P68 on p151

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8:00 Kawabata on shift.
8:05 I phoned PKR. They don't need any our help.
16:00 GODDARD on shift
18:55 Tagging-system set up for 2×2-bunches lumi-tests ① and ⑤ (p. 113 & 116) reset to its original positions.
11.5.80. 0:00 Watanabe on shift, but apparently nothing to do here.
8:00 Warming on shift
PKR trips different optic. If first optic is successful they will measure luminosity.
12:00 phoned PKR: they are still playing with the machine, next optic will be 1 bunch against 1 bunch with beam coming at Hall 7 at 14h, after that they will try 2 against 2 bunches.
15:30 PKR ~~not~~ asked whether magnets were off (for polarization measurement), they were off since Friday
PKR announced for the nightshift beam studies with magnet
The people from -HKK- (3389) will phone Hedgecock to be present when switching on the magnet.

18:15 PKR does not yet know whether they will do machine-shifts with magnets on.
⇒ If anybody comes along during the evening (night to switch on our magnet, he should first contact PKR what their plans will be.

Tagging system set up for physics-shifts: ②, ③, and ④ (p. 113 & 116) reset to its original positions.
HW

21:00 N50-program changed (old version kept as 'OLD-N50DAR')

- MUON check routine corrected
- fractional analysis of 2TOF.LG.1TR and 2TOFCOLL.2TR triggers implemented
may be changed in subcontext (F11) N50-DIALOG, (F03) ANALYSIS FLAGS.
This influences beam-gas, halo and cosmic selection, but not hadron or bhabha.
Only the analysis (z-vertex, lead glass clusters) is suppressed. To reduce
deadtime ~~start~~ with the fractional histogramming option.
- Dead time on run summary split into trigger and computer part.
The computer part is CAMAC read-out + additional deadtime produced
between CAMAC and IBM-Link.

N50-Program structure
1. CHECK EVENT
2. ANALYSE EVENT
3. HISTOGRAM EVENT

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV
3561	12/5	10.29	11.59	1108	1559		4500	1.0	1.0	0.1	0.9	0.9	0.9	0.1	0.8	0.8	0.8	0.8
3562	12/5	11.59	14.05	1559	2010		7560	1.7	1.7	0.2	1.5	1.5	1.5	0.2	1.3	1.3	1.3	1.3
3563	12/5	17.12	18.05	2010	2260		3180	0.7	0.7	0.1	0.6	0.6	0.6	0.1	0.5	0.5	0.5	0.5
3564	12/5	19.48	19.50	2260	2260		120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3565	12/5	19.50	20.00	2260	2260		600	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1
3566	12/5	20.00	23.00	2260	2260		10800	2.4	2.4	0.3	2.1	2.1	2.1	0.3	1.8	1.8	1.8	1.8
3567	13/5	00.00	00.40	2260	2260		2400	0.5	0.5	0.1	0.4	0.4	0.4	0.1	0.3	0.3	0.3	0.3
3568	13/5	00.51	01.01	2260	2260		3000	0.8	0.8	0.1	0.7	0.7	0.7	0.1	0.6	0.6	0.6	0.6
3569	13/5	02.01	02.51	2260	2260		3000	0.8	0.8	0.1	0.7	0.7	0.7	0.1	0.6	0.6	0.6	0.6
3570	13/5	04.06	04.44	2260	2260		2280	0.5	0.5	0.1	0.4	0.4	0.4	0.1	0.3	0.3	0.3	0.3
3571	13/5	04.44	05.37	2260	2260		3180	0.8	0.8	0.1	0.7	0.7	0.7	0.1	0.6	0.6	0.6	0.6
3572	13/5	05.47	06.42	2260	2260		3480	0.8	0.8	0.1	0.7	0.7	0.7	0.1	0.6	0.6	0.6	0.6
3573	13/5	06.42	07.11	2260	2260		2580	0.6	0.6	0.1	0.5	0.5	0.5	0.1	0.4	0.4	0.4	0.4
3574	13/5	07.15	07.57	2260	2260		2520	0.6	0.6	0.1	0.5	0.5	0.5	0.1	0.4	0.4	0.4	0.4

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_{CM} (GeV)	FREQUENCY (KHz)	REMARKS
0.466	0.29	0.29	0.29	3561	9.5	1.0	0.4	30.0	499.6	
0.481	0.30	0.30	0.30	3562	9.5	1.0	0.4	30.0	499.6	
0.426	0.27	0.27	0.27	3563	9.5	1.0	0.4	30.0	499.6	
0.476	0.30	0.30	0.30	3564	9.5	1.0	0.4	30.0	499.6	
0.384	0.24	0.24	0.24	3565	9.5	1.0	0.4	30.0	499.6	
6.509	4.08	4.08	4.08	3566	9.5	1.0	0.4	30.0	499.6	
0.351	0.22	0.22	0.22	3567	9.5	1.0	0.4	30.0	499.6	
0.391	0.24	0.24	0.24	3568	9.5	1.0	0.4	30.0	499.6	
				3569	9.5	1.0	0.4	30.0	499.6	
				3570	9.5	1.0	0.4	30.0	499.6	
				3571	9.5	1.0	0.4	30.0	499.6	
				3572	9.5	1.0	0.4	30.0	499.6	
				3573	9.5	1.0	0.4	30.0	499.6	
				3574	9.5	1.0	0.4	30.0	499.6	

Scan PAB ar

p151

12/05/80

8.00 Krehbiel / Minowa on shift

10.29 Start run 3561, still exp # 12.
One DL8 (first in one CAMAC crate) hangs → hole in distribution
exchange DL8

Discriminator for BP 16 gave excessive rate and long afterpulses → False background Analog value
Changed to one empty channel in the second LeCroy Discrim, Rack 3. Crate 2

~~11.59~~ start run 3562 with exp#13.

11.43 Beams dumped

11.59 A magnet power supply of PETRA failed.-

14.05 JADE Magnet trips. No Reason given by control panel (Lamp "Hitzeschild Rücklauf >60°" is not lit when pressing Lampentest)
Trips again when trying to switch on according to given procedure. Informed K.K. came: Temperature in the Power-House was too high.
(This morning they had forgotten to switch it on again.) Magnet at 7000A at 14.25

14.40 Petra starts filling.

16.00 Monday 12/5/80 G. Heinzelman & F. Loebinger.

HF at PETRA changed by 700 Hz. HF now ~~500~~ 499.6 MHz + 62.7 kHz
with this change BP goes from 9.5 to 2.5.

17.12 Run 3563 started.
From Bethe at PKR: Measured luminosities at all intersections:
10 min runs ~ 200 counts ⇒ specific luminosities:

CELLO	0.466	$\times 10^{-29}$ / mA^2
TASSO	0.481	
MARK J	0.426	
JADE	0.476	

Integrated luminosities:

CELLO	0.384	$\times 10^{30}$ (ungated)
TASSO	"6.509"!	
MARK J	0.351	
JADE	0.391	(gated)

Spike at 0 in LG-threshold-3 (>4GeV)-histogram is understood. If 35% of the energy is in one block the energy is set to 0. It is coming from real events originating in the JADE collimators ~8m away from interact.

18.05. At end of run 3563 Control VDU went crazy. It flickered & only showed > on every line. It would respond to no commands. Only way out was to restart NORD-10. Run summary lost, but everything else back to normal.

19.25. JDAS ERROR 50 traced to trigger counter crate
cleared eventually by switching on & off (by Herning Wriedt).

19.48. Start run 3565
19.50 Beams lost.
20.00 P Murphy replaces F Loebinger.
23.00 NORD hung up

00:00 13/5/80 Ball & Bats
Dead time was ~30% at run start. Used fractional histogramming option. Selected 30% to be histogrammed. Reduced deadtime by ~7%.
00:40 Run-sum shows DT (comp) ~9% 33ns/trig.
DT (T1) ~10%
00:51 Run 3569 stopped after 8002 events. Start run 3570
Histograms for Run 3569 all look OK.
02:01 Run 3570 ended after 8002 events. Start run 3571.
Luminosity dropping fast. now ~0.3E30. Ask for new filling in 15 mins. All expts. agree.

04:06 After many attempts, new filling ready. 5:01 5:41 at run start
BP ~3.5. Currents dropping very fast. Start run 3572. currents 4:80 5:22 after 4 mins.
04:44 Run 3572 stopped after 8002 events. Start run 3573.
05:37 Run 3573 stopped " 8002 events. Start run 3574
Av. Luminosity 0.29 E 30. Reluctantly decide to ask for new filling in 15 mins. Mark J very much in favour, Cello don't care. Tasso against but not strongly.
Request filling in 15 mins
05:47 Rather early, PKR dump beams. Run 3574 stopped

06:42 New filling ready. Start run 3575
07:11 Nord crash. Run 3575 run-sum lost.
07:15 Start run 3576.

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 ACC+POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1TR.	T1 LG>4 GeV
120																		
3561	12/5/80	10 39	11 01	3.6	4.2		1269	1896	330	24.0	306	4.30	983	2085	599	714	317	254
3562	"	11 08	11 41	3.2	3.6		1837	2691	478	25.2	453	4.58	1340	2464	847	959	404	430
3563	"	17.12	18.05	5.3	5.6			~8000										
3564	"	18.16	19.12	4.2	4.5		3284	5651	855	52.0	803	14.7	2930	6660	1699	1976	1034	842
3565	"	19.48	(20.15)	3.5	3.7		84	115	22	1.0	21	0.3	60	149	29	45	25	20
3566	"	20.55	21.57	5.3	6.8		3706	7853	965	129	836	25.8	4400	~~8941~~ 2014	2019	2324	2137	1187
3567	"	22.00	~2300					6122										
3568	"	23.04	2324	3.4	4.5		1095	1909	235	16	269	4.5	975	2047	608	571	448	278
3569	13/5/80	00.02		5.7	6.20											~~7097~~		
~~3569~~	"	~~0.52~~	0.51	5.7	6.2		2914	7841	758	137	621	73.1	3915	7627	2604	~~1783~~	1783	1145
3570	"	0.52	02.01	3.9	4.2		914	7848	1069	103	967	50.0	3822	8272	2692	2526	1347	1139
3571	"	02.02	02.15	3.5	3.6		700	1042	182	11	171	4.2	515	1032	365	378	146	133
3572	"	04.10	04.44	5.1	5.01		2014	7850	523	107	416	21.0	5177	7302	1248	1442	3407	1319
3573	"	04.45	05.43	4.5	4.0		3463	7857	900	75	824	22.7	4558	8667	1916	2131	2368	1258
3574	"	0547		3.71	3.16		188	362	49	3.1	45.8	0.9	219	347	75	124	91	61
3575	"	06.42	07.11	5.5	5.4			~3500										
3576	"	07.16	08.13	4.62	4.20		3308	7853	862	86.1	776	33.2	4182	14138	2188	2397	1898	1361
3577	"	08 13	08 38	4.0	3.6		1382	3201	360	34.9	325	12.8	1684	5678	859	970	761	601
3578	"	0840	~~08~~ 0847	3.8	3.4		3776	5775	983	564	926	15.0	3022	6695	1837	2055	1056	800
3579	"	11 45	12 50	5.2	5.9		3870	7850	1007	91	915	28.9	4104	~~6214~~	2147	2216	1781	1243
3580	"	12 51	13 04	4.2	4.6		747	2185	194	21	173	3.6	1250	1143	343	~~424~~	710	480
3581	"	14 06	14 21	6.2	6.6		899	2642	234	32.3	202	11.0	1519	1862	603	635	863	396
3582	"	17 31	17 38	6.5	6.6		408	1391	~~1006~~	17.7	88	6.4	803	1417	323	366	393	209
3583		18 57	19 08	~~6.17~~ ?			819	3073	212	65.5	147	11.8	1960	2452	538	605	1202	489
3584		19 10	1926	6.14	6.80		841	2066	218	250	194	10.6	1057	2942	559	586	496	319
3585		20 31	21 09	6.42	7.55		2226	5123	580	111	468	25.6	2965	5834	1009	1494	1529	814
3586	14/5/80	455	549	6.0	6.3		3178	5673	826	82	744	39.1	3803	13.973	446	2310	1518	1157
3587	14th	657	758	6.4	6.9		3635	7838	947	115	832	58.9	4530	11897	1839	2680	1794	1172
3588	14	800	914	4.9	5.2		4362	7847	1136	112	1024	45.2	4426	12912	1923	2904	1575	1255
3589	"	919	924	4.3	4.5		293	499	76.3	5.8	70.5	2.5	275	879	118	202	80	89
3590	14.5.	15.23	15.31	4.8	6.7		264	604	69.1	4.4	64.7	1.3	347	946	102	190	189	66
3591	"	17 13	18 05	5.4	5.5		3046	5412	793	42	751	10.1	3315	7687	957	1707	1477	566
3592	"	19 08	19 49	7.6	7.1		2412	7852	628	79	548	11.9	5521	8386	806	1649	3930	900
3593	"	19 49	20 38	6.5	7.0		2873	7857	748	60	688	13.4	5138	9634	969	1945	3320	1028

T1 LUMI	$\langle L \rangle \times 10^{30}$	Stat RUN	Stat Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY EB	REMARKS (Scan Pbb ar bist)
121									
62	0.42	0.53	.53	IBM		3	0	18.300	EXP 12 ✓
70	0.34	0.63	1.16	"		7	0	"	EXP 13 ↓ beams dumped
	0.5	~1.8	2.96	"	2.0			"	Run summary lost.
162	0.43	1.42	4.38	"	1.6	11	1	"	
5	0.45	0.04	4.42	"		0	0	"	Beams lost
220	0.51	1.89	6.31	"	1.9	24	1	"	New fill
	0.41	1.32	7.63					"	Nord hangup; no run summary
43	0.34	0.37	8.00	"		3	0	"	Dump beams
					3.4				
160	0.51	1.50	9.50	"	3.2	12	0	"	
178	0.38	1.58	11.08	IBM	2.9	18	0	"	
29	0.35	0.24	11.32	"	2.1	1	0	"	Dump beams
86	0.31	0.63	11.95	"	3.5	2	1	"	
108	0.29	1.00	12.95	"	2.0	11	0	"	
7	0.26	0.05	13.00	"	1.8	1	0	"	Dump beams.
	~0.5	~0.5	~13.50		2.8				Nord crash. Run summary lost.
108	0.31	1.02	~14.52	"	2.5	9	0	"	
50	0.33	0.46	~14.98	"	2.2	4	0	"	
110	0.27	1.02	16.00	"		11	0	"	Beams dumped
335	0.74	2.86	18.86	"	2.4	33	0	"	
54	0.55	0.41	19.27	"	2.2	8	0	"	Beams lost
103	0.89	0.88	20.16		2.6	5	0	"	Beams lost
37	0.71	0.29	20.45	"	3.4	4	0	"	High background. Beam lost.
72	0.73	0.60	21.05	"	3.6	10	1	"	High background. Stopped for beam steering.
116	1.21	1.02	22.07	"	2.6	7	1	"	
278	1.03	2.33	24.40	"	3.0	31	0	"	Problem with one magnet. Beams dumped.
242	0.67	2.13	26.53	"	2.8	20	1	"	Muon chambers off. Beam lost.
270	0.64	2.31	28.84	"	2.3	18	1	"	
223	0.46	2.02	30.86	"		22	1	"	
16	0.44	0.13	30.99 (27.32)	"		1 (236)	1 (8)	"	~~beams dumped~~
48	0.91	0.24	0.24	IBM	0.8	1	Ø	14.95	EXP 14. new Energy. Beams lost
520	0.31	2.78	3.02	"	1.0	42	3	"	Beams lost
582	1.33	3.20	6.22	"	1.0	57	1	"	
675	1.30	3.73	9.95	"	0.9	79	3	"	

continued page 126

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

122 13/05/80

8-00 Felst / Minowa

8:38 "No events ..." display on the colour TV.
pushed the green button on the trigger desk ... no effect
stop Run 3577
start the new Run 3578, still no events accepted
found ID trip, alarm has been switched off. !!!

10^{00} ask for new filling, PKR will try to increase the radio-frequency power
11^{30} new filling ready, but problems with collimators
11^{45} good beam conditions finally
12^{50} Run 3578: dead time trunk = 6.1% = 31 mscl/trigger
" " T1 = 3.0%

16^{00} Allison / Matsumura
17^{02} Beams available, but background too high — 35 on scale. Rang PKR. They are trying to improve.
17^{00} 2 HV WRONG. Naroska not available. Went away when run ~~was~~ started.
17^{11} TASSO also have high background. PKR asked to investigate.
17^{12} LG/BP HV's rubbish — can't be right! Accepted error.
17^{15} Backgrounds still too high. Rang PKR again.
17^{27} Started run. Backgrounds still high. BP = 3.1, but rate = 2.5 Hz. PKR will 'phone if they want to move beam. TASSO still say background is too high.

17^{19} – 17^{27} Strobe timing to LG latch-discriminator changed. Set 7 nsec earlier.

17^{36} Beam lost. "Transmitters broke down."

18^{44} Beam available but BP = 5.2 !!*! PKR says 1 collimator still out. They will bring it in and then make orbit correction.
18^{49} Down to 3.4. We go.
18^{51} Run 3583 started. 3.6 Hz, 27% deadtime !*!
18^{57} Background still high. PKR says wait 5 mins (for Lumi run) then they will try local steering.

19^{08} Stopped Run 3583 for vertical orbit move. PKR managed to reduced BP from 3.0 to 2.6.
19^{10} Started Run 3584. BP = 2.6. 2.8 Hz 11% deadtime. Great.
19^{26} Beam lost

(Note: TASSO experienced a great improvement — factor of 3 (sic) — when PKR steered the beam for us)

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM / TAPE	BP	BHABHA	MULT. HADRON	ENERGY E$_{CM}$ (GeV)	FREQUENCY (KHz)	REMARKS. Scan PAB on p151

123

20^{19} Beams at 18.3 GeV. BP = 4.0! Now BP = 7.0! Now BP = 3.1. PKR say beam steering changes have been incorporated into the current machine parameter file. BP = 2.8. Great.
Waiting for small change to TASSO steering system (this does NOT affect Lumi measurement — ~~it~~ Horte)
20^{31} Start Run 3585. 15% deadtime, 3 Hz.
Took out T3: 11%, 2 Hz
" " 14%, 2.2 Hz
" 11, 1.9
} Conclusion: Leave it in (at this level).
20^{42} IBM slow. 89% deadtime OK now.
21^{06} Beam lost. ID trip. Just before got HV WRONG in TASSO. Circled.
In the previous run, and maybe before, ~~TASSO~~ HT to μ-crate 13 was being shorted.
22:30 While searching for problem with μ-crate 13, hear sound of running water on far side of experiment near stairs. Small (but growing) pool of water underneath experiment. Phone Robin Marshall + Richard Hedgecock.
22:35 Robin here. μ-chambers being sprayed with water — burst breakdown.
Switch off Plinths, Inner Layer, Roof 2, Endwall 2, Roof 4, Endwall 4, μ-chamber volts. AB
23^{52} Die Techniker kommen.
23^{40} Beams lost. Access requested.

NEXT SHIFT: 1) ENABLE MAGNET ALARM ON INNER DETECTOR IF MAGNET IS REPAIRED Yes
2) USE T3 TRIGGER OPTION IF desperate.

23^{08} MARK J wish to use tune for access. I have given them to MIDNIGHT.
14.5.80 24.00 I. Duerdoth A. Sato Swim Shift.
R. Hedgecock replacing broken hose for water for magnet cooling.
3.15 Repair finished, water flowing again, magnet at 5000, area interlocked – start injection.
4:50 Magnet up to 7000, Start Run 3586 – Muon chambers not powered – as some are still wet (except sidewalls!)
5.35 Following the water leak, all seems to be normal again, except that 4 out of 14 muon H.T. supplies now draw current (the bad 4 all have H.T. cables near the water leak). Hope they dry out soon.
5.40 LG threshold pattern is different.
5.49 Beam lost
10.55 Start 3587
11.00 LG threshold pattern 3 is now ok
8.38

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$\geq$1 TR.	T1 LG$>$4 GeV

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (KHz)	REMARKS

Scan P66 av

p151

14/05/80

8:00 Krehbiel / Minowa

8.38 Extended 10th Jam. Cured itself after 30 sec

8.40. Synchrotron wants time for measurements. No filling for next half hour (Bartel Kalling from Hbg)

9.20 Beams dumped

9.55 The temperature in the Electronics House (Thermometer on the wall) is 17°C instead of the normal value 11°C. Therefore I reduce the set temperature value at the air conditioner from 18°C to 16°C Rinsky

10.10 On Petra display the notice "Unterbrechung" appeared. Telephone call. They say they have problems with one Klystron HV PWR Supply. They want to exchange it. Narodska checks TDC's with LED's, Minowa checks Leadglass HV.

11.30 PM for ToF Counter 71 has HV breakdowns. Symptoms: Excessive Current, Funny Anode Signals. Counter 71 ~~has pmt~~ is disconnected from now on. Has possibly been soaked with Magnet Water. Trigger has been adjusted to the single PM 29. The problem started after the repair of the water hose was done, run 3586

10.40 Everything is ok for LG-counters of far-side end cap.

~12.00 start injection
Beam Energy will be ~15 GeV due to one missing Klystron.
Change Expt # 13 → 14 from Run 3590 on.

14.10 Cello broke Interlock when filling was in progress

14.15 Telephone call to Kumpfert PKR: They have problems to find adequate acceleration rites. The machine conditions are different from before, because of reduced transmitter power. What is broken: Power Mains Switch to Klystron HV Power Supply. Planned to Energy 15 GeV

15.10 Telephone call from Koch (Coordinator). Trouble will be repaired tomorrow on ascension day from 8°° on. We have access to our area 8°° to presum. 17°°

15.23 Beams at 14.95 GeV
start Run 3590
Changed LG-threshold of channel 3 and 4. ch.3 = ch.4 = 1.0 GeV
=use the new table to adjust the thresholds = (previously = 1.5 GeV)
with this new threshold, inst. dead time = 6% and Event rate = 1.9 Hz (I^+ = 4.8 mA, I^- = 6.7 mA)
Alarm signal from Supervisor Box was turned to lowest volume, therefore No ID alarm
Beeping loudspeaker above Line Printer now active again. Buzzer at 10 Panel switched off.

15.27 → Beam partly lost
PKR decided to dump the beams

During all running since 22.35, 13/5/80 (run 3586 onwards) power OFF
muon crates roof 2 (¼ roof)
Endwall 4 (½ of 1 endwall)
Plinth
Sidewall cr 1 (½ of sidewall away from endwall)

16°° Krebnija, Test

ToF counter 68 switched off since it showed sparking
" " 26 fed into discriminator 68

17.13 Start run 3591 14.950 GeV : 18.00 All endwall μ chambers now powered again (still missing ½ endwall, ¼ roof & plinth due to water-logged conditions).
18:03 beams lost ID-trip

20.30 All endwall μ chambers now powered again. (still missing ¼ roof & plinth).

15.5.80

00.00 Darvill and Totsuka

0,35 fill ends but big background only at JADE, we cannot start the new run. PKR tries to improve the e^+ lifetime is extremely short.

0:58 Ok. start the run. current: e^+: 5.03, e^-: 7.78,

01.40 we decide to ask for new filling at 02:00 and begin to call the experiments. Those now have the high background we had earlier and are delighted with the idea of a new filling.

2:30 new filling ended. We have the same problem (high BG (ISR = ~10)). PKR working on this.

2.40 OK now.

3.02 run 3599 JDAS error 44 sub 302

3:27 Run 3599 ended run 3600 started

04:10 standard background drawn.

06:17 JDAS error 56 oct) subcrate 25

06:45 new filling finished. large background again run 3603 stopped due to large dead time

6:20 Run 3604, Deadtime ~40%. PKR is checking it. We keep running. now it's ok. 0.7 → 10 %

7:11 BP = 0.9 0.7 = 8 %

08:00 Petra shut down to repair power switch for a Klystron - Nice seems to be the point in our ring being very long.

09.30 Run down magnet current, set compensating magnets to 500, for further information call 3389 H.K.

10.30 Ch HEDGECOCK. arrived and generally diddled around.

13.10. Gone to lunch - back around 14:00

16°° WAROSKA & HEDGECOCK START SHIFT.

17°° PKR status changes to ready state. Main magnet and compensators run up to normal levels. SEE PAGE 128

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 2TOF LG>1 ≥1 TR.	T1 LG>4 GeV
126 RUN																		
3594	14/5/80	20.38	21^{32}	6.0	6.5		3207	7857	834	58.6	775	14.1	4933	10072	1179	2054	3006	1028
3595	"	21^{32}	22.31	5.4	5.9		3460	7858	900	59.3	841	13.3	4985	9777	1285	2083	3048	945
3596	"	22.31	23.33	4.9	5.3		3659	6785	951	47.0	951	11.7	4129	8326	1183	2084	2209	841
3597	15.5.80	1.02	01.47	5.0	7.4		2604	7860	677	68.6	609	11.8	5608	9136	939	1781	3963	795
3598	"	01.48	02.03	4.3	6.7		886	2040	231	18	213	3.5	1372	2706	291	589	819	216
3599	"	2.45	03:27	6.5	7.7		2458	7854	640	68.7	571	15.7	5353	11357	1016	2054	3388	840
3600	"	3:28	04:18	5.9	7.2		2996	7859	780	60	719	16.2	5029	11526	1207	2160	3014	874
3601	"	04:20	05:11	5.0	6.1		3022	7860	786	59	727	14.9	5140	11135	1136	2032	3268	969
3602	"	05:11	05:37	4.9	6.0		1284	3103	334	24	310	5.4	2035	4224	468	848	1240	365
3603	"	06:09	6:10	7.6	7.1		529	1565	138	118	19	0.6	1400	552	34	110	1283	101
3604	"	06:20	6.56	7.2	6.9		2081	7862	541	128	413	19.4	5845	7808	700	1417	4533	818
3605	"	06.36	7.47	6.8	6.4		3020	7851	786	60	726	14.9	5005	10598	1183	2050	3120	974
3606	"	07.48	7.53	6.2	5.9		314	663	82	4.9	~~80~~ 77	1.4	395	949	119	182	234	92
3608	15.5.80	19.05	20.27	4.6	5.1		4915	7845	1279	95.3	1183	44.0	4090	13797	2128	3094	1036	1039
3609	15.5.80	20.28	22.03	3.4	3.8		5537	7055	1441	147.4	1293	28.6	3567	11819	2021	2929	679	963
3610	15.5.80	22.45	23.26	5.7	6.0		2453	7849	638	127.4	511	46.3	4457	15766	1367	1393	2388	1796
3611	15.5.80 16.5.80	23.27	00:31	4.1	5.0		3033	6852	894	80.3	813	19.5	6202	16949	1535	3061	1103	935
3612	16.5.80	01.07	02:06	6.6	7.4		3468	7647	907	83.4	824	29.9	4688	18674	1774	3481	1203	990
3613	"	02:07	02:10	5.2	5.9		183	397	48	3.6	44	1.3	201	758	99	173	45	45
3614	"	02:24	03:42	5.0	5.6		4645	7850	1208	79.4	1128	29.1	4441	18137	2049	3483	1059	1054
3615	"	22.54	23.38	6.45	7.40		2551	6494	664	79	585	21	3739	10967	1508	2261	1435	927
3616		23.39	0.29	5.65	6.50		2901	6026	754	98	656	19	3466	10583	1475	2343	1157	786
3617	17.5.80	1.19	2.09	8.20	8.30		2821	7829	734	91	643	34	4263	15521	1942	2627	1599	1163
3618	"	2.09	3.04	6.91	7.06		2232	7747	841	154	686	33	4129	16165	2040	2677	1518	1183
3619	"	3.05	4.04	6.05	6.10		3452	7747	898	92	898	32	4770	16404	2742	2798	7370	7722
3620	"	4.04	5.06	5.28	5.26		3677	7722	957	79	878	31	4049	16176	2256	2832	1353	1105
3621	"	5.58	6.57	7.20	7.36		3495	7828	908	87	822	34	4117	13671	2243	2735	1365	982
3622	"	6.57	8.06	5.92	6.07		4003	7843	1042	84.7	957	29	4090	14554	2267	2825	1376	1101
3623	"	8.07	8.47	5.1	5.2		2417	4226	629	41.3	588	16.8	2179	7619	1358	1521	685	602
3624	"	9.37	10:30	6.9	7.0		3816	7744	993	108	885	43.2	3976	10233	2412	2710	1248	914
3625	"	10:31	11:56	5.65	5.92		1418	2646	369	39.3	330	11.7	1372	3452	783	986	433	334

T1 LUMI	$\langle L \rangle \times 10^{30}$	$\int L dt$ RUN	$\int L dt$ Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS
671	1.12	3.61	13.56	IBM	0.9	66	1	14.950		
642	1.02	3.52	17.08	"	0.8	62	2	"		
587	0.86	3.15	20.23	"	0.7	55	0	"		Beams Dumped.
478	1.01	2.63	22.89	IBM	1.3	44	1	"		Normal ending.
148	0.94	0.83	23.72	"	1.3	13	0	"		Run ended to permit new filling
600	1.33	3.26	27.00	—	1.1	61	1	"		New filling
752	1.27	3.82	30.82		1.0	73	2	"		
576	1.06	3.20	34.02		0.9	65	2	"		
213	1.30 ?	1.67	35.69		0.9	26	0	"		1D Trip - beams available - waiting for new filling
19	0.25	0.13	35.82		2.5	0	0	"		Run stopped due to high background
395	1.02	2.13	37.95		1.5	33	0	"		
635	1.15	3.46	41.41		0.9	58	2	"		
55	0.97	0.31	41.72		0.8	6 741	0 19	"		Run ended - they want to change the beams
								18.300		EXP. 13
564	0.95	4.67	35.66	IBM	1.8	50	0 (9)	"		
458	0.75	4.16	39.82		1.6	50	0	"		Beams dumped
207	0.75	1.84	41.66		4.0	22	1 (4)	"		~~Dubble~~
166	0.61	2.1	43.76		3	17	1	"		New filling expected
371	0.93	3.25	47.01	—	3.0	39	0	"		Normal ending
23	0.93	0.17	47.18		2.5	3	0	"		Run stopped due to error - see page 128
492	0.55	2.56	49.74		2.3	35	0 11	—		
								~~14.960~~		~~EXP. 14~~ One klystron broken
264	0.81	2.06	2.06		3.5	27	1	17.720		EXP. 12 (continue Scan)
284	0.78	2.25	4.31		2.2	19	2	"		
433	1.24	3.49	7.80		3.0	52	0	"		
371	0.91	2.94	10.74		2.7	48	1			
356	0.80	2.77	13.51		2.3	34	0	17720		
298	0.66	2.43	15.94		2.0	26	0			
450	1.01	3.53	19.47		3.0	42	0	"		
368	0.73	2.90	22.37		2.0	37	3	"		
175	0.35	1.34	23.71		1.8	25	0	"		Beam lost
412	0.86	3.27	26.98		3.0	35	1	"		
116	0.64	0.91	27.89		2.7	16	0	"		Beam 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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1 TR.	T1 LG>4 GeV

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16.00 Naroska, Hodgecock
Petra shut off for repair
Checked all TOF-PM's on +-side. The whole quarter where the water was squirting out is more or less abnormal.

on 13.5.		PM	disease
slowly varying pedestal	dis	66	sparking (only visible on scope)
ok	→	67	huge pulses, appears like lightleak, but opposite PM sees nothing. So I doubt that it's a lightleak
light	dis	68	disconnected
ok (low)		69	no pulse, just noise
ok	→	70	like 67 but not so pronounced
sparking noise	dis	71	disconnected
light	dis	72	constant pulse: ↑ 6V ↓
ok		73	nearly normal, only occasional long high pulses.

all other PM's look normal.
⇒ Look again with beam to see whether any have to be disconnected from HV.

18.30 Got beams again at 18.3 GeV/c / 6.98 / 654 mA
Exp. 13

Problems: 1) Trigger box not working at all. After much discussion, power on NIM crate found to be off !!.
2) HV initialisation for LG and BP seems to be totally wrong. Called Komamiya to sort it out. Problem is not trivial but doesn't stop data taking.
↳ "Serial Crate Controller" changed → o.k. 19:30 Komamiya (on Vacuum Logbook)

21.00 Our background conditions are excellent BP 1.6 !!

$\langle L \rangle = 0.93 \cdot 10^{30}$

TASSO	1.2
Mark J	≈ 0.8
CELLO	Comp Probl. 0.7 (½ hr later)

General opinion: beams very clean, continue running

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan PEB av
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15.5

Disconnect PM 66 because it was causing Rayglass pickup on all cables.

~~10^{03}~~ We ask for a refill
~~10^{33}~~ We get it

16-5-80 ← Friday, 16 May, 1980

0.11 Where is the next shift ?? At this moment, sort waking up - Sorry DCO
0.28 Dump current filling. O'Neill & Darvill on shift.
01:06 new filling complete - we start run number 3612
01:48 "Muon Crate Missing" flashes on, fixes itself. I do nothing.
02:07 - Error message - ZHV warning - please run whilst we fix them.
02:21 Here's another short story for my regular readers. While fumbling around trying to get started again after the pause to reset the HV errors we notice the following teletype message!
02.09.38 ERROR 13 in 34323 at 102641; Page fault for non-demand Page no.: 137
We don't know what this means but it sounds vaguely ominous. Fumbling through what you should know about JDAS but Don't or whatever that folder is we find no inspiration. Try pause/continue a few times. No luck. Stop Run 3613. Start next Run. Ça va! A German proverb says, „Selbst ein blindes Huhn findet manchmal ein Korn" or something to that effect.
03:38 Stop run 3614 for new filling.
04:07 PKR calls. A klystron has flopped. We have to go back to 14.95. Change experiment number back to 14.
Expt. number does not increase monotonically with time. This is sure to screw something up eventually.
04:19 The first glow of dawn is sighted to the east, giving us a ray of hope that this shift may end before some really complicated problem comes up.
05.16 PKR rings back. Synchrotron has vacuum problems. No idea how long it will take.

8.00 Kawabata and Rieseberg on shift
PKR says: Experts try to tighten the vacuum leak in the synchrotron. If the part has to be exchange, the re-start will be not before 2 pm.
One klystron in the south zone - the klystron itself - died. Probably we shall continue with lower energy while the klystron is replaced.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1	T1 LG>4 GeV
121	130	16.5.80																

8^{40} Magnet current turned down to 2000 A

9^{00} Humidity probes of Magnet re-connected. This causes one magnet trip. Reset by R. Hedgecock

10^{15} Other experiments agree to continue the scan at 14.96 GeV.

10^{25} Refilling has started. Magnet to 7000 A

10^{35} μ-chambers in plinth and roof 2 now operational again. Complete μ filter now working.
Total damage from the great flood = 3 μ chambers (plinth) AB | FKL | BTK.
1 μ chamber (roof) + 6 Photomultiplier bases soaked

10^{45} The Klystron will be operative not before Monday (19.5.) in the evening.

During injection of e^+, the synchrotron got again the same vacuum problem as this morning
"RESTART 1 PM" appears after some time

11^{30} Turn magnet down again. Channels 3 and 4 of LG threshold changed to 1 GeV (as on page 124)

12^{10} Now it shows "RESTART at 5 PM"

Summary for EXPERIMENT 13 till now:
E_b = 18.3 GeV Runs 3561 - 3589 (leaving out 3563, 3567, 3575) and 3608 ÷ 3614
$\int L dt$ = 46.12 nb^{-1} Bhabhas 488 Hadrons 11

$$\frac{N_{had}}{\mathcal{L}_{on\ line}} = 0.24 \pm 0.07 \text{ (experimental)}, \quad 0.317 \text{ according to formula } 1.22 \times \frac{4 \times 87}{(2E_b)^2}$$

$$\frac{N_{ee}}{\mathcal{L}_{on\ line}} = 10.6 \pm 0.05 \text{ (experimental)}, \quad 11.25 \text{ according to formula } 1.08 \times 15.5 \times \left(\frac{15}{E_b}\right)^2$$

13^{10} Programme till Monday night.
Mr. Barbel has agreed with the co-ordinator W. Koch on the following programme:
The next points shall be

E_{BEAM} =	with $\int L dt$ =
14.96 GeV	30 nb^{-1}
14.97	30
14.98	30
Then we go to 14.94 GeV and scan downwards	14.94	30
	14.93	30
	14.92	30
	;	:

Super Jadet at 17^{00}

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ Exp	IBM / TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (KHz)	REMARKS

Scan Pbb av

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16^{00} Totowka in shift
nothing to do.

17^{00} + Weber on shift. G. Koch calls: PETRA circ. can run machine at 17.72 GeV and continue scan. Do we agree? After short discussion within JADE, we agree to the above proposal.

17^{20} Still no beam, but filling attempts going on

17^{35} Magnet current is set to 7000 A, Compensating coils to 750 A.

22.54 After many attempts machine filled, running at 17.72 GeV
threshold for LG is now 1.5 GeV from Run 3615.

23.30 ~10 errors 44, and 302 run stopped

23.38 new run 3616 (3615)

23.43 PKR wants to change to same other file because TASSO has too much background. Try to do it during run 3616 without stopping. We would prefer to keep going as it is reasonably clean (BP. × 2.2) here, but agree with above change, hoping the beam will not get lost.

23.56 Change over to old file finished background seems to have not changed very much, though beam life time is shorter

17.5.80

0^{00} H. Krehbiel + A. Wagner

0^{28} beams lost, magnet problems

1^{15} beams ready again

$-^{37}$ Inner detector trip

1^{53} PKR announces that orbit corrections have been finished

2^{15} IBM has some problems (for approx. 10 min, operator dixit)

5^{05} we abandon only reluctantly a beautiful filling and request a new fill, but lumi is down by factor ~2.

5^{55} new filling ready

08:00 Eichler & Domall

08:47 Beam lost.
change Histogramming in N50 to 50% (previously 100%)

10:19 IDAC ERROR 44(oct) Subr 302(oct) Task 1 - we have just seen 4 of these in quite close succession (within 5 minutes) we wonder if this is in correlation with those crate missing messages which have also flashed up occasionally.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV
3626	17.5	12:13	13:25	6.15	6.66		4257	7643	1107	108	1000	39	3869	9499	2556	2753	1151	841
3627		13:26	13:36						1.61		161	0.77	583	261	360			
3628		13:46	13:48	4.6	5.2		119	181	31	2	29	0.72	87	261	71	69	15	18
3629		15:21	15:29	6.9	7.1		3352	6678	892	115	757	38	3379	7590	2099	2292	1085	744
3630		16:40	17:39	7.2	7.3		3486 (corrected)	7290	907	108	800	25.4	3900	10372	2160	2694	1223	928
3631		17:52	18:13	5.2	5.7		1216 (corrected)	2411	316	26	291	7.3	1402	3497	594	812	615	287
3632		18:58	20:12	7.1	7.3		4132	7838	1075	84	992	25.1	4209	11487	2314	2755	1475	999
3633		20:13	20:57	4.9	5.4		2647	4390	689	40	649	13.2	2283	6845	1398	1693	629	564
3635		21:38	22:51	6.4	6.0		4319	7854	1124	75	1049	24.7	4059	12413	2304	2774	1310	1071
3636		22:52	0:22	4.6	4.4		5361	7851	1395	66	1328	19.3	3785	11100	2656	2947	883	952
3637	18.5	0:55	1:42	7.2	7.3		3060	7841	796	88	707	25	4104	13119	2052	2651	1494	1144
3638		1:47	2:52	6.0	6.2		3583	7830	1010	78	931	29	3889	13845	2230	2664	1328	1146
3639		2:53	3:25	6.2	6.3		1853	3845	489	33	456	11.9	1761	6121	989	1263	565	527
3640		4:10	5:16	7.5	7.6		2687	7845	699	95	604	40	4197	17227	1983	2493	1722	1250
3641		5:50	6:44	5.8	6.0		4006	7850	1041	79	962	31	3701	14342	2303	2698	1271	1205
3642		6:45	7:12	4.8	5.0		1984	6173	1036	53	984	16.5	2981	8758	1975	2178	900	830
3643		7:56	9:06	7.4	7.7		3887	7847	1007	83	924	32.6	3985	11907	2163	2677	1291	1011
3644		9:05	10:38	5.6	5.9		4921	7850	1281	198	1084	24.0	3923	11795	2332	2819	1162	1033
3645		12:18	13:17	7.1	7.3		3534	7787	919.6	86.6	833.0	30.9	4062	12792	2097	2697	1401	1173
3646		13:18	14:39	5.1	5.6		4569	7542	1189	67	1122	20.8	3646	10445	2430	2626	1080	1021
3647		16:39	19:22	6.4	6.8		2919	7853	907	94.5	813	42.3	4237	18414	2027	2659	1644	1242
3648		17:23	R:16	4.9	5.4		3091	9854	804	90.1	714	40.8	4111	18909	2198	2939	1465	1244
3649		18:16	19:01	4.7	5.2		1796	3564	467	38	429	14	1899	8391	1059	1462	514	511
3650		20:34	21:41	6.6	6.8		3961	7844	1031	79.3	953	25.6	3995	13224	2327	2753	1243	970
3651		21:41	22:39	4.4	4.9		4669	7856	1215	70.9	1144	23.4	4041	12807	2384	2991	1103	974
3652		23:00	23:04	4.2	4.7		232	389										
3653	17.5	0:04		6.5	6.8		2787	7847	725	95.7	630	40.2	4098	18138	2099	2528	1598	1190
3654		00:53	1:04	5.8	6.0		659	1527	172	15.7	156	6.4	800	2975	413	551	259	220
3655																		
3656		01:09	1:21	5.7	5.9		693	1456	162	15.8	146	6.0	770	9845	372	539	255	205
3657		01:59	02:53	6.1	6.4		3172	7854	825	87.5	737	35.6	4092	15855	2195	2644	1460	1089
3658		02:52	03:52	5.0	5.2		3510	7857	913	82.3	830	34.0	4125	15899	2226	2698	1420	1184
3659		03:54	04:27	5.0	5.2		1956	3759	509	37.6	471	15.5	1853	7641	1107	1328	609	561
3660		06:50	7:37	5.8	6.9		9561	7845	667	96.5	570	43.3	4191	18849	1990	2592	1781	1974

T1 LUMI	$\langle L \rangle \times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM / TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS
256	0.58	2.38	30.27	IBM	3.0	37	0	17.720		
		0.34	30.61	IBM	?	?	?	17.720		computer problem — new summary tape (level 14)
5	0.33	0.04	30.65	—	?	1	0	17.720		Run stopped for refilling — Exp member absent for 1 hr
232	0.58	1.88	32.53	—	3.3	18 (24%)	1 (4%)	17.720		not in use filling — we ask for new filling at new energy
285	—	2.39	2.39	IBM	2.5	40	0	17.730		
86	—	0.86	3.27	IBM	2.0	8	0	17.730		beam lost } time (clock) was wrong because of miscabling on the trigger box
290	0.52	2.16	5.43	IBM	2.6	39	1	17.730		
139	0.43	1.13	6.56	"	1.8	9	0	17.730		beam lost
390	0.73	3.15	9.71	IBM	2.0	34	0	17.730		New fill NOTE: no run 3634.
430	0.63	3.40	13.11	"	1.3	44	3	"		beam dump
579	1.24	4.11	17.22	"	4.0→2.0	62	1	17.733		New fill
530	1.08	4.20	21.42	"	2.0	60	0	"		
224	0.92	1.76	23.18	"	1.8	26	1	"		beam lost this hadron event is a cosmic shower
377	1.16	3.12	26.30	"	3.2→2.2	58	1	"		
417	0.82	2.31	28.61	"	2.0	42	0	"		
370	0.72	2.88	33.49	"	1.8→1.5	39 (54%)	0 (0%)	"		
654	1.34	5.17	5.17	"	[redacted]	70	3	17.740		
527	0.86	4.21	9.38		2.0	63	1			
433	1.00	3.53	12.91	"	3.4	40	3			
430	0.74	3.39	16.30	"	2.0	42	1			
324	1.00	2.72	19.02	"	2.5	35	1			
274	0.76	2.36	21.38	"	2.5	34	1			
90	0.42	0.76	22.14	"	1.7	11	1			
527	1.05	4.15	26.29	"	2.2	55	1			
430	0.73	3.43	29.72	"	1.8	35	2			
20	0.67	0.16	29.88	"						stopped due to refill
434	1.25	3.49	33.37	"	3.0	41	2	17.740-745		N.F.
91	1.07	0.71	34.08		2.8	9	0			
						306	16			
										started the run but H.V. was off
87	1.08	0.67	0.67	"	2.4	8	0	17.750		17.753 ? beam lost.
456	1.15	3.66	4.33	"	2.5	42	1	"		NF
396	0.92	3.22	7.55	"	2.2	43	0	"		
184	0.74	1.45	9.00	"	2.0	12	1	"		beam lost
362	1.12	2.87	11.87	"	3.0	45	1	"		NF

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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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan Prob av

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10^{54} beams lost. Lumi TASSO = 25 Cello > 38 MarkJ = 31 Jade = ~~28~~ 28
All experiments agree to continue at this energy

11.41 Beams back - ready to start again, but water pump failure - brings down magnet - K-division contacted -

12:13 Robin Marshall has come down and done the necessary resets for us but thinks that K-group should still come and look to see if they can find the cause of the trip.

1:38 Computer hangs on level 14, Remscommmany GRT

16:00 noticed Experiment number set in error to 13 - reset to 12. only 200 events read under this condition.

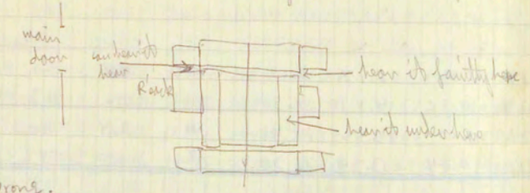
16:24 New injection complete -

16:42 The current ran started with a luminosity of only 06 but things are improving - we now have 0.77. beam pipe current is also improving - now 3.1, and the lifetimes are also improving - now more than 3 hours - not a very good fill

15:15 we agree with the other groups to dump the filling and go on to next energy step.

16:00 Murphy & Komamiya

17:00 Sparking sound heard by F. Koehinger. It does not seem to be in the muon system (no meter flicker when it happens - every few seconds).
Yes, it was muon chamber #115. We disconnected it.
This cures this chronic "muon crate missing" disease.



17:20 PKR says our luminosity, which is sent to PKR, is wrong.
now: $AL = 0.01 \times 10^{30} \rightarrow$ wrong
$\therefore L = 0.65 \times 10^{30}$ 0.24
$\Longrightarrow$ due to misconnection of the cable on trigger box

17:50 PKR says low luminosity is caused by bad orbit (especially for MarkJ.) They want to adjust the orbit within 30 minutes

18:13 Beam lost PKR says transmitter error.

~19:00 I.D. trips two times, because of the background. Mark J has same problem. → called PKR: → they still have problem the transmitter.

20:20 Background seems stable

18.5.1980

0^{00} Nozaki, Olsen

0^{15} Experiments agree to dump beams in 5 minutes.

0^{15} beam is ready. BP current was high for the first several minutes but went down to 20. R 3637
$I^+ = 72$, $I^- = 23$ nA $\langle L \rangle = 7.54 \times 10^{30}$ deadtime = 11% Trigger rate = 2.6 Good beam.

1^{46} R 3637 ended. R 3638 started. BP = 2.0

2^{52} Run 3638 ended R 3639 started.

3^{25} Beam lost R 3639 ended. (Transmitter failure)

4^{10} Run 3640 started BP = 3.2

4.45 After 82 current went up to 4.0 we asked PKR to look into background. Finally, after raising the frequency by .1 kHz BP = 2.6. 24.35 1.9 kHz = 10 MeV

5.30 SLdt Jade = 28 nb^{-1} Tasso = 30 nb^{-1} MJ = 33 nb^{-1} Cello > 35 nb^{-1}
All experiments agree to change the beam energy in the next filling

6^{00} JDAS ERROR 000=FFF(HEX) SUBERROR: 000701 (OCT) TASK 1

6.55 JDAS Error 000FFF (HEX) " 000503 (OCT) Task 1

7.05 We ask PKR new filling with energy 17.740 GeV

7.50 new filling is ready

8.06 I.D. trip

king, O'Neill Day shift

08.27. YVOLTS: TAG - MFR = 60 chan = ~~26~~ 26 HV = 1.4540 should be 1.4590. 5 volts. Acknowledge and forget.

09:28 Mark J calls. wants in/out access at end of this fill to change an amplifier card. I say OK

10.10 Four anode current trips in rapid succession. Now seems OK. Mark J calls, claims background is bad. Our ΣBP looks OK though

10.38 End Run 3644. Dump for Mark J access, new filling

10.00 "PETRA wird eingeschaltet": Mark J out.

11.20 Call PKR about what's going on. No problem., wir machen eine Kleine Messung. Es geht gleich wieder! We'll see

11:38 Beams lost during injection.

12:12 New filling ready. Σ BP = 3.4
Quick flicks of Muon Crate Missing - but seems OK.

13.05 We see occasional quick bursts of background in ΣBP. Goes from ~2 to ~6 for a second or so, then straight back down. PKR doesn't have really know. Mark J collimators out. Maybe some connection. Seems alright now. PKR can play with the acceleration frequency in necessary.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan P66 av

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68.5 – 68.7 ^{0050} 0,2 kHz

14.20. PKR rang to tell us that the previous PKR night shift had increased the RF frequency by 1.4 kHz, which is apparently equivalent to 20 MeV. Unfortunately, the present shift people do not know exactly when, during the night, this was done. The same people are on shift at PKR again at midnight tonight, and it is suggested we ask them for details !! However, they assure us that we have been running at 17.740 GeV today !!!

14.30. ID trip. The ΣBP meter jumps 10 cm from the table!

14.35 Pump for new filling. End of Run 3646

16:00 Goddard & Sato

18:30 ID trips due to partial beam loss.

19:05 Request New Filling

23.00 TASSO & JADE want to change energy. Mark J obstinately refuses, claim they don't quite have 30 nb^{-1}. We agree to give them one more hour at 17.77 & then go to 17.75. New filling.

00^{00} Occam Khuri/New fill, start R 3653

00^{15} Called PKR: RF frequency was changed by 0,2 kHz at 0050 : corresponds to 2.8 MeV

00^{35} PKR: Tells us, that to improve background they raised beam energy by 2.9 MeV ~ 0,2 kHz
Should one complain about this practice?

01^{06} Started new run (3655), but H.V. was all off.

01^{09} New energy 17.758

04-06 Petra has problems: a Thyristor is too hot, finally a "thermofühler" is switched off and all OK.

07^{40} Magnet trip & I.D trip Call in Water cooling people

08:30 " " again

08:40 Try Magnet again. NSO reloaded, it had gone into a closed loop: No events etc. Now Ok.

08^{00} Pearce. Warning

Temperatures of water cooling for magnet.

Input	41°
output	63°
Lab	23°

compare to p. 79
p. 108

8^{45} Magnet trip again

The reason for the trips is that the inlet water temperature to the magnet is more than 40°C. DESY say they can't do better than that. Maximum temp specification is 40°C. Ruby advises for us if we can't get water less than 40° is to run magnet at 6500 A.

19.5.80

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9^{45} MAGNET CURRENT REDUCED TO 6500 A due to input water temperature problems.

R. Hedgecock removes one temperature trip device (trips at lower temperature than the others) This allows us to run with a higher input water temperature so we can return to 7000 A. No data was taken at a lower current

11^{40} new fill ready
LG Power Supplies 2, 12 show overcurrent. Fortunately Orito is around. Switching off and on again cures it.
Background is rather high (5 Volts), need PKR to improve it.

11^{55} BG down to 3.5 Volts, ID switched on
after a few minutes ID tripped; reason was power supply of Up failed due to overcurrent

12^{15} may be due to too high currents in the chamber 3.5 μA/cell in ring
plained PKR. That background is still bad
it's also bad at the other experiments

12^{25} it is decided to give 1 hour of machine studies to PETRA

12^{45} beam steering finished
start next run 3666
Anode currents in I.D are 25 μA in ring 2

14^{10} ID tripped BP due to anode current exceeding limit
Background is rather low now (1.5 V in the average), but PETRA is loosing beams all the time (BP rate meter is fluctuating many time per min up to 6-9 V)

14^{25} we can't operate the chamber, beams are nearly useless anyhow.
Mark J has got similar background problems, but they still run.
Tasso has got hardware problems, they lost the whole fill.
They want to access to their ~~chamber~~ area.

14^{30} All experiments agree to dump the beam
the next fill will be after some time, since Synchrotron has problems with vacuum.

16^{30} M. Goddard continues, H. Rieseberg here

17^{00} New filling ready: 4.2 V = BP rate

17^{06} Beams lost due to Sinderregen (rain) when we were waiting for IBM link RUN 3667 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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV
1 138																		
3661	19/05/80	7.38	7.42	5.7	5.5		261	750	69	9.0	59	4.1	397	1828	182	254	166 285	125
3664	19/5/80	8.37	8.47	5,7	5,7		475	1419	123.6	16,2	107.4	6.99	744	3219	360	516	316	218
				MAGNET CURRENT REDUCED														
				NEW FILLING														
3665	19/5/80	11.58	12.25	6.2	6.5		376	1149	97.8	13.8	84.0	6.2	603	2772	296	392	243	213
3666	19.5.80	13.17	14.05	5.1	5.4		2861	6837	744.8	76.4	668.4	31.1	3614	15275	1894	2485	1263	1051
3667	"	17.06	17.06															
3668	"	17.58	18.11	7.1	7.7		711	2368	185.0	35.6	149.4	11.7	1333	5467	552	824	485	363
3669	"	18.13	19.01	6.2	7.0		2678	7847	697	94.0	603	39.9	4103	18658	2070	2642	1528	1283
3670	"	19.01	20.23	5.1	6.0		3748	7837	975	85.1	890	31.4	4193	17150	2302	3033	1252	1026
3671	"	20.24	20.48	3.7	4.7		1443	2554	375	25.2	350	10.0	1324	5568	810	968	396	336
3672	"	21.58	22.38	7.4	7.5		2325	7847	605	99.2	506	41.5	4262	18885	1899	2411	1872	1288
3673	"	22.38	23.08	6.0	6.4		1678	4876	436	77.5	359	25.6	2534	12090	1271	1597	983	735
3674	"	23.21	00.12	5.4	5.8		2943	7852	765	101	664	41.6	4169	20399	2173	2685	1546	1191
3675	20.5.80	00.12	01.08	4.8	5.1		3342	7857	870	120	749	39.6	4152	19923	2236	2829	1419	1169
3676	"	1.09	1.19	4.8	5.1		603	1274	156	19	137	6.4	675	3205	370	471	232	183
3677	"	2.00	2.40	6.9	7.0		2368	7851	616	94	521	43.5	4291	19304	2009	2461	1868	1273
3678	"	2.41	3.25	6.0	6.2		2636	7852	685	109	575	45.2	4171	20521	2122	2586	1717	1306
3679	"	3.26	3.55	5.4	5.5		1718	4394	447	58	388	25.2	2484	9204	1018	1559	1023	759
3680	"	5.53	6.52	5.8	5.8		3543	7851	922	83	839	33.2	4168	13880	2311	2758	1479	1068
3681	"	6.53	7.03	5.7	5.7		602	1185	156	119	144	4.7	651	2068	340	438	227	158
3682	"	7.50	8.30	7.0	7.2		2340	7846	609	97.9	511	43.9	4405	17294	1827	2356	2097	1381
3683	"	8.30	9.23	7.0	7.2		3142	7857	818	103.	714.5	39.8	4154	17198.	2191	2485	1761	1293
3684	"	9.23	10.18	5.1	5.3		2837	6237.	738	69	669.	26.6	3367	12902	1763	2200.	1280	957
3685	"	12.42	13.19	6.9	7.0		2179	7850	567	97.8	469.	40.0	4423	19258	1877	2522	1942	1328
3686	"	13.20	13.21	6.1	6.2		86	311	22.4	3.4	19.0	1.4	163	650	83	95	76	56
3687	"	13.55	14.24	6.7	7.0		2273	7845	592	102.5	489	38.2	4492	17841	1874	2345	2021	1245
3688	"	14.25	15.19	5.9	6.2		2597	7851	676	95.5	581	40.4	4412	19146	2080	2661	1737	1143
3689	"	15.19	16.14.	5.4	5.6		3046	5350	793	442.5	350	28.2	3095	13705	1350	1772	1320	785
3691	"	15:20	11:27	4.7	5.0		391	731	103	43	60	3.9	381	1818	216	258	135	92
3692	"	16:36	16:46	4.6	4.8		583	1509	152	18.4	133	9.0	781	4536	453	519	283	225
3693	"	16:47	17:24	4.5	4.7		2198	5255	569	72	497	27.9	2805	14451	1561	1965	943	770
3694	"	19:37	20:39	6.8	7.02		3655	7779	951	93	857	343	3860	11652	2362	2692	1148	957

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT-HADRON	ENERGY Eb (GeV)	FREQUENCY (kHz)	REMARKS
										Scan P66 av p151
139										
37	1.12	0.29	12.16	IBM	2.8	4	0	17750		Magnet, I.D trip
54	0.9	0.143	12.57	IBM		11	0	17.75		Magnet, ID trip
70	6500 AMPS									Magnet current reset to 7000 before new filling
34	0.75	0.28	12.87	IBM	3.7	1	0	17.75		
253	0.71	2.04	14,91	IBM	2.1	29	1	"	Frequency kHz	New filling
					2.6				499.662,5	New filling
111	1.28	0.91	15.82	IBM	2.9	15	0	"	"	
374	1.13	3.02	18.84	IBM	2.6	38	0	"	"	
306	0.66	2.46	21.30	IBM	~2.2	22	1	"	"	
79	0.65	0.45	21.75	IBM	~2	5	0	"	"	New filling
372	1.27	2.96	24.71	IBM	2.9	36	2	1	499 662,5	
218	1,05	1.77	26.48	IBM	3.1	21	0	"	"	
98	0.81	2.40	28.88	IBM	2.6	29	1	"		
86	0.69	2.29	31.17	IBM	2.6	26	0			
43	0.55	0.33	31 50	"	"	3	0	17.76		beams dumped
252	0.91	2.15	2.15	"	3.2	29	1	17.76		
232	0.73	1.93	4.08	"	2.4	26	1	"		
184	0.66	1.14	5.22	"	2.2	10	1	"		beams lost
284	0.66	2.34	7.56	"	2.4	32	1	"		
40	0.53	0.32	7.88	"	1.9	0	0	"		beams lost
219	0.82	1.92	9.80	"	2.7	19	3	"		
205	0.54	1.41	11.51	"	2.2	14	0	"		
142	0.42	1.18	12.69	"	2.0	20	1	"		beams dumped.
201	0.79	1.72	14.41	"	3.4	22	0	"		
4	0.57	0.05	14.46.	"	3.4	0	0	"		beams lost. This run only 311 events.
213	.79	1.79	16.25	"	3.0	18	0	"		
198	.66	1.70	17.95	"	3.0	19	1	"		
105	0.71	0.93	18.89	"	3.0	7	0	"		IBM problems
26	0.47	0.19	19.07	"	2.5	3	0	"		
47	0.65	0.38	19.45	FII 120 Tape	2.5	11	0	"		written to tape because of IBM problems.
169	0.64	1.39	20.84	IBM	2.5	13	1	"		beams dumped
567	1.22	4.47	25.31	"	3.0	54	0	"		

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV

140 19.5.80

17^{50} New filling ready (Σ BP = 2.7 V)

17^{58} Run 3668 started (till 17.75 GeV)

Muon Crate 3 missing. Doesn't go away by the reset button. Call expert

Time-out errors in Branch 3, Crate 2 !!!

Tagging HV: MFR 10 Channel 25 1526 V instead of 1518 V. No action

} Changing the (Fast Serial) CAMAC Interface in Crate 3 readout cured the problem. Time outs probably caused by some fault. JH

18^{12} New Run started to check CAMAC interface 302

18^{19} Run 3669 paused at event 932 to replace interface

Note on the programme: Since the spare Klystron is weak and one can probably not reach 18.3 GeV, the Scan is continued. The broken Klystron will be replaced by a good new Klystron in the shut down.

- Orito and Minowa check Lead glass Counters

Again time-out errors in 302 !!

19^{01} Run 3670 started

19^{15} - 19^{35} Small Beam losses cause 7 ID-trips ! PKR says that they run into resonance and had to damp the Q-value

20^{23} Run 3671 started $L \approx 0.5 \times 10^{30}$

Muon crate 12 missing, reset.

20^{45} Stop for Refilling

Cooling water for magnet: Lake 22.5°, input 42°, output 67°C; heat shield input 22°C

21^{51} New filling ready

21^{58} Run 3672 started

23^{10} Run 3673 manually terminated because of 'NORD 50 BUSY' message. try new run gives 'N50 cannot be started' message.

" FTN-50 Run Error 0.000436 in LGDAR line 57 address 0146085 too large arg in cosine"

Followed by similar message concerning sine

23^{20} NORD Reloaded

Start Run 3674

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan Prob on p151

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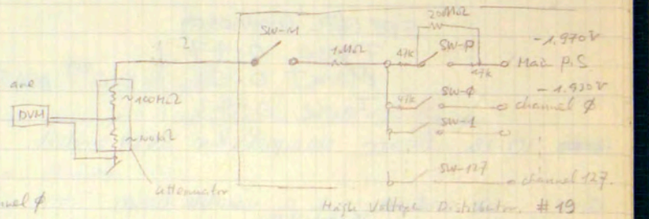
0.00 20.5.80 Hassard, Narsha

0.25 Message IBM disc 96% full keeps flickering. Call IBM. They will try to start dump. 5 min late dump was finished without operator intervention.

LG Power supply 19 often seems to have 20 volts less than normal. Use TOTSUKA's Program to read it. And indeed every 2 or 3 minutes the voltage is low. Also on the DVM. Is it real!?! Try to call somebody from Tokyo.

If the main P.S. voltage is monitored SW-M & SW-P are closed, SW-ϕ and open.

I think SW-ϕ is closed during the monitoring of the main voltage. So average voltage of Main P.S and channel ϕ (mixed) (~ -1.950 kV) comes up on SW-M. S. Kumaniya



3.51 beams lost a/fr mains instability

4.40 Petra cannot inject due to a collimator being stuck in the middle of the beam orbit. Expect 10 on his way.

6.50 Luminosity for Run seem to be very low currents 5.68 / 5.71 $\rightarrow L \sim 0.5 \cdot 10^{30}$ SL = $3 \cdot 10^{38}$ PKR wants to try an orbit correction after 7^{h}.

7.02 beams lost due to Sensewarnfall

7.50 new filling with old files. High background, chamber draws 3-4 μA BP only 3.7.

Phone PKR. They will look at the orbit and then propose something (hopefully).

Lumi			
	TASSO	$.5 \cdot 10^{30}$	background high
	JADE	$1 \cdot 10^{30}$	background high
	Mark J	$1 \cdot 10^{30}$	background ok
	Cello		more than usual, ~ factor 2

8.00. COODS, KING ON SHIFT.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

0838 Tasso phone: they want a ten minute access after beams dumped next time. We agree to this.

0849 Herr Bartel rings up with these results from a ten minute program at PKR:

Tasso 7.78	$\times 10^{29}$	— ungated
MarkJ 8.37		— ungated
Jade 6.99		— gated: last dead time is 12%. ($\equiv$ 7.82 ungated)

specific luminosity

Tasso 0.47	$\times 10^{29}$	MA^{-2}
MarkJ 0.51		
Jade 0.43		

10.18. Beam dumped. Run 3684 ended.

12.40. We eventually get a useable beam. Start run 3685.
Previous filling (about 11.15) was totally useless. High BP current - spikey. Totally unable to turn ID on without it tripping. Beam was being lost continuously and was dumped after ~20 minutes.

13[5?] luminosity again

11[00]-24[00] Ball, Petersen

16:19 Start Run 3691 — what became of run 3690?
IBM problems

16:30 Decide to write to tape. Stop run 3691

16:31 Start run 3692 on tape. F11 120

16:45 IBM link now OK. Stop run 3692. Start Run 3693 — waiting to IBM link again.
PKR phone. They want to repair some collimators, which are stuck, at next filling. Tell them ½ hr. Confirm with other expts.
Herr Bartels at IBM. IBM people want to work on disks soon. Next filling will take extra time due to collimator repair, so very suitable.

17:20 Stop run 3693. Dump beams.

19:37 Stable beams BP ~3v. Start Run 3694. Initial problems with prevote 4 missing + timouts from μ CMAC clear themselves.

19:46.39 'Error 38 in 32251; Memory Parity
PEA: 177777; PES: 64107'
appears on line-printer. Everything seems fine, so ignore it.

RUN	DATE	START	STOP	T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan PAB av 6151

20:50 ID trip. BP current spikey — so we don't try to restart. ~½ beam lost. Ring PKR + ask for new fill — they will do this when they find cause of beam loss.

21:00 PKR will refill. Stop run 3695

21:35 PKR call — power supply problem. New filling will be delayed.
TASSO already have 30 nb^{-1}. We have 26 nb^{-1}. Continue at this energy (17.76)

22:20 New filling ready. Start run 3696.
Beams lost during parameter setting. No events this run.

23:10 Stable beams. BP ~3.2V. Start run 3697.

0:00 Pearce + Heier

0:33 ID-Trip

00:[35] ID trips again — 'spikes' in beam causing this — MarkJ also see this effect

00:40 We have ~31 nb^{-1} at this energy so request a new energy and a new filling as we don't like this one!
Cello have 08 nb^{-1} at the energy !!!

01:33 New filling ready. Energy = 17.770 GeV. Beam pipe = 3.0

02:37 Run 3699 terminated (Beams lost)

03.10 New fill ready. ENERGY = 17.770 GeV. Start new run #3700

04.33 Run 3700 stopped — asked for new filling because of 'spikes' in BP-Current (all other exp. see this effect). Also beam current suddenly dropped from 5 → 3 ma. (PKR say they hit a resonance?)

05.30 New filling ready — continue running. Start run #3701

06.40. 'Spikes' (high B.P. current surges) appear in beam again and trip I.D. This is closely followed once more, by the beam current dropping rapidly from ≈ 5 to ≈ 3 ma. We request a new filling before beam is lost completely. This occurrence has become quite predictable.

07.00 Time for Komamiya's early morning call. room service?

08.00 Komamiya and Hassard.

09.15 Magnet tripped (main magnet & compensation) and I.D tripped. This was caused by two technicians changing a fuse in the water pump hut. There was no warning given and clearly no chance to avoid tripping both ID and magnet. This should be discouraged most strongly.

09.30 Run 3703 continued.

09.42 ID trip. This has happened the last >4 runs, At this stage in the run, when the beam currents reach ~5.3 mAmps, spikey beam pipe current precedes loss of part of beam (hence ID trip). Total beam loss follows a few minutes later normally.

10.03 Luminosity's poor. Tasso $L = 0.4$ | €30 We ask for a new filling at 10.35.
MarkJ $L = 0.8$
Jade $L = 0.64$
Cello $L = 0.9$.

10.22

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1	T1 LG>4 GeV
3703	21.9.80	11:30	13:52	5.5	6.0	2.2	8520	1.5	1.5	0.5	1.0	0.9	0.9	0.1	0.8	0.8	0.8	0.8
3704	21.9.80	11:36	13:59	5.5	6.0	2.2	8580	1.5	1.5	0.5	1.0	0.9	0.9	0.1	0.8	0.8	0.8	0.8
3705	21.9.80	14:20	14:45	5.5	6.0	2.2	1500	0.3	0.3	0.1	0.2	0.2	0.2	0.0	0.2	0.2	0.2	0.2
3706	21.9.80	15:00	16:00	5.5	6.0	2.2	3600	0.7	0.7	0.2	0.5	0.4	0.4	0.0	0.4	0.4	0.4	0.4
3707	21.9.80	16:55	17:58	5.5	6.0	2.2	3780	0.7	0.7	0.2	0.5	0.4	0.4	0.0	0.4	0.4	0.4	0.4
3708	21.9.80	18:24	23:00	5.5	6.0	2.2	16560	3.2	3.2	0.9	2.3	2.1	2.1	0.2	1.9	1.9	1.9	1.9
3709	22.9.80	0:00	2:35	5.5	6.0	2.2	9300	1.8	1.8	0.5	1.3	1.2	1.2	0.1	1.1	1.1	1.1	1.1
3710	22.9.80	3:45	4:45	5.5	6.0	2.2	3600	0.7	0.7	0.2	0.5	0.4	0.4	0.0	0.4	0.4	0.4	0.4

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run 3703
21.9.80.

11:30 PKR says beams on but our BP current was >45. PKR move collimators in and this drops to 0.22. Start run 3704 at 11.36.

Mark J	1.5 €30.
Cello	> €30
Tasso	1.2 €30
Jade	1.3 €30. We have 8% dead time.

13:12 Tasso want a 10 minute access at the end of the run to change heat control module cards. A likely story, but we agree.

13:52 Beams dumped, Tasso move in. TV screen says access until 02.15 pm

13:59 TV screen says access until 0230.
Phone PKR: they say they're waiting for Tasso.

14:20 Phone Tasso – they've found some chamber wires they want to solder. Amazing. They say they need 5 minutes. We ask PKR to throw Tasso out in 5 minutes – they agree.

14:30 Tasso still in – PKR try announcing but Tasso give no reply. Both Tasso phones appear engaged.

14:35 The telephone exchange can find no connections for Tasso's phones. PKR again try to recall Tasso, to no avail.

14:40 Tasso's phones still "engaged". Koch (coordinator of Petra, Tasso) not available for comment, Wolf (Tasso spokesman) also not about. I bet they're in the ring, soldering wires.

14:44 PKR try again.

14:45 Tasso finally get out. Their 10 minute access took 50 minutes. Their phones are no longer engaged – they had some "unforseen problems," but apologise.
Requests for further accesses should be considered in the light of this behaviour.

Inform the coordinator W. Koch at 16[00] U. Bä

15:00 Matsumura changed the alarm system of LD. Description see Rucksack.

16[00] Now Bartl and Heuer are waiting for beams
16[55] filling ready
17[05] Cello is running with only one compensation coil so we switch off our compensators. Background did not change (2.5 V) Ask for orbit corrections to improve on the background under the new

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (KHz)	REMARKS
										Scan PbG on
										bis

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running conditions
17[15] adjust Lg thresholds (slightly) 720 → 690 and 860 → 840
17[15] Run 3707 up to event 2822 V34 Ring 3 cell 6 (≙ #54) not on
17[45] ML histograms for run #3707 ok
17[58] LD – trip stop run #3707
Petra is unstable PKR is investigating the reason for frequent beam losses and instabilities
Instabilities could come from a bad power supply.
We ask for a new filling after repair
18[24] PKR says they want to install several check instruments like writer etc at the faulty power supply. It will take them at least 20 min. to collect all things. So we decide to run for these 20 min since beams seem to have stabilized.
19[01] New filling requested
A. Wagner replaces RD Heuer waiting for beams
20[20] Experts from K are investigating the faulty power supply
20[50] Filling ready start run # 3710
20[55] beams lost we got 210 events from this filling!
23[00] Linac is kaputt.

22.5.1980

0[00] Brumm, Haidt on shift
0[30] new filling ready, collimators are moved in
0[32] beams lost at start of run (1 calibration event to IBM) . No run summary.
1[02] new filling ready. We finally start data taking again.
1[20] very stable filling (I^+ = 5.88, I^- = 6.02 now) very stable means: no fluctuation, BP = 2.2
1[30] LD trip with anode overcurrent.
1[45] CELLO calls: they think to have seen a jump of ~10 ns between bunch marker and pick up signal
PKR says they have filled the correct buckets.
could such a jump affect us?
2[35] LD trip with anode-overcurrent. Beams lost.
2[45] Mark J wants new energy, Tasso and Cello the old. (26 ns) (10 ns) We agree on one more run at 17.770 GeV
3[45] new filling ready.
4[45] As Tasso has enough luminosity now and Cello (Mark) agrees too, we ask to raise the energy of the same filling by 10 MeV
4[50] new energy: 17.780 MeV we start run.

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 ACC+POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1TR.	T1 LG>4 GeV
3695	20/5/80	20:40	20:52	6.71	5.81		680	1360	177	13.7	164	5.44	646	2140	404	485	192	163
3696	"	22:22	22:23				beams lost during parameter setting.											
3697	20/5/80	23:14	0:18	7.2	7.4		3788	7848	985	129	856	36.3	4039	11264	2385	2788	1224	835
3698	21/5/80	0:19	0,45	5.8	6.0		1030	1765	267,7	51,7	216.1	7,46	863	2622	534	623	269	238
3699	21/5/80	1:42	2:37	6.6	6.7		3141	6094	817	66.7	750	26.1	3118	6850	1835	2078	1010	648
3700	21/5/80	3.20	4:33	6.59	6.75		3929	7761	1021	87.9	933	36.1	3944	10447	2450	2721	1178	839
3701	21/5/80	5.31	6:41	6.66	6.76		4140	7858	1077	86.8	990	35,7	3979	2/0301	2542	2833	1129	801
3702	21/5/80	6.41	6.43	5.4	5.5		100	178	26.1	1,9	24.1	0,71	95	232	55	59	37	17
3703	21/5/80	9.01	10:40	6.55	6.81		3848	6286	1001	66.1	935	19.1	3133	7954	2008	2361	797	685
3704	"	11:36	12:41	6.4	6.8		3881	7848	1010	91.9	9818	26.3	3956	11066	2297	2532	1375	1002
3705	"	12:42	13:52	5.4	5.7		4224	7859	1099	77.6	1021	22.5	4132	10774	2306	2650	1408	952
3706	"	13:53	13:58	4.6	4.9		280	466	73	11	69	1.3	213	640	160	145	71	65
3707	"	16:56	17:18	7.0	6.8		3569	6870	829	72.3	587	26.3	3309	9236	2035	2253	1031	839
3708	"	18:04	18:05	5.0	4.7		21	100	5.3	.4	4.9	.08	31	40	13	46	12	6
3709	"	18:31	19:01	3.5	3.2		1784	2335	464	17.5	447	4.2	1116	2696	837	910	240	256
3710	"	20:56	20:57	6.7	6.8		81	175	21	2.4	18.5	.60	99	234	42	81	30	13
3711	22.5.80	0:32	0:33	7.02	7.21	—	—	1 par.	—	—	—	—	no run summary					
3712	"	1:04	2:13	6.87	7.03	$4.7 \cdot 10^{-9}$	3936	7847	1039	77	963	27	3706 ~~3999~~	10978	2357	2629	1204	1126
3713	"	2:13	2:39	5.00	5.10		1493	2434	389	44	345	7.4	1077	3415	801	804	345	351
3714	"	3:52	4:48	6.74	6.95		3332	5934	867	65	802	24	2874	8995	1877	2046	877	691
3715	"	4:50	5:56	5.35	5.52		3913	6288	1019	59	660	21	3036	8367	2116	2227	833	636
3716	"	6:42	7:53	6.98	7.05		4236	7852	1102	86	1017	34	3694	10512	2546	2565	1168	964
3717	"	7:54	9:17	5.29	5.31		4935	7423	1285	143	1142	24	3410	9169	2520	2509	883	855
3718	"	10:47	11:58	6.6	6.9		4267	7851	1111	86	1024	33	3758	9183	2488	2568	1221	912
3719	"	11:59	12:28	5.4	5.6		1721	2825	448	27	421	9.1	1331	3314	931	924	418	319
3720	"	12:30	13:57	5.0	5.2		5206	7860	1355	91	1263	21	2736	9061	2554	2599	1165	999
3721	23/5/80	8:38	10:06	6.8	6.5		5244	7855	1364	142	1221	26	3794	9495	2682	2755	1057	863
3722	"	10:07	11:29	3.6	3.2		4858	6077	1264	53	1211	11.5	2893	6153	2228	2356	624	692
3723	"	12:24	13:34	7.1	7.4		4164	7855	1083	95	987	34	3695	8562	2533	2469	1215	989
3724	"	13:35	14:34	5.4	5.5		3489	5684	908	53	855	18	2719	6349	1816	1942	827	713
3725	"	14:36	15:18	4.7	4.9		2480	3546	645	52	593	9.6	1659	3934	1235	1202	484	407
3726	"	16:06	17:16	7.2	7.4		4102	7853	1067	85	981	31	3808	8268	2437	2445	7293	960
3727	"	17:19	18:34	6.5	5.7		4870	7858	1267	71	1195	21	3845	7778	2487	2635	1203	965
3728																		
3729																		

Data Acquisition problem Funfs

T1 LUMI	$\langle L \rangle \times 10^{30}$	Shott RUN	Shott Exp 25.31	IBM/TAPE	BP	BHABHA	MULTI-HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan PbG ev pbsr
100	1.12	0.76	26.07	IBM	3.0	9	0	17.760	499662.5	Beams ½ lost, then dumped no events this run
563	1.19	4.51	30.58	IBM	2.8	57	3	17.760	—"—	
115	0.85	0.87	31.45	IBM	-	13 367	0 13	17.760	—"—	Ring beam unhappy – request new energy.
426	1.06	3.34	3.34	IBM	3.0	51	0	17.770		new Energy
496	1.01	3.98	7.32	IBM	2.9	55	1	17,770		
508	0,96	3,98	11.30	IBM	2.9	54	2	17,770		
11	0.89	0.09	11.39	IBM	-	1	0	17.770		Beam dumped due to heavy current losses.
433	0.88	3.39	14.78	IBM	2.5	44	0	17.770		
558	1.14	4.42	19.20	IBM	2.5	63	4	17.770		
438	0.82	3.45	22.65	IBM	2.2	44	3	"		
27	0.78	0.22	22.87	IBM	2.0	3	0	"		
582	1.28	4.58	27.45	"	3.0	51	1	"		
8	1.30	.03	27.48	"	2.5	0	0	"		
114	0.53	0.95	28.43	"	2.0	8	0	"		
14	1.12	0.09	28.52	-	2.5	0	0	"		
—	—	—	—	"	2.9	—	—	17.770		Beam lost at start of run (≈2 min. after collimator move)
610	1.18	4.72	33.24	"	2.5	72	2	"	499662.5	
153	0.81	1.21	34.45	"	2.1	15	1	"	"	Beam lost
459	1.10	3.67	38.12	"	2.6	46 507	2 16	"	"	ended to go to next energy
410	0.82	3.22	3.22	"	2.2	42	2	17.780	499662.5	new energy with old filling
624	1.18	5.00	8.22	"	2.6	75	0	"	"	new filling after regular dump.
611	0.97	4.80	13.02	"	2.1	53	3	"	"	beams dumped.
658	1.23	5.25	18.27	"	2.7	69	0	"	"	
231	1.08	1.86	20.13	"	2.3	28	0	"		stopped to clear NORD hang-up
538	0.81	4.24	24.37	"	2.1	42	2	"		beams dumped.
483	0.74	3.86	28.23	"	3	61	2	"		
246	0.41	1.98	30.21	"	1.6	21	0	"		Beams dumped
603	1.14	4.76	34.97	"	2.9	59	0	"		
391	0.9	3.13	38.1	"	2.1	43	2	"		Run terminated due to error.
231	0.76	1.84	39.99	"	2	13	0	"		Beam dumped
607	1.17	4.81	44.80	"	2.5	53	1	"		
536	0.87	4.23	49.03	"	2.2	52 711	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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1 TR.	T1 LG>4 GeV

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5:55 Beams dumped for a new filling after agreement with all experiments.
6:40 new filling ready.

~~00/SAT~~

08:00 Ball, Matsumura.
Everything running very smoothly (famous last words!)
08:30 IBM busy for ~ 3 mins.
08:40 Ask for new filling in ½ hour. Luminosity now < 1 E 30. Lasso + Hello agree readily.
Mark I say they still have 80% of luminosity at run start, but yield to persuasion.
09:12 Stop run 3717. Dump beams.
Histograms for Run 3717 look OK.
10 40 New filling ready. BP ~ 2.7V. Start run 3718.

11:58 Run 3718 ended after 8002 events. Start run 3719
12:28 Run 3719 ended to clear hang-up following lineprinter message:
'12:28:34 Error 13 in 34323 at 102641; Page fault for non demand Page no. 1 137'
12:29 Start Run 3720.
13:57 Dump beams stop run 3720.

16:00 Orito, Heier on shift
20:30 no beams for 7 hours, PKR don't know the exact reason (perhaps difficulties with Quadrupoles)
21:28 TASSO phoned, they like to phone Degelé to get more information about the problems with PETRA. We decided to wait for 30 min.
21:30 PKR said <u>at least</u> one hour without beams. The K-People are working on the faulty Quadrupole
21:46 We reduced magnet current to zero in order to save 2000 DM/hour
22:30 up to now we saved 146,67 DM !!
22:42 PKR said no hope for the near future
23:30 Hurra! The green lamp starts flickering!
23:31 It's red again
23:49 We raised magnet current, because PETRA starts the injection

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (KHz)	REMARKS. Scan PbG on bist

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23.5. 0⁰⁰ Murphy, Kleine on shift
0125. PKR are investigating cause of beam loss during acceleration.
0413. We are awoken by "magnet current fluctuates"; however, it does not seem to have changed – just a jiggle, presumably.
They manage to accelerate e⁻ above to 17.8 GeV.
0549. They have solved the problem in PETRA; now the linac won't work. So still no beam.
0728 Begin filling; they had predicted 0730 – that's precision for you.

We keep getting TV display "IBM problem 54 (OCT)". That's a lot of problems.
0745 Having accelerated to 16 GeV they lost it.
There is an intermittent high-pitched whistle, which makes a standing wave pattern in the room. This makes it difficult to trace to its source; I think it is in the NOVA 1200.
08:00 Bell + Petersen on shift. Scanning to fill
08:03 Beam injection low
08:29 Beam filled and B.P. counter on bar reading is jumping intermittently from 4–8V
08:30 B.P. Has now settled down to 3V and the high voltages are on. Television picture low for a minute.
08:33 Run 3721 started
08:43 No events read for 3 minutes as the computer ~~was~~ operators were switching over to another machine.
09:16 Run paused for fifteen seconds to adjust the attenuator. PKR have lost a third of the beam
10:00 PKR are having difficulty with DESY vacuum and don't know when they will be able to refill, so we shall keep this fill for as long as possible.
10:01 Run 3721 finished after 8002 events
10:02 Run 3722 started
10:16 PKR phoned to say that the DESY vacuum is now o.k. but they are having trouble with LINAC so we shall have to keep this fill.
11:24 Run 3722 finished after 6200 events as PKR are going to refill
12:18 Beam filled. B.P = 2.9V
12:19 Run 3723 started
12:23 "Muon crate missing Faulty part 12" appears. Has been reset
13:29 Run 3723 ended
13:30 Run 3724 started
14:31 Run 3724 stopped after 5792 events because we had ~~too many~~ no triggers for a few minutes. Computer says it was a 'Page fault for non demand. Page no 137"

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1	T1 LG>4 GeV

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14 32 Run 3725 started

15:12 Run 3726 stopped as PKR wish to refill.

16:00 Beam filled and new 3726 started

16.00 Cristo & Nozoki on shift

17:15 R 3726 ended: R 3727 started.
$\int Ldt = 44.8 nb^{-1}$. We have only 25h run time left and beam energy is not changed.

18:24 R 3727 stopped
R 3728 started NSO BUSY appeared soon on the TV-screen.
But the same error occured.
Stop the run and restarted the computer. The reason was the very long record on the LG data.

18:45 We ask PKR to dump the beam and new filling.

19:20 beam last long new filling.

20:35 Same NSO Busy occured. Cannot display the events. The list of events give crazy event format. Data acquisition problem? At the system crate the first unit from the right has the four upper lamps off.

We decided to stop.

The main ~~power~~ high voltage power ~~switched~~ switched off. Powers for LG and beam pipe high voltages are switched off. The high voltage power supplies for tagging system are switched off. The magnet current is lowered and switched off.
The magnet water will be switched off tomorrow at 9⁰⁰ by DESY people.

2035. All muon high voltages turned down to zero.

To switch off the disk, EXIT-STOP-MASTERCLEAR and the disk off.

Kurokawa people will come at 22⁰⁰ to switch to Argon on the μ-chambers.

K-people come to switch off magnet power supplies.

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int Ldt$ RUN	$\int Ldt$ EXP	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan PBB on p151

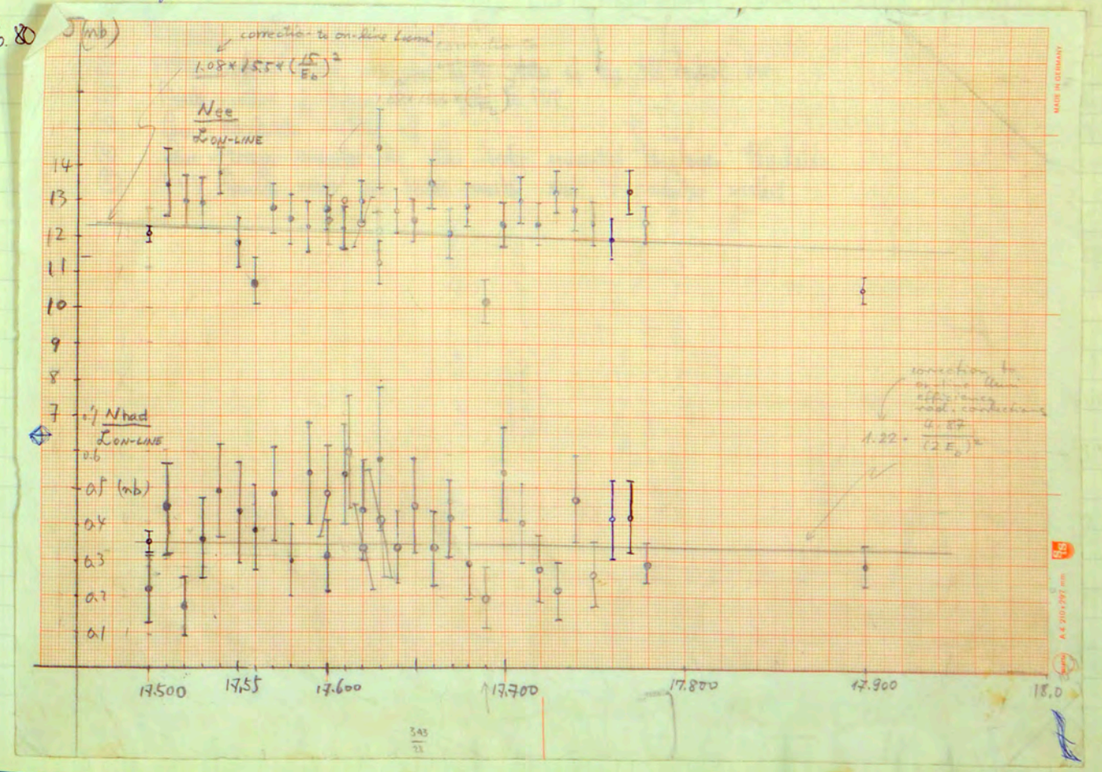
151

27.5.80 Investigate LG-Problem
One μ-proc was found to be broken. Call Totsuka and he exchanges the processor. RAE.

29.5.80 MESSAGE FROM HERR KESSLER

The flow of fresh gas was reduced by a factor 2 because the leak is supposedly fixed (?!)
The gas will probably change a bit. So watch out for efficiencies!

6.6.80



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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1 TR.	T1 LG>4 GeV

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan Prob on bist

6.6.80

14^{00} — 20^{00}

Krehbiel changed his box.

Lead glass gate timings are now set to within 10nsec to adopt the change.

Delayed prepulse is put into Sync 2 input.

All linear gate and strobe timings for L.G are checked o.k.

The pedestal run works.

Tryed to get simulated events by putting pulser input into the L.G linear sum. No responce. Either the L.G total energy discri-Latch or the T1 trigger seems to have defect.

7.6.80 No lumi-tests before 14:30. MINOWA, ORITO

2.6.80 Probably no lumi-tests by monday morning. 23:50

15.6.80 00:40 , no tagging-system set up for lumi-tests.
Problems: a) timing relative to latch gate (for the tests the latch gate is taken out of the coincidence)
b) PKR cannot switch over HV off!

~~16.6.80~~ 22:30 Lumi-tests are finished because of CAMAC-II failure
tagging-system set up to its normal operation mode.

16.6.80

16:00 · Krehbiel × Sato on shift

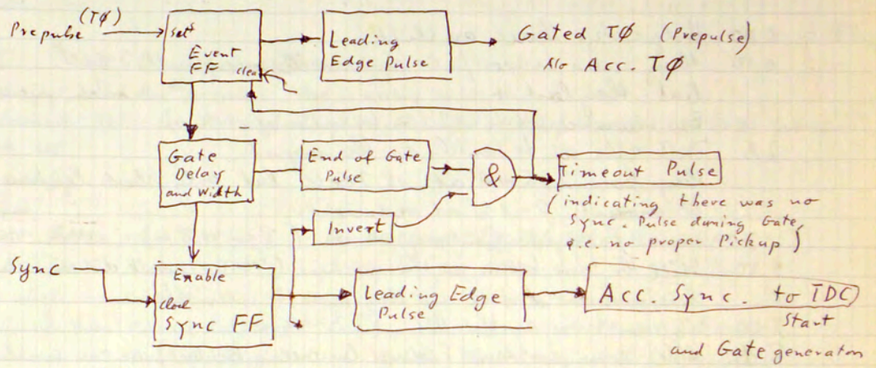
17:00 PKR says there are some Troubles with RF. ~~Ready to~~ Filling will start in 20 minutes may be.

19.00. Weber was in PKR. Called. Says there was trouble with HF systems this afternoon. ~~Now~~ They now try to tune the injection paths. Afterwards they will do orbit correction.

Note on the Sync 1 and Sync 2

Operation with Sync 1 needs as Bunch X-Signal, triggered from positrons.

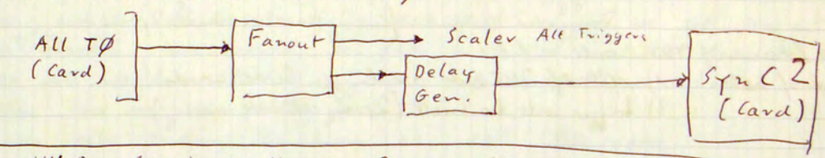
Approximate scheme.



All this is on the new card.
The Gate is properly timed.

In addition: Sync 2 means now a simulated (with delay generator) bunch cross signal, triggered from the selected TØ source (0-7.)
set to the same delay as Sync 1 within ± 3 nsec.

This is done with some NIM wiring



The LeCroy HV Power Supply for the new Forward Muon Counters needs special treatment. It goes off when Freigabe is requested, but will not go on when pressing the yellow button.
~~When injection is~~ After Injection, when our HV is run up: First press the upper yellow button in the supervisor crate, then run to the balcony, Set the ~~Remote-Manual Button for Manual~~ switch, ~~Press the white button~~ Remote-Local-Switch, to "Local", Push the white button HV on and switch back to Remote. This will also stop the Alarm-Beep in the Software-Room.

All This has to be so at least until Wednesday, when LeCroy can be reached again.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1TR.	T1 LG>4 GeV

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (KHz)	REMARKS

Scan PBB on p151

22.17 Histogram display program modified to include titles for new Myon counter histograms and organises STD-HISTOGRAMS to display them. HEM

17.6. 0.00 Hedgecock + Heine on shift
0.50 they were successful in accelerating to 18.3 GeV*! DB timing adjusted (−1 ns)
but: they lost it *Beam pipe current: 5V even at the reduced voltage!
Exp.-number set to 13 (continuation of 18.3 GeV)
2.15 PKR asks us to switch on the magnet
they have 2×5 mA at 18.3 GeV but only short lifetime (no background problems)
BP-current: 0 − 1 V at reduced HV because safe for the chamber current
2.30 magnet + compensation magnets on (B = −4858 G) MAIN MAGNET AT 7500 A.
2.50 Still the same beam in the machine (PETRA-people did some study). They want to save their procedure on file and then move the collimators
3.00 We can turn on the HV ($I^+ \sim 4$ mA)
3.10 After some problems (solved by calling Krehbiel) we can switch on BP, TOF, LG, ~~toscdy~~-clg, tagging. BP-current: 3V steady
LG-thresholds adjusted
3.20 Just before switching on ID-HV, they lost the beam.
4.12 beams back again BP: 3.5V but ID very clean
4.23 beam lost, no ID-alarm
check of histograms: 2prong coll and T3 are missing
Trigger 1 IP/OP several TOF-cls too high (the cls with the changed HV!)
Trigger 2 output funny (reason: miss. 2prong)
→ because of TOF: call Eichler
check of rates: 1) 104 of 395 cnts are bigger 6000 counts!
2) trigger rate too small (2prong coll. are missing)

6.10 beams on again
Eichler + Heine investigate the T1 problem. We phone Krehbiel and test several proposals. We find: 1) At the broken TOF's the AND was built up from one side only
2) Reset of two latches was coming from a wrong FAN OUT output
Now it works (Krehbiel every time guessed the right cable)

7.02 We start a new run
Time out with JETC-current readout. Change program temporarily and do not read out jetc-current
Will investigate problem in next filling

7.15 Histograms ≈ 0 all problems mentioned above are solved, but: no Lumi and no tagging bijektels now!
Solution: During our operations we must have touched the strobe: it was only plugged in rather loosely.
7.48 beams lost, no ID-alarm

8.00 Barlow et Tolska on shift. JETC-current readout working.
8.30 beam ready. many time out errors from the μ-crate. Ball is working on it.
During Run 3733 checked TOF-counter pulseheights. Changed HV of counter 13 (+Z) from 3000 Volts → 2720 Volts. RHE
9.10 run stopped. μ people exchanged a card.
9.30 beam lost. run stopped.
for runs 3731 ~ 3735 Lum-lin ×1.1 = 2.2 nb⁻¹, from #γγ BB event $\mathcal{L}_{BB} = 26/15.5\,(\frac{15}{18.3})^2 = 2.5 \pm 0.5$ nb⁻¹
They are in good agreement.
Time out errors in μ-ch was solved. from run 3736.
12.40 During Run 3737 studies of Muon Forward Counters. Counting rate very low. Probably HV too small.
Judging from Scope inspection of Trigger Latch Gate versus Single Pulse at Counter 72, Gate had to be delayed about 70 nsec. Old Poti (Latch Gate Delay) 870, Now 920.
In Trigger I-Input Histogram (Edited w. Max y cut) they start counting.
Please Print this Histogram with extreme Max y Editing (to see structure near ch. 140 between the Tagg. and the LG Peaks) for the next few runs
15:30 rates high dead time due to "IBM busy".

16.00 Komamiya, Eisen on shift
22.50 After several "IBM Busy" during the whole evening we get TIME OUT for IBM link. IBM will be reloaded. link should be back in a few minutes. Tasso has the same problem.
23.05 IBM still not back. But I.D. trips. (Reason: magnet trip, but magnet current o.k.)
23.08 After 1000 sec IBM finally back.
23.10 Tasso asks to dump the beam at 23.15. We agree.

Wednesday, June 18, 1980
00.00 Murphy and O'Neill on graveyard (see any ghosts?)
00.09 PETRA frequency changed from "62.3" to "63.0"
00.39 Red Light goes on. Had to lower attenuator 5! notches. No drastic current loss indicator on screen.
00.50 EDIT Link hangs for ~ 100 sec. ~~Restart after Pause~~

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1GeV $\geq$1TRACK	T1 LG$>$4 GeV
3730	junk	By	accident				CRH.											
3731	17/6/80	4.14	4.23	4.78	5.10		535	395	139	12.6	120	0.097	231	–	–	[illegible]	165	132
3732	"	7.53	7.58	3.9	4.0		2706	3703	704	63.2	639	4.11	1479	780	1081	1074	390	1103
3733	"	8.35	8.53	4.9	5.0		1219	1731	347	43.0	274	5.1	821	365	546	527	239	295
3734	"	8.52	9.08	4.4	4.5		783	1195	204	20.3	183	2.5	513	211	367	346	153	230
3735	"	9.11	9.30	4.1	4.2		1113	1626	290	26.9	258	2.6	664	213	554	465	155	356
3736	"	10.03	10.59	5.1	5.2		3352	4995	872	75.9	794	13.9	2344	1343	1515	1554 670	1534	895
3737	"	11.25	13.04	4.7	4.8		5898	7827	1535	94.0	1441	11.5	3379	1552	2471	2336	910	1673
3738	"	13.04	13.09	3.0	3.2		287	360	75	5	70	0.2	137	54	104	102	33	108
3739	"	13.59	15.37	4.0	4.2		5816	7562	1514	118.5	1394	15.2	3371	1576	2509	2324	908 323	1350
3740	"	16.10	17.59	4.9	5.0		6526	7718	1698	127.4	1569	11.1	3582	1589	2547	2597	878	1273
3741	"	18.32	20.18	5.6	5.6		6337	7838	16668	124.9	1523	15.3	3663	2039	2721	2577	933	1127
3742	"	21.01	23.13	3.4	3.5		7666	7847	1994	423.7	1569	17.4	3722	1894	2753	2651	892	1082
3743	"	23.54	02.03	5.4	5.5		7539	7855	1963	224.9	1738	12.5	3646	1765	2949	2702	798	944
3744	18/6/80	02.03	02.15	3.0	3.1		647	587	168.4	21.5	146.9	0.4	262	115	236	221	37	75
3745	"	02.44	04.35	5.5	5.3		6450	7849	1677	79.0	1600	15.5	3683	2078	2834	2678	883	1059
3746	"	04.36	05.50	3.6	3.5		4349	4506	1132	45.0	1087	3.7	2126	980	1695	1701	410	573
3747	"	06.49	08.30	5.4 5.46	5.4 5.5		6258	7849	1629	69.8	1559	18.0	3777	2285	2774	2568	1071	1049
3748	19/6/80	08.40	9.11	3.46	3.5		1789	1925	466	16.7	448	21.7	884	429	725	696	197	272
3749	"	10.05	11.25	5.49	5.52		5017	7849	1306	197	1108	17.4	4327	2464	2187	2140	1490	1095
3750	19/6/80	11.30	12.07	3.49	3.61		2121	2124	552	67	485	2.5	969	576	815	744	222	275
3751	19/6/80	12.08	12.54	3.11	3.24		2685	2223	699	136	554	1.7	1029	492	874	823	196	279
3752	"	15.00	15.14	4.92	4.97		769	1167	200	11.4	189	3.0	547	322	347	396	168	156
3753	"	15.20	15.44	2.93	4.03		736	1118	192	5.47	140	0.8	322	181	230	232	66	85
3754	"	15.44	17.15	3.7	3.8		5142	4918	1338	219	1120	3.3	2295	1169	1753	1744	523	696
3755	"	17.25	18.38	2.71	2.81		4349	4024	1132	66	1066	1.5	1850	884	1494	1511	352	573
3756	"	18.50	19.27	2.30	2.40		2022	1793	526	56	470	0.5	784	393	716	657	148	263
3757	"	19.27	20.03	2.13	2.22		4365	4329	1136	32	1104	0.9	1940	781	1677	1559	422	634
3758	19/6/80	14.46	14.54	5.4	5.4		399	604	1037	132 229	90.4	1.57	324	144	173	184	113	65
3759	"	14.54	16.05	4.6	4.7		4193	4174	1090	861	861	9.3	2389	1142	1660	1495	821	639
3760	"	16.07	16.28	4.0	3.8		1181	1252	307	65	242	1.45	577	254	433	404	173	181
3761	"	16.38	17.12	3.8	4.0		2586	3186	673	22.5	650	2.66	1574	678	1472	1481	476	433
3762	"	17.12	18.13	3.8	4.0		3598	4334	936	28.9	907	2.16	2081	942	1466	1441	622	672
3763	"	18.14	18.29	2.7	2.9		849	940	220	7.8	213	0.39	433	217	382	318	133	169

T1 LUMI	$\langle L \rangle \times 10^{30}$	SLdt Run	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS
						488	"			
32	0.33	0.18	49.92	IBM	3.5	2	0	18.300		Beams Lost.
55	0.25	0.67	50.59	"	3.0	9	0	18.300		
77	0.41	0.50	51.09	"	3.5	6	0	"		
47	0.32	0.25	51.34	"	2.8	4	0	"		
57	0.32	0.36	51.70	"	2.5	5	0	"		
225	0.39	1.31	53.01	"	3.0	21	0	"		beam lost.
281	0.28	1.66	54.67	"	2.8	27	1	"		Beam Lost.
11	0.23	0.07	54.74	"	2.0	1	0	"		
315	.32	1.84	56.58	"	3.0	29	1	—		new filling
294	.26	1.69	58.27	"	2.8	36	1	"		new fill
307	.29	1.84	60.11	"	2.8	29	0	"		new fill
320	.25	1.89	62.00	"	2.8	87	0	"		new fill
305	0.24	1.84	63.84	"	2.8	26	1	"		New Fill
14	0.13	0.08	63.92	"	2.0	0	0	"		
261	0.24	1.53	65.45	"	3.0	26	1	"	62.3	New Fill
103	0.14	0.61	66.06	"	2.2	14	0	"		
231	0.21	1.31	67.37	"	3.2	24	1	18.300	62.3	New Fill
42	0.13	0.24	67.61	IBM	2.1	9	0	18.300		
223	0.07	0.36	67.97	IBM	3.1	21	0	18.300	63.5	new frequency value 499663.0
68	0.18	0.39	68.36	IBM	2.2	8	1	18.300	499663.0	stopped as no events
71	0.15	0.41	68.77	IBM	2.1	17	0	18.300	499663.0	beams lost
63	0.52	0.40	69.17	IBM	2.5	4	0	18.300	"	
[illegible] (519)	0.52	0.24	69.41	"	2.3	7	0	"	"	# of Runs - 0 rubbish due to some work on the electronics
164	0.19	0.99	70.40	"	~2.0	17	1	"	"	
101	0.16	0.68	71.08	"	1.6	10	1	"	"	Events up to # 70 without Inner Detector
35	0.11	0.21	71.29	"	1.4	3	0	"	"	
3318 74	0.10	0.43	71.72	"	1.4	6	0	"	"	dumps: SLdt (3714–3757) – 24.32
39	0.59	0.24	71.96	"	30	6	0	"	499662.5	New fill, after 20 hrs. trouble with RF injection
256	0.36	1.52	73.48	IBM	28	26	0			
256	0.26	0.30	73.78	IBM	2.5	6	0	"	"	stopped : IBM high reactive power (OCT) 84
186	0.25	0.63	74.41	TAPE F12	2.4	8	4	"		
111	0.19	0.69	75.10	TAPE F11	2.2	19	0	"		
326	0.17	0.19	75.29	IBM	2.0	3	0	"		

START

Exp. 13 SEE PAGE 127.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 BR.	T1 LG>4 GeV

158 Wednesday, June 18, 1980

See 15^{50} Note to HEM: the muon system, layers 1 & 2 in bottom section, no longer appears on the event display.

04:19 Finally succeed in making the so called "Thing krehbiel wants" histogram. (see middle, p. 155)

06:49 Running again with new fill. Run 3747. Lost several minutes fiddling with attenuator trying to get the green light to stay on. Day shift please just this thing.

08:00 Cords, Pearce on shift.

Continue routine data taking. Notes from last shift
1) D. Clarke – Forward proportion 25, 26 missing
2) Krehbiel – fault in attenuator for beam 'light'? (see above)
3) H. Kells – μ layers 1, 2 missing in bottom section on display (see above)
4) Petersen – ~~muon~~ crate missing, messages caused by new length muon buffer? can your program cope?

8:45 change HV of TOF counter #26 (-z) from 2800 V → 2860 Volts.
9:05 Tasso want new filling in ≈ 10 min.
~~Stop run for new filling~~
9^{10} PETRA went accross the ring to install a new position monitor camera (will take ½ hour).
10^{05} New filling, E_B = 18.300 GeV, start run 3749.
10^{45} when PETRA turned up the frequency ~~from~~ to 499663.5 Hz, our trigger rate increased by a factor of two. Therefor we asked PETRA-control to turn it back to 499663.0 Hz
11^{30} There are more spinning & dead glass blocks now (40 to 50), due to one exchanged microprocessor. One should watch out that it does not increase further.
12^{53} beams lost 15^{00} new filling
15^{15} Check of the TOF-AND's shows that we forgot to replug 1 cable after 17.6., 5.00: From TOF 13 was still used only one side. It's corrected now after Run 3752
15^{30} Run 3753: Mr. Wriedt is investigating lumi-trigger: don't use lumi-info for this run!
15^{45} new run (# 3754) started, which has no ~~manny~~ manipulations of tagging system.
15^{50} forward counter hit map is almost empty!
15^{50} the Mu event display problems were pointed out when I arrived – I'm puzzled since I think it was okay in APRIL and the file has not been altered since – will investigate. H.Ehr

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan PbG on bisr

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16^{00} Yen and Rieseberg on shift.

16^{45} We suffer under a high dead time by frequent IBM BUSY for about 30 sec. IBM operator says that they have several problems.

During Run 3754, event# 3400 to # 3550: High voltage of the forward muon counters is switched off to check the power supply (Mr. Krehbiel)

Comparison on-line: Runs 3561÷3589 and 3608 ÷ 3614 $\frac{\int L dt}{\text{number of Bhabha}} = \frac{46.12\ nb^{-1}}{488} = 9.5 \times 10^{-2}\ nb^{-1}$, 11 Hadrons

Runs 3731-3753 $\frac{\int L dt}{\text{number of Bhabha}} = \frac{19.67\ nb^{-1}}{362} = 5.4 \times 10^{-2}\ nb^{-1}$, 7 Hadrons

17^{15} ~~Stop for beam dumps~~. We continue, since there are difficulties with injection into PETRA

17^{25} Start Run 3755
Immediately after the start of the Run, the ID tripped due to a trip of the V_p high voltage power supply. Events till # 70 without Inner Detector! Stop cable was not plugged into the Trigger box

18^{40}–18^{50} Non-written test run for Mr. Wriedt.
18^{50} Run 3756 started. At event # 17 the trigger box jumped to NO RUN. Push the RUN button to continue
19$^{\approx}$ There is a problem concerning the on-line luminosity, which comes out too low.
The reason for that is a too high accidentals rates (which is not yet understood).
To calculate the on-line luminosity, the following ~~is~~ procedure is suggested

$$\#\,LUMI \times 5 \times 5.1 \times 18.3 \times 18.3 \times \cancel{10^{-6}} \equiv \#\,LUMI \times 8.54 \times \cancel{10^{-3}}\ 10^{-3}$$

4 ← This is ~~accepted~~ a special number applicable only to these circumstances 5.41 is manually used Fl. 28/7/80.

gives the luminosity in nb^{-1}.
(Take # LUMI from the run-summary sheet ∑ accidentals are neglected.)
The agreement between # of Bhabha-events and # of lumi-events is quite well for the new running period up to now. HW

19^{05} Missing Muon Crate ~~Crate~~ # 11 can not be reset (see Muon Missing Response Book)
Mr. A. Ball proposes a new Run Start.
19^{27} Run 3757 started. Muon Crate 11 ok, but Muon Crate # 7 missing, which can be reset.
At event # ≈250, again the Trigger Box jumps to No Run.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int$Ldt RUN	$\int$Ldt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan Pfab ca. p151

18.6.80

19^{44} Error 56 (TOF-bank wrong length) in 405 words

20^{05} Voltage: Tag – MFR=60, Channel 3 7 Volts too high.

Injection will not be possible in the next few hours.
There is a serious vacuum leak in the Synchrotron. Earliest start 11 p.m.
Actually the luminosity is 1.1×10^{29}

20^{39} NO RUN → RUN on trigger box.

20^{45} Stop for Beam Dump. Access for Tasso and Mark J

21^{20} "RESTART 3 [illegible] am"
Main Magnet turned down to 2000 A, Compensating Magnets to 103 A
(Nominal values are 7500 A and 803 A, respectively)

Mr. Krabiel says that the Trigger box goes only in the NO RUN state – it happened 3 times –, if it gets a stop signal from outside. If it occurs again, please check the Error lamps on the supervisor box. But perhaps it is a not noticeable short breakdown of a high voltage. The supervisor checks the high voltages.

On-line numbers of Runs 3731 – 3757

Multihadron Events	9	
Bhabha Events	398	
$\int$Ldt (Accidentals subtracted)	21.98 nb^{-1}	from Runsheets
$\int$Ldt (Accidentals not subtracted)	32.60 nb^{-1}	according to formula of page 159
Lumi counts	3818	

23^{40} Leak is found, vacuum is not yet good enough to accelerate

19/6/80

0^{00} Clarke & Haidt on shift

8^{00} Weber & Totsuka on shift

10^{40} New forward counters available on function keys in COUNTERS sub context. HEM Nord restarted to recover T37 which had stopped communicating!

12^{10} Forward counters included in Display program when MUON detector is selected and SIDE or TOP views are displayed. It is not certain that the counters that are drawn are the correct ones that have fired!
Additionally the "missing muon wires" have come back – amazing cos I didn't do anything to them – just reloaded task. Hmmmmm. H.E.T.

14.46 finally luminosity again: [illegible] s

14.53 Stop run 3758 because of "muon crate missing". restart. 'muon crate' still missing at beginning of run 3759. Murphy loves to get it going.
Find crate 11 in 'diag' mode. Probable fault in PROM program in crate 11. Changed to older version of program, which does not monitor chamber singles rates. If problem recurs (i.e. crate 11 missing and cannot be reset with 'reset' button on crate) ... call expert! AB/PROM

16.00 Matsumoto/Hassard.
Muon Crate Missing #13 reset ok. Muon Crate Missing #5 should reset itself if it occurs again, leave it 10 seconds before going and resetting in Rutherford.
IBM occasionally busy – at 16.01 we had IBM error 54 (OCT) (3) but DT not high enough to warrant tape. UNS = 3% TOTAL = 14%

16.28 IBM problem 54 (OCT). DT Total reaches arbitrary 19% so we stop run and start run 3761 writing to tape. Problem 54 present for ~20 mins
Tape # F11 112 Dead time looks a lot better – Total 3% after a few minutes.

17.12 I Tried switching the attenuator without PAUSING (as is suggested on note in counting room "To next Shift" 18.6.80 23 hrs) This stopped the run.
~~The Pause key should therefore be used when adjusting this facility~~
17.12 Start Run 3762 to tape # F11 112 No; just press green start button
18.14 IBM fixed. start Run 3763 to IBM.
18.30 IBM error again we wait and are rewarded for our patience.
20.14 Run 3764 beam lost, 10 trip.

23.12 Run 3768 started – no IBM link. IBM don't know what's wrong – they'll look for the problem. We write to tape F11 119
IBM Problem 53 (OCT) (Time out ?)
0.2 nb^{-1} data taken before IBM looks or again. So we continue run on tape.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1TR	T1 LG>4 GeV
162																		
3764	19.6	20:41	20.15	5.0	5.1		735	1019	191	177	173	32.8	940	955	372	44.1	393	207
3765	"	20:56	20:55	5.1	5.2		235	385	61	9.3	52	0.94	206	149	167	115	93	36
3766	"	20:57	21:15	5.1	5.2		961	1452	249.9	48.7	201	2.69	779	546	396	459	302	191
3767	"	23.12	No data taken - IBM link problem at restart.															
3768	"	23.12	0:40	5.0	5.1		5198	7851	1352	65.5	1287	13.4	3953	2471	2292	2426	1390	1272
3769	20/6	0:40	2:33	3.7	3.8		6718	7855	1748	238	1510	72.5	3859	2182	2478	2557	1286	1301
3770	"	2:34	2:51	3.0	3.1		901	1056	235	10.6	224	0.8	516	276	326	361	160	188
3771	"	4:16	5:46	4.1	4.2		5363	7853	1396	66.2	1329	14.2	3991	2398	2431	2454	1486	1205
3772	"	5:47	8:23	3.3	3.4		5550	7332	1443	63.9	1379	6.3	3416	2165	2362	2304	1162	1246
3773	"	9:31	9:51	5.2	5.2		1125	2047	283	30.8	252	7.5	1143	935	525	586	499	263
3774	"	10:32	12:16	5.4	5.5		6118	7857	1593	212.1	1380	14.7	3627	1675	2630	2422	1151	1183
3775	"	12:35	12.58	3.5	3.6		1630	1229	268	26.1	241	7.9	522	217	372	414	135	223
3776	"	13:00	13:05	3.30	3.38		574	620	149	168	133	0.3	283	127	214	138	65	101
3777	"	13:15	14:02	3.22	3.30		2821	2623	734	124.5	610	1.4	1136	394	938	907	240	449
3778	"	14:33	14:50	5.4	5.4		922	1447	240	35.7	204	3.6	654	382	501	418	221	183
3779	"	14:50	16:34	4.7	4.8		6068	7857	1579	72	1507	10.3	3613	1703	2567	2528	1055	1252
3780	"	16:31	16:47	3.5	3.6		630	757	164	6.5	158	0.5	339	143	250	243	105	123
3781	"	17:25	19:08	5.8	5.9		6151	7852	1600	169	1432	15.4	3694	1799	2589	2519	1104	1120
3782	"	19:10	19:23	3.5	3.7		760	951	198	7.2	191	0.7	476	172	290	311	118	177
3783	"	21:04	21:24	5.5	5.4		1163	1897	307	22	281	5.4	938	465	561	640	273	199
3784																		
3785	"	21:55	22:10	4.1	3.9		885	1087	230	11	219	1.5	493	224	354	347	150	182
3786	"	22:12	22:15	3.7	3.4		148	229	38	1.3	37	0.2	66	46	65	66	26	48
3787	"	22:19	23:31	3.6	3.8		4262	4920	1109	68	1041	3.6	2201	873	1709	1659	558	803
3788	21/6	0:16		5.3	5.3		1949	7850	1599	78.2	1521	10.9	3670	1740	2562	2577	1044	1283
3789	"	2:00	2:30	3.3	3.3		1724	2099	449	13.7	435	1.1	915	379	694	682	215	429
3790	"	3:07	4:45	5.1	5.0		5832	7854	1517	66.1	1452	11.2	3725	1997	2530	2527	1090	1237
3791	"	4:44	5:44	3.5	3.5		3475	3857	904	25.4	879	2.1	1731	726	1302	1346	407	690
3792	"	6:22	0802	4.3	4.2		5913	7856	1539	67.8	1471	11.3	3759	1726	2431	2562	1179	1278
3793	"	8:02	0929	3.6	3.6		5196	6115	1347	39.4	1308	2.8 (?)	2631	1107	3119	2020	621	1123
3794	"	10.38	1048	5.4	5.4		553	860	146	10.7	138	3.0	414	238	298	274	130	97
3795	"	11.22	12.52	5.6	5.7		5798	7840	1404	43.0	1331	17.3	3749	1991	2504	2518	1128	1195
3796	"	12.53	14'00	3.9	4.1		3917	4853	1019	38.2	981	3.9	2176	1034	1652	1601	577	849
3797	"	14.26		5.9	5.9		5235	7850	1361	78.3	1283	18.1	3821	2113	2410	2476	1285	1241

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS
										Scan PSB on bis
163										
46	0.37	0.27	75.51	IBM	3.0	8	0	18.300	4996625	beam lost
18	0.45	0.10	75.61	"	2.8	2	0	"	"	
62	0.37	0.36	75.97	IBM	2.6	6	0	"	"	Beam lost
										no IBM link possible, no data,
314	0.36	1.87	77.84	Fill 119 Tape	2.8	32	1	18.300	"	no IBM link possible - taken to tape Fill 119
205	0.18	1.20	79.04	IBM	2.3	15	2	18.300	"	
25	0.16	0.14	79.18	"	2.1	2	0	"	"	Beams dumped
192	0.21	1.12	80.30	"	2.8	17	1	"	"	
138	0.15	0.82	81.12	"	2.2	11	0	"	"	Beams dumped *) see page 164
62	0.30	0.53	96.43	"	3.8	6	0	"		Beam lost
403	0.39	3.44	99.83	"	3.0	38	1	"	499 663.0	
51	0.29	~~0.30~~ 0.44	~~4.47~~ 100.31	"	2.1	9	—	"	"	
28	0.31	0.24	100.55	"		2	0	"		
94	0.21	0.80	101.35	"	1.9	10	0	"		run stopped for new fill
87	0.56	0.74	102.09	"	3.0	8	0	"		
398	0.40	3.40	105.49	"	2.4	35	2	"		
31	0.39	0.24	105.73	"	2.0	2	1	"		Beams lost
418	0.55	3.36	109.09	"	2.3	29	0	"		
38	0.39	0.30	109.39	"	2.3	3	0	"		
108	0.74	0.86	110.25	"	2.5	10	0	"		
										stopped because of noisy LG blocks
										T=1 out to IBM
54	0.57	0.45	110.70	"	2.5	3	0	"		
11	0.54	0.09	110.78	"	2.3	2	0	"		stopped because of 'no accepted events'
195	0.37	1.58	122.36	"	2.3	13	1	"	"	
312	0.41	2.50	124.86	"	3.0	30	3	"	499662.5	BP-HV changed
58	0.28	0.48	125.34	"		1	0	"	"	
326	0.45	2.63	127.97	"	2.0	34	2	"	"	new fill
120	0.29	0.99	128.96	"		11	0	"	"	
360	0.50	2.94	131.90	"	1.8	31	0	"	"	new filling
230	0.36	1.84	133.74	"	1.1	17	1	"	"	
53	0.73	0.40	134.14	IBM	1.8	5	0	"		new filling . Beams lost.
368	.56	3.03	137.17	"	2.0	45	2	"		New fill
162	0.34	1.31	138.48	"	1.7	17	0	"		Beams dumped
344	0.53	2.78	141.26	IBM	1.8	37	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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$\geq$1 $\geq$1TR	T1 LG>4 GeV

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan PGB av

pist

20/6/80

0.00 Orito, Heiet on shift
0.40 New run 3796 started with IBM link, but still some problems
2.51 Beams dumped for new filling
4:10 Magnet tripped
6.20 ~~After~~ Before dumping the beam orbit-corrections will be made for ~45 min (from now on)
8.00 Wriedt + Steffen on shift
The integrated on-line lumi (up to run 3772) is: 95.9 nb^{-1} (49.74 nb^{-1} before the last shut-down, 46.16 nb^{-1} from this week, calculated without accidentals)
9:30 New fill ready, run 3773 started
9:51 Beams lost
10:32 new fill ready, run 3774 started
11:14 Problem within Colour TV program located :- When it says "MUON CRATE MISSING" without any part number it should have displayed that number but since it's the same as last time it does not. This will be corrected when I next get the chance i.e. During a Kill HBM.
12.59 Problem with IBM: error 53(OCT), IBM called, they promised to repair it soon. New run started.
13.15 Problems with setting attenuator, new run started.
IBM-busy errors quite frequently.
13:30 PASCO wants a new fill at 14:00
14:30 New fill ready
Heilmann phoned: they changed something in order to impose the IBM response time. He asks us to watch the ~~IBM~~ dead time caused by the IBM
14:50 Run stopped because of "error 13", "page fault for non-demand"
After start of new run: "μ-crate missing, faulty pat 3". Fixed by Martin Ball.

16.00 Heinzelmann + Petersen
If Run goes on a stop when turning attenuator, just press green button afterwards all will be ok.
16:30 J. Krolikiel found one unplugged cable (near the trigger-box) which gates away the lumi-accidentals during event read-out. From run 3780 the on-line lumi should be ok. But: please check whether there will be lumi accidentals at all (expected: <2% of lumi events).

19:20 μ-crate missing #5 Reset
" #9 Reset

22:15 many noisy Lead Glass blocks. (correspond to LG-Crate 1)
raised digital threshold 5 → 6 by SET-LG command. - Ménowa

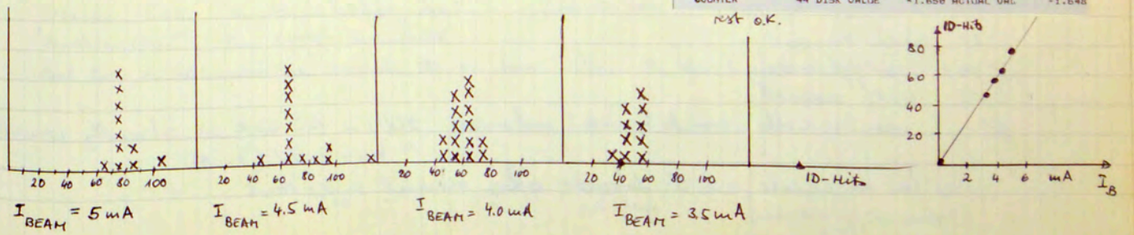
21/6/80 0:00 Eichler & Sato on Shift
0:20 reset missing μ-crate #3, #5
0:30 ~~Freq. doubled~~. freq. changed to 62.5.
0:50 found that mean adc pulseheight in BP counters 1-18 is higher than it was before (since 17-06-80 high)
check HV of BP individual counters. Result →
Change to disk values.

```
FIRST COUNTER (0=ALL):0<
COUNTER    1 DISK VALUE   -1.600 ACTUAL VAL    -1.831
COUNTER    2 DISK VALUE   -1.550 ACTUAL VAL    -1.831
COUNTER    3 DISK VALUE   -1.550 ACTUAL VAL    -1.832
COUNTER    4 DISK VALUE   -1.550 ACTUAL VAL    -1.831
COUNTER    5 DISK VALUE   -1.500 ACTUAL VAL    -1.832
COUNTER    6 DISK VALUE   -1.550 ACTUAL VAL    -1.832
COUNTER    7 DISK VALUE   -1.500 ACTUAL VAL    -1.831
COUNTER    8 DISK VALUE   -1.600 ACTUAL VAL    -1.831
COUNTER    9 DISK VALUE   -1.500 ACTUAL VAL    -1.832
COUNTER   10 DISK VALUE   -1.600 ACTUAL VAL    -1.830
COUNTER   11 DISK VALUE   -1.600 ACTUAL VAL    -1.832
COUNTER   12 DISK VALUE   -1.600 ACTUAL VAL    -1.832
COUNTER   13 DISK VALUE   -1.550 ACTUAL VAL    -1.832
COUNTER   14 DISK VALUE   -1.550 ACTUAL VAL    -1.832
COUNTER   15 DISK VALUE   -1.600 ACTUAL VAL    -1.830
COUNTER   16 DISK VALUE   -1.550 ACTUAL VAL    -1.831
COUNTER   17 DISK VALUE   -1.600 ACTUAL VAL    -1.830
COUNTER   18 DISK VALUE   -1.500 ACTUAL VAL    -1.832
COUNTER   19 DISK VALUE   -1.700 ACTUAL VAL    -1.699
COUNTER   20 DISK VALUE   -1.550 ACTUAL VAL    -1.550
COUNTER   21 DISK VALUE   -1.550 ACTUAL VAL    -1.551
COUNTER   22 DISK VALUE   -1.500 ACTUAL VAL    -1.498
COUNTER   23 DISK VALUE   -1.550 ACTUAL VAL    -1.551
COUNTER   24 DISK VALUE   -1.650 ACTUAL VAL    -1.649
COUNTER   25 DISK VALUE   -1.650 ACTUAL VAL    -1.649
COUNTER   26 DISK VALUE   -1.600 ACTUAL VAL    -1.600
COUNTER   27 DISK VALUE   -1.650 ACTUAL VAL    -1.648
COUNTER   28 DISK VALUE   -1.600 ACTUAL VAL    -1.600
COUNTER   29 DISK VALUE   -1.700 ACTUAL VAL    -1.699
COUNTER   30 DISK VALUE   -1.650 ACTUAL VAL    -1.649
COUNTER   31 DISK VALUE   -1.600 ACTUAL VAL    -1.600
COUNTER   32 DISK VALUE   -1.700 ACTUAL VAL    -1.700
COUNTER   33 DISK VALUE   -1.600 ACTUAL VAL    -1.601
COUNTER   34 DISK VALUE   -1.650 ACTUAL VAL    -1.649
COUNTER   35 DISK VALUE   -1.600 ACTUAL VAL    -1.600
COUNTER   36 DISK VALUE   -1.650 ACTUAL VAL    -1.649
COUNTER   37 DISK VALUE   -1.600 ACTUAL VAL    -1.601
COUNTER   38 DISK VALUE   -1.750 ACTUAL VAL    -1.748
COUNTER   39 DISK VALUE   -1.600 ACTUAL VAL    -1.600
COUNTER   40 DISK VALUE   -1.600 ACTUAL VAL    -1.600
COUNTER   41 DISK VALUE   -1.750 ACTUAL VAL    -1.748
COUNTER   42 DISK VALUE   -1.650 ACTUAL VAL    -1.649
COUNTER   43 DISK VALUE   -1.650 ACTUAL VAL    -1.649
COUNTER   44 DISK VALUE   -1.650 ACTUAL VAL    -1.648
```

3:50 check BP-counters again. Channel 1 again actual value 1,831 kV. Reset

μ crate #5 has to be reset at every run start!

ID-Hits of LUMI-events for different beam currents (RUN 3792)



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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$\geq$1 $\geq$1 TR.	T1 LG>4 GeV

21/6/80 8^{00} Murphy, Heine on shift
μ-crate 5 is "missing" at start of every run.
9^{10} Tasso wants a new filling at 9^{20}
0910 n-system voltages OK
9.30 if the scaler for the Lumi (acid) is still the indicated one, no acc. count during Run 3793
10.55 new fill ready, run 3794 started
12.05 Run 3795: there are Lumi accidentals (~ .4%)

21/6/80 16^{00} Takeda, McCann on shift
16^{18} Started new run to test μ system.
17^{00} TASSO wants a new fill.
17^{15} Now filling starts
18^{15} New fill ready run start #3800
19^{53} RUN #3801 starts
20^{37} RUN STOP due to IBM busy. But they say "IBM is normal". (computer people)
TASSO has the same problem with IBM-link.
20^{50} New filling
21^{17} RUN #3802 starts.

22/6/80 0^{00} Kona niyu + Steffen on shift; beams dumped
0:25 Run 3805 started muon crate No 5 reset.
2:06 Run 3806 started "
2:41 TASSO wants new fill and dump the beam at 3:00.
2:45 ID temperature = 26.2°C
3:19 Run 3807 started, muon crate No 5 reset
4:37 Run 3808 started "
5:25 ID temperature checked 26.0°C o.k.
5:40 JBAS ERROR 000537 (subcode 000232), 000507 (000007), 000056 (1602004)
5:50 Run 3808 stopped JBAS ERROR NOT SOLVED. Cords called
6:00 beams dumped
6:20 new fill ready
6:35 Cords arrived
" crate controller in branch 7 crate 3 exchanged. DL8's in this crate are continually counting.
~ Heine called (7.30)
too low trigger rate, which disappears, after manual trigger start
(discussion with Kalbfleisch et phone) gets OK
+Eichler

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan PGB on DISI

8.00 Brandt, Heine on shift
Branch 7, crate 3 shows overload, power supply changed → o.k.
8.54 Start Run 3814 Kalbfleisch arrives
8.55 Tasso wants to fill at ~ 9.10 ((3806))
9.10 another problem: since run 3807 no T3 reject!
9.30 Kalbfleisch finds, that all LED's in Muon Crate 13 count like crazy, so call Austin Bell
10:13 T3 trigger problem was faulty fast pulse board in Muon crate 5, leading to permanent triggers from streets 14,15,16. Changed board — now ok.
Problem developed during run 3806 (~ 2.10 22/6/80) and persisted until now (run 3815 count ~1500)
10.25 Stop Run 3815, start 3816 to see if Muon crate 5 is still missing at run start. It is.
11.20 same as before with R3816/3817. MC 5 still missing
11.50 same as before with R3817/3818. MC 5 was o.k.
Problem with crate 5 missing at beginning of run was faulty fast serial interface.
12.00 IBM busy relatively often
12.10 beams lost
13.08 filling ready, start run 3819
13.30 Terminal 9 does not react any more on the keyboard-keys (characters and function keys) [ZDAS writes output on it!!!]
but the run goes on normally with data-taking and event display.
We decide to let the run go on and finish automatically (≥3000 counts now).
13.40 Error 13, page fault for non-demand (34323) occurs and run stops.
13.45 Starting the NORD does not cure the terminal 9 problem (run start and so on not possible)
It can be written on its screen from other terminals. Starting ZDAS from Tektronix terminal 34 does not help.
13.55 We called Cords. Cannot help by phone. He will come in.
14.00 So our data taking is blocked now, 8½ h after the new fill.
14.13 Hurrah! 1) Cords arrived 2) Petra lost the beams.
15.00 terminal is really broken, exchange it with the spare one
15.10 new filling ready, start Run 3820

16:00 Tetenka, Eteln on shift
16:30 "Sendeausfall", Run 6445 terminated.
Each time the attenuator is rotated, the run stops. Press the Run button on the trigger box.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1TR.	T1 LG>4 GeV
168																		
3798	21/6	~~15:18~~ 15:56	16:16	4.0	4.2		1227	1500	319	19.7	299	1.75	691	372	479	461	217	267
3799	"	16:16	17:14	3.7	4.0		3358	4289	873	30.1	843	3.45	2007	916	1355	1417	579	788
3800	"	18:13	19:53	5.4	5.6		5828	7850	1516	98.9	~~446~~ 1416	12.6	3805	1970	2495	2499	1268	1234
3801	"	19:54	20:37	3.5	3.8		2365	2959	615	67.9	546	1.93	1281	617	895	940	352	523
3802	"	21:17	22.55	5.8	5.9		5788	7841	1505	165.5	1339	15.4	3773	1825	2466	2444	1308	1285
3803	"	22:55	23.14	3.6	3.8		728	848	189	18.0	171	0.6	354	135	280	248	106	151
~~3804~~	~~22/6~~	23.14	23.58	3.4	3.6		2580	2865	671	41.2	630	1.56	1272	515	990	964	332	520
3805	22/6/80	0:22	2:06	5.3	5.4		6111	7857	1588	73.0	1516	10.7	3785	1824	2499 ~~2493~~	2563	1175	1215
3806	"	2:06	2:56	3.4	3.6		2951	3508	767	95.6	671	1.23	1313	39	1537	1018	348	544
3807	"	3:20	4:39	5.0	5.2		4717	7853	1227	60.4	1168	9.50	3045	0	3604	2028	1006	941
3808	"	4:40	5:38	3.6	3.8		3408	4696	886	32.9	854	2.04	1764	0	2069	1294	507	682
3809	"	5.48	5:49	3.1	3.3			14										
3810	"	6:22	6:30	5.2	5.5			27										
3811	"	7:13	7:16	4.0	4.2			41										
3812	"	7:35	7:53	3.7	3.9		1428	430	372	7	365	0.05	34	0	48	28	41	285
3813	"	8:01	8:05	3.4	3.6		214	229	56	23	33	0.03	59	0	38	48	22	27
3814	"	8:56	9:11	3.0	3.2		917	1107	239	8	231	0.4	456	0	553	339	125	167
3815	"	10.01	10.25	5.7	5.7	$6.4 \cdot 10^{-9}$	1411	2431	367	24	343	5.0	1060	300	985	645	390	263
3816	"	10.26	11.20	4.8	4.9		3168	4159	825	49	776	5.3	1807	836	1535	1291	506	595
3817	"	11.19	11.48	4.0	4.1		1674	1963	436	33	403	1.6	857	402	724	653	218	297
3818	"	11.48	12.10	3.8	3.9		1287	1508	335	22	312	1.0	703	313	473	530	193	265
3819	"	13.03	13.40	5.9	6.0			3440	554	53	500		1741	912	1007			
3820	"	15.10	16.27	5.5	5.7		4532	6323	1180	54	1126	10.4	3037	1613	2058	2056	978	868
3821	"	17.37	19.17	3.2	3.6		5948	7097	1548	69	1480	7.4	3405	1545	2516	2505	903	952
3822	"	19.36	20.31	5.7	5.9		3217	4953	837	45	792	9.9	2518	1899	1453	1629	871	688
3823	"	20.32	21.36	4.1	4.4		3845	4764	1000	36	964	4.4	2148	1066	1650	1528	654	785
3824	"	21.55	23.37	5.6	5.7		6043	7850	1571	105	1466	11	3700	1868	2622	2561	1161	1172
3825	23/6	23:37	23:58	3.5	3.6		1239	1293	322	34.4	287	0.86	578	270	458	425	154	211
3826	23/6	1.11	2:56	5.5	5.4		6214	7855	1631	59	1571	8.49	3716	1857	2734	2638	1076	1079
3827	"	2.57	3.00	3.5	3.5		159	168	41.4	1.19	40.2	0.098	68	39	69	51	18	30
3828	"	3.24	5.06	5.4	5.3		6104	7849	1587	82	1505	11.5	3816	2146	2562	2705	1104	1138
3829	"	5.07	5.26	3.5	3.5		1136	1286	295	8.8	286	0.92	661	303	431	453	161	212
3830	"	6.03	7.46	~~3.29~~ 3.77	3.22		6213	7853	1617	62.5	1555	11.8	3704	2076	2687	2597	1090	1142
3831	"	7.50	8.06	3.29	3.22		594	647	155	4.3	151	0.36	305	127	223	241	57	98

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt EXP	IBM/TAPE	BP	1450 BHABHA	39 MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS
										Scan PbG on p151
169										
~~335~~	~~445~~	0.45	141.71	IBM	1.4	3	0	18.3		test of µ-system
55	0.37	1.01	142.72	"		13	0	"		
123	0.30									
301	0.42	2.47	145.19	"	1.8	27	1	"		New filling
83	0.24	0.58	145.97	"	1.3	10	0	"		Ended due to IBM-link error
291	0.40	2.34	148.11	"	2.5	34	0	"		New filling
25	0.27	0.20	148.31	"	1.3	4	0	"		Ended due to IBM link problem.
72	0.22	0.58	148.89	"	1.5	3	1	"		
327	0.44	2.66	151.55	"	2.5	32	3	"		new filling
105	0.28	0.84	152.39	"	1.3	13	0	"		
248	0.43	2.02	154.41	"	2.5	27	1	"		new filling
139	0.33	1.11	155.52	"	1.4	15	3	"		ended because of 'JDAS ERROR'
	"	0		"		0	0	"		new filling — beams dumped
	"	0		"		0	0	"		
	"	0		"		0	0	"		Test for 'JDAS ERROR'
65	0.37	0.53	156.05	"		12	0	"		
9	0.26	0.06	156.11	"		0	0	"		
29	0.24	0.22	156.33	"		4	0	"		DL8 all OK, beams dumped
118	0.68	.95	157.28	"	2.0	10	0	"		new filling
206	0.53	1.69	158.97	"	1.6	10	0	"		work at muon wire 5
80	0.39	0.65	159.62	"	1.4	7	1	"		
57	.35	.45	160.07	"	1.3	9	0	"		beams lost
168	0.65	1.35	161.42	"	2.0	?	?	"		new filling // terminal 3 broke down + HARD error, no summary // beams lost
314	0.55	2.49	163.91	"	2.0	31	0	"		new filling
308	0.42	2.52	166.43	"	2.0	24	2	"		new filling
236	0.59	1.91	168.34	"	2.0	37	2	"		error "page fault for non demanded page no. 137"
168	0.36	1.37	169.71	"	1.5	15	1	"		
332	0.44	2.68	172.39	"	1.5	32	1	"		
43	0.29	0.36	172.75	"	?	2	0	"		
382	0.38	2.41	175.16	"	1.5	29	0	"		
6	0.32	0.05	175.21	"	1.4	1	0	"		
364	0.40	2.44	177.65	"	6	18	1	"		
39	0.28	0.31	177.96	"		7	0	"		
294	0.39	2.41	180.37	"	1.0	33	1	"		
19	0.24	0.14	180.51	"	1.0	1	0 (58)	"		
14504			125.54			1405 + x 1393	57			

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV

170 Run 3825 ended
23/06/1980 00,00.

00^{00} Nozaki + Hassard.
1.10. New filling is ready. Run ~~3826~~ started.
2.59 PKR asks us to turn off voltages for new run. We do so but about ½ nanosecond later beams clumped while volts still on. Their voltage monitor tells them volts off when our volts are really only coming down. We suggest they wait a bit next time and they agree
3.24 New filling is ready. Run 3828 starts.

8.00 Murphy + Yen
8.01 Stop for new filling
9.21 They finally dump the beams.
12.25 TV message "HV wrong" (?), but no typed message. How do we find out which one is wrong?
10.30 NORD has a small nervous breakdown which uses up two run numbers (3833, 3834). Run 3835 starts OK after attention by D Lords.
10.57 Stop for new filling
12.10 IBM Hang up at the beginning of Run 3836. So no run # 3836.
13.15. Statistics for new large hodoscope counters.
Study plan made for all types of triggers:

Trigger types	No. with no coincidence in opposite quadrants (1 or 1)	No. with opp. quad. coinc., no μ track angle/close	No. with opp quad., $\geq$1 μ track angle/close
Beam-gas	~~35~~ 36	6	0
Cosmic	40	0	0
Unidentified	10	2	1
Lumi	3	0	0
2-γ	1	2	0
Bhabha	0	1	0
Halo	2	0	0
	92	11	1

Results most likely invalid - I think that event display was not unpacking correct counters.

i.e. in 104 triggers, counters in opposite quadrants fired in coincidence 11 times. Of these triggers, only one had a μ track angle/close.
13.37 Beam Lost
15.08 Event Rate very high ~ 9, stop the run. Mr. Krehbiel is working on it.
15.52 Beam Lost due to high freq. failure in the machine. Will restart at 5.00 PM.

T1 LUMI	$\langle L \rangle \times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (KHz)	REMARKS

Scan PbG on p151

171

16^{00} Orito, Cords on shift
17^{00} NEW FORWARD TRIGGER ISIN: AND OF OPPOSITE QUADRANTS
17^{20} PETRA filled, start run 3842
17^{40} many lead glass blocks are lit; therefore we stop and start next run.
19^{20} Modifications made to ZDAS & YMENU to try to pick up FWD MUON triggers
21^{20} PETRA: power supply for correction ~~coil~~ coil failed and was exchanged.

24.6.80 0^{00} Austin Ball + Albrecht Wagner

~01:20 First sign of beam this shift, but lost during acceleration.
02:56 Message appears: 'Restart 4:00 AM' ... yawn!
04:15 " " " 7:00 AM. "
7:40 " " " 10:00 AM. "
8:00 Eichler + Goddard

9:53 beams on
10:05 reset BP counter #1 to disk value 1.600 keV (was at 1.831 keV)

10:10 ID trip
10:30 stop run, because lg blocks from first camac crate are very noisy. Change digital threshold from 5 → 6. Start new run. o.k. (still some spikes in bitmap)

Up to run 3845 we have 93 hadronic evs at 18.1 GeV. ↑ 1550 Bhabha evs. Based on number of Bhabha evs & multihadrons at 14.55-97 we expect:

$$38 \times \left(\frac{1550}{1719}\right) = 34 \text{ hadronic evs.}$$

14:07 Nord50 histograms - display program YHDISP modified to
a) When MAX-Y-CUT is used, the value is printed on the screen
HEM b) In STD-HISTOGRAMS, the LG barrel histograms are also drawn with a MAX-Y-CUT of 50.
15:10 Runs 3847 ~~3848~~ tests only, Run 3847 written, ~~[illegible]~~.
15:15 Sender ausfall - only 18.251 GeV can be reached
15:20 beams lost
15:00 μ-counters HV are checked now by program yoshi.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1, $\geq$1TR.	T1 LG>4 GeV
172																		
3832	23/6	8.46	10.33	5.57	5.62	6.5×10^{-9}	6403	7852	1667	93.4	1574	11.6	3757	1990	2676	2785	951	1064
3835	"	10.41	10.57	3.45	3.53		947	1075	246	7.3	239	0.63	501	225	359	406	104	176
3837	"	12.10	13.35	5.35	5.49	6.7×10^{-9}	4982	5144	1297	330.0	967	11.4	2390	1301	1770	1711	668	659
3838	"	14.13	14.28	5.58	5.75		841	1374	199	14.2	199	4.87	700	410	431	453	227	160
3839	"	14.29	15.05	4.81	5.14		>912	3729	524	57.4	466	6.04	1199	713	862	821	370	1536
3840	"	15.08	15.18	4.46	4.25	6.85×10^{-9}	574	1157	1380	17.8	121	1.01	514	142	184	156	159	674
3841	"	15.18	15.52	4.02	4.32		2000	2200	521	61.5	459	3.01	961	573	790	792	165	341
3842	"	17.30	17.39	5.48	5.60		535	881	139	11.5	127	2.1	464	236	258	288	164	115
3843	"	17.40	19.19	"	"		7200	7199	1441	112	1279	8.9	3354	1861	2324	2321	993	1174
3844	"	19.23	15.51	3.49	3.61		2168	2540	564	298	543	1.5	1140	511	863	889	276	844
3845	24/6	9.53	10^{32}	4.8	48		2145	2457	559	21.0	538	2.78	1220	675	919	890	320	346
3846	"	10^{33}	11.50	4	4		4594	6287	1196	55.4	1141	3.08	2328	1118	1798	1778	561	717
3847	"	15^{08}	15"	5	5		141	1298	36	33	4	6	21456	4	10	6	3	0
3848		15^{17}	15^{22}	4	4		271	310	70	2.2	68	0.3	140	90	100	106	106	47
3849	24.6.	17.47	18.09	4.5	4.5		1276	1447	331	17	312	1,60	697	377	502	504	184	168
3850	25 11	19.21	21:19	4.74	4.89		7022	7577	1827	95.3	1732	5.7	3337	1954	2703	2713	800	996
3851	24.6	21.57	23.04	4.6	4.7		3980	4308	1036	43.5	989	3.2	2022	1006	1499	1589	455	599
3852	"	23.26	1:30	~.2	5.3		7242	7857	1884	77.7	1806	5.2	3646	1785	2799	2832	832	1455
3853	25"	1.59	3.58	5.54	5.63		6998	7854	1821	111	1709	7.1	3669	1842	2709	2828	885	1173
3854	"	4.38	5.29	3.1	2.8		3042	3388	792	21.9	770	1.7	1542	654	1165	1213	365	580
3855	"	5.54	7.49	4.99	5.07		6809	7796	1771	52	1719	5	3537	1650	2734	2711	881	1265
3856	25.6.	8.3	10.2	5.3	5.2		6897	7412	1794	76	1718	4	3375	1593	2664	2662	762	1122
3857	"	11.17	13.02	5.7	5.6		6288	7842	1636	108	1528	9.7	3716	2839	2560	2556	1149	1203
3858	"	13.03	14.34	4.10	4.0		5417	5589	1410	143	1266	3	2574	1176	1946	1980	631	843
3859	"	15.02	15.48	3.7	3.7		2689	2802	700	27.1	672	1,9	1245	584	1104	1027	244	348
3860	"	19.22	20.18	4.4	4.5		3350	3710	872	41	831	5.1	1806	1010	1405	1382	430	388
3861	"	22.09	00:03	5.49	5.47		6687	7849	1792	77.8	1714	10.3	3648	1798	2969	2728	868	901
2862	26.6.86	00:05	00:15	3,1	3,5		582	582	151	6,8	145	0,3	273	133	208	219	219	174
3863	--	00:43	01:32	5,8	5,9	5×10^{-9}	3095	3912	805	81.7	724	9,8	1854	1037	1387	1304	520	629
3864	"	1.33	3.32	4.3	4.6		7101	7854	1848	110	1737	7.7	3537	1737	2920	2826	741	1054
2865		03:35	03:41	3,3	3,6		345	372	89,8	2,4	873	0,2	181	79	128	155	32	49
3866	"	04:02	05:46	6,0	6,1		6301	7851	1641	65	1576	15.4	3711 2004	2008	2761	2745	975	956
3867	"	5:48	6:17	4	4		1694	1974	441	428	14	2,03	876	394	719	694	199	260

T1 LUMI	<L> $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ Exp	IBM / TAPE	BP	1313 BHABHA	57 MULT. HADRON	ENERGY E_B	
173									
337	0.43	2.74	183.25	IBM	2.0	38	1	18.30	New filling
37	0.33	0.31	182.56	"	1.2	1	0	"	
262	0.42	2.10	185.66	"		19	0	"	NEW FILLING
79	0.74	0.61	186.27	"	2.2	6	1	"	New Filling
128	0.51	1.03	187.30	"	1.9	14	0	"	
21	0.40	0.22	187.52	"		1	0	"	
97	0.38	0.76	188.28	"	1.5	14	0	"	
44	0.64	0.34	188.62	IBM	1.9	5	1	"	
314	0.45	2.85	191.17	"	1.7	37	2	"	
83	0,31	0.68	191.85	"	1.5	5	0	"	
158	0.6	1.29	193.14	IBM	2	9	0	18.3	New filling
219	0.39	1.80	194.94	"	1.5	19	0	-"-	
0	.5-	.01	194.95	IBM		0	0	*18.251	* Tests only
16	0.43	0.12	195.05	"		0	0	18.251	
75	0.46	0.58	195.63	IBM	1.5	8	0	18.200	LED, but Magnet was o. Beam lost at 18.09 1D trip showed Magnet Trip
295	0.34	2.36	197.99	IBM	1.7	15	0	18.200	
767	0.33	7.32	199.37	IBM	1.6	72	1	18.200	Beam lost, 1D Trip
236	0.26	1.92	201.23	IBM	1.6	21	1	18.200	New filling
288	0.33	2.31	203.54	IBM	1.6	25	2	18.200	New filling
95	0.25	0.75	204.29	IBM		8	0	18.200	New filling
246	0.28	1.94	206.23	"		21	1	"	
226	0.26	1.79	208.02	"	1.5	21	0	"	
335	0.43	2.68	210.7	"	1.7	30	1	"	New fill
178	0.27	1.47	212.17	"	1.4	21	2	"	B.P. accom. only unsteady
64	0.18	0.50	212.50	"		3	0	18300	New Fill
105	0.25	0.84	213.30	"	1.6	9	0	18.300	" " ν = 499661.5kHz
308	0,36	2,51	215,81	"	1.6	29	0	18.200	" " ν = 499662.5kHz
25	0,34	0,20	216,01	"	1,2	4	0		
225	0,58	1,80	217,81	"	1,8	28	1	18,200	
316	0.35	2.46	220.27	"	1,6	27	0	18.2	
12	0,30	0,10	220,37	"	1,5	0	0	18.2	Ebtl to permit new filling
396	0,50	3,13	223,50	"	2.2	27	1	18,200	
77	0.36	0.60	224.10	"	1,3	8	0	"	beam lost
		223.13				2338	72		

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$\geq$1 $\geq$1TR.	T1 LG$>$4 GeV

174

Event Display of Muon Forward Cntrs was wrong so far. Tested by pulser and acknowledged by software Xperts.

16^{00} Krehbiel ~~Orito~~ on shift

Problem with one of cavity. They cannot go over 18.2 GeV. ~~Start~~ data taking at 18.2 GeV.

ca 17^{40}: PKR wants to do Orbit correction. We telephoned, ~~not~~ asked why. Our background was better than ever before. They acknowledge and want to ask the other expts. first. Result: Tasso-backgr. was bad. They did the correction; It improved Tasso, ~~Background~~ and at least made ours not worse. So. o.K.

$\sim 19^{45}$ Software experts, after bravely ~~struggering~~ staggering back to work after a frugal meal attempt, in a misguided sense of duty, to fix the evdisp 'SALAT' we fail

22^{35} We succeed. Problem caused by BUS IX4 orientation. All data I=2. 0 padded at the end really nails naive routines to the wall. Fixed this, probably without killing the forward counter disply. Somebody else check. I leave. (LOK)

22^{52} Not so sure - file LARRY:0EVD contains event with one counter & 1 think two should be there. Still another funny where display is only picking up a small percentage of apparent MU cntr triggers HERE

0.0 Clarke / Kawabata on shift

Machine running well although beam lifetime low; - get ~ 1 run of 8k events per fill; background low.

Earlier in the evening checked FWD μ counter "total OR rate" against quartic pulse timing

Delay added to quartic pulse (ns)	OR's / 5.10^6 T0
0	244, 200, 211
5	235
10	324, 342
15	364
20	396, 369

Indicates FWD μ pulses coming "slightly" too late.
Will attempt (in near future) to reduce delay by replacing mean timers with fast OR's and shortening cable to latch - could possibly gain $\geq$ 20nS.

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan PAB at p151

175

25/6/80

Run 3854 terminated at 3460 events to re-fill, very rapid decay of beams.
Run 3855 started at 5.54, immediate μ FAULTY PART 5 message, reset OK.

0800 Dittmann / Steplas
0818 Run 3856 started.
10.23 " " ended. T.V. not working
11.10 PKR. say T.V will be ok ~ ½ hr and they are now ramping up the energy.

11.15 Petra filled. Their TV out of action - currents are E- 5.6 E+ 5.7

11.21 I think I have possibly solved one of the ways in which (other) users contrive to jam the event display! We shall see. (HEM)

11.17 Run 3857 started.
11.35 TASSO ask to go up to 18.30 GeV now that Klystron is working. We agree and it will be done at the next fill.

12.05 PKR say that TV expert was on night shift so TV resurrection will be delayed.

LG threshold 1 sits on ~2 GeV. Can't find any notice that this is what we want.
T.V operational
13.02 Run 3857 ended
13.03 " 3858 started
14.20 TASSO want next fill ~ 10 mins and will go to 18.3 GeV.
14^{30} Larry examines mounting evidence of problems in FWD μ counters and finds a bug. Examination of one test event appears to be OK. HEM

15:40 Event seen with 2 hits in FWD MUON counters - a cosmic - looks great!

16:00 Test made during fill show that FWD counters are in correct place and correct trigger bit is being set. (HEM)
17:45 Tasso called us. DETRA has still some problems on Klystron. Tasso wants to stay at 18.2 GeV. We agreed.

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV

176

Run 3860 stopped at 20.18 on request of TASSO because of low luminosity. Dump beam for refill. New run will be at 18.200 GeV (request of TASSO).

22.08 New fill at E_b = 18.200 GeV

26.6.80 00,00 Narozka & Darvill on shift.

00,39 New filling complete and run started

1.30 deadtime due to IBM busy very high, Overall DT = 10% for 1.3 Hz. Asked at IBM what might be wrong. They said nothing. We suggested that our disks might be full. The number of records was indeed TRECS* 17100. So we stopped run and requested dump. Now we'll see what happens.

2.00 The dump is finished. The effect is astounding. No "IBM-BUSY" any more.

3:26 standard histograms are recorded

3.40 New filling started — it's getting light outside!

4.02 New filling complete and run 3866 started

5.20 BP current showed many spikes. Traced it down to a broken discriminator. This is the 3rd in the same crate !!

6:17 beam lost - near detector trip

7.47 beam back after 66 minutes.

8.00 Komamiya & Matsumura on shift

'IBM BUSY' occurs very often

9:50 Run 3869 ended., Run 3870 started

10:46 Run 3870 stopped for new filling

11.30 readout down. (Transmitter error)

A. Ball is checking for muon counters

12:05 New version of event display constants for Mu filter display installed. (HBM)

12:30 New filling is ready, but NORD hungup. call H. Miller

12:40 Cords coming 'NORD hung up' is solved

12:45 Run 3871 started

13:40 From run 3872 on the lead glass threshold changed from 1.5 GeV to 1.0 GeV in the discrimination channel 3 and 4, ie. (2TOF)(1.5 GeV) and (TAGG)(LG$>$1.5 GeV) now changed to (2TOF)(1.0 GeV) and (TAGG)(1.0 GeV). No change seen in the trigger rate (1.2±0.2 Hz) and the dead time (2-3% if IBM all right)

F. ORITO.

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLott RUN	SLott Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan Plab on p151

177

13:50 Controll Terminal has sparker intern and keybrd don't work call Cords.

14:16 dump beam for new filling Run 3872 stopped

histograms for LG ~~three~~ triggers are checked looks O.K.

(threshold ~ 1 GeV)

16^{00} R. Marshall and L. O'Neill on Shift.

Frequent IBM busies — Tasso also see it but they are independent when link is down.

IBM say that Pluto (:) are to blame — even tho they are not data taking.

W. Koch asked to investigate since Pluto don't answer on 2440.

Pluto are testing chambers with cosmics and using link heavily. They are requested by Koch to reduce data taking rate by a factor 5.

Our dead time (average) now falls from 15% to 5%.

IBM knows back again DT → 25% from 5% IBM "investigating" Koch also asking Pluto again.

Start "experiment": Pluto switch off. DT still high. So it looks like it is not Pluto

17^{56} Herr Cords calls about the dead time (IBM) problem. He can't find the right people at the IBM and can't do much at the moment. Instantaneous dead time 3.4%, dead time over current run (1hr. 13 min) 16.3%. Effect significant but not disasterous.

18^{02} Dump beams. PLUTO has quit, so the exact effect of their data taking on IBM dead time is academic

18^{40} Beams lost several times. Great difficulty injecting.

19^{11} Still no beams. Orito calls. Requests we check histogram for 1 GeV LG threshold, make sure it looks reasonable, and if not contact someone in the Tokyo group.

19^{16} Finally get on again. Get no link. IBM BUSY + DISK overflow.

19^{19} Call IBM. They know about problem. 5 min still. No indication on the PETRA TV screen that anything is wrong: Exp is on BB and BB is up. Decide not to write tape if it's really 5 min.

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS ACC.	ALL TRIGGER $*10^6$	TØ REJECT $*10^6$	TØ ACCEPT $*10^6$	T1 ACC + POSTP. $*10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1TR.	T1 LG>4 GeV
178																		
3868	26.6.80	06:51	07:01	5.9	6.0		573	845	149	9.2	140	3.4	444	229	299	317	129	74
3869	"	07:47	09:49	5,4	5.6		7211	7849	1876	165.4	1711	10.2	3600	1712	2842	2811	796	968
3870	"	08:50	10:46	2.9	3.1		3308	3383	861	31.9	829	1.5	1914	615	1299	1200	278	472
3871	"	12 45	13 30	4.2	4.6		2674	2686	698	94.0	662	3.1	1249	697	941	943	311	335
3872	"	13 32	14:16	3.3	3.8		2596	2803	675	92.3	583	1.4	1535	496	851	920	662	313
3873	"	15.12	16:44	3.9	4.2		5467	7853	1423	231.0	1192	11.1	4500	1598	2171	2182	2342	790
3874	"	16.45	18:02	3.3	3.7		4575	5269	1191	187.0	1003	30.0	2836	903	1646	1565	1321	590
3875	"	19:21	20.58	4.5	4.8		5761	7858	1499	80.7	1418	6.6	4379	1386	2319	2316	2155	786
3876	"	21.04	22.12	3.2	3.5		4082	4926	1062	77.6	985	2.3	2554	825	1573	1458	1167	612
3877	"	23.21	23^{54}	5.3	5.6		1737	3541	452	38	414	701	2237	753	856	830	1424	266
3878	27.6.80	0^{13}	1^{33}	5.8	5.9		4727	7855	1230	128	1100	12.7	4691	1656	2116	1987	2699	714
3879	"	1^{33}	3^{10}	4.0	4.0		5774	7860	1503	85	1417	6.1	4421	1488	2301	2268	2253	850
3880	"	3^{10}	4 00	3.5	3.6		2916	3589	759	25	734	1.9	1936	599	1113	1151	843	423
3881	"	4^{22}	4^{27} 5.38	^{0855}	6.0		4516	9852	1176	67.9	1108	14.1	4771	1693	2047	1980	2809	1737
3882	"	5^{39}	7 05	4.3	4.5		5747	7090	1340	59.6	1281	5.6	3906	1347	2075	2116	2116	844
3883	"	7^{23}	7^{33}	5.8	5.9		518	1004	134	16.8	118	2.2	650	224	217	314	353	74
3884	"	8^{57}	10^{16}	5,7	5,7		4710	7855	1226	76.8	1149	11.4	4660	1548	2093	2042	2694	715
3885	"	10^{16}	11^{44}	4.2	4.2		5454	6685	1341	83.1	1258	4,5	3732	1240	1977	2067	1766	681
3886	"	12^{12}	13^{31}	6.3	5.8	$5.4\cdot10^{-9}$	4644	7856	1209	81.0	1128	14,0	4576	1749	2104	2210	2409	733
3887	"	13^{31}	15^{08}	4.0	3.8		5775	7859	1504	77.5	1426	6.3	4325	1582	2327	2757	2035	833
3888	"	15^{08}	16:57	3.8	3.7		6429	7860	1673	67.1	1606	3,7	4233	1353	2390	2477	1843	937
3889	"	16:58	19:06	3,2	3,1	"	7070	7860	1840	56.4	1784	2,0	4011	1171	2594	2618	1484	1036
3890	"	19:07	19:27	2,7	2,6	"	1176	1251	301	12,6	294	0,24	607	156	442	418	208	171
3891	"	19:33	21:40	2,6	2,5		7577	7858	1972	67,6	1904	1,3	3784	1076	2833	2664	1236	1042
3892	"	21:50	23:42	2,2	2,1	"	8697	6449	1744	37,3	1706	0,79	3018	830	2473	2281	842	822
3893	28.6.80	2.10	3:59	5.2	5.2		5173	7854	1345	69.1	1276	9.8	4451	1628	2204	2138	2385	756
3894	"	3:59	4:31	3.9	3.9		1846	2521	480	19.7	462	1.8	1469	491	705	736	756	231
3895	"	5.26	6:47	5.5	5.6		4843	7856	1259	65.1	1194	12.1	4520	1538	2165	2061	2578	726
3896	"	6:48	8:20	4.0	4.1		5464	7303	1421	64.6	1357	4.7	4000	1260	2229	2211	1888	734
3897	"	9:11	10:28	6.1	5.2	$5.4\cdot10^{-9}$	4505	7849	1173	68.8	1104	12.5	4666	1578	2063	1973	2719	666
3898	"	10:28	12:00	4.6	3.9		5468	7859	1423	58.2	1365	5.7	4506	1398	2179	2243	2364	775
3899	"	12:01	12:16	3.8	3.2		904	1160	235	7.8	228	0.6	653	226	331	358	318	124
3900	"	12:40	13:47	6.1	5.9		3966	7850	1032	69.6	963	14,0	4829	1658	1840	1908	2976	728
3901	"	13:47	15:13	4.6	4.6		5110	7857	1330	60.1	1270	6.9	4447	1521	2181	2177	2337	827

T1 LUMI	$\langle L \rangle$ $*10^{30}$	$\int L dt$ RUN	$\int L dt$ EXP	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	REMARKS
			224.1			2398	72		Scan PAB ca. p151
49	0.67	0.38	224.48	IBM	1,8	7	0	18,200	Beam lost
400	.44	3.18	228.66	IBM	1.6	46	0	"	New fill
142	.34	1.13	229.79	"	1.4	11	1	"	
145	.43	1.15	230.94	"	2.0	8	0	"	New fill
92	.29	.74	231.68	"	1.5	12	0	"	
354	0.51	2.80	234.48	"	2.1	31	2	"	New fill
167	0.29	1.34	235.82	"	1.6	17	0	"	
336	0.46	2.68	238.50	"	1.7	29	0	"	New fill
159	0,31	1,28	239.78	"	1.5	23	0	"	
139	0,63	1,10	240.88	"	2.4	10	1	"	
237	0.51	2,40	243.28	"	2.0	22	1	"	new fill
242	0.33	1.81	245.10	"	1,8	26	3	"	
102	0.26	0.76	~~245.87~~ 245.87	"	1.2	8	1	"	
292	0.57	2.31	248.18	"	2.0	26	1	"	new fill
231	0.35	1.79	249.98	"	1.6	29	1	"	
46	0.70	0.36	250.24	"	2.0	4	0	"	new fill, beam lost
352	0.60	2.82	253.06	"	2.2	43	0	"	new fill
261	0.41	2.10	255.16	"	1.7	29	0	"	Beam dumped for new fill
403	0.70	3.24	258.40	"	2.3	57	3	"	new fill
337	0.46	2.68	261.08	"	1.8	29	0	"	
266	0,33	2,10	263,18	"	1.5	18	1	"	
189	0,22	1,34	264,52	"	1,2	22	0	"	
26	0,17	0,20	264,72	"	1,2	3	0	"	Run ended by New Cards to change IBM on-line program
149	0,16	1,19	266,11	"	1,0	11	0	"	Normal ending
85	0,10	0,86	266,77	"	0,8	11	0	"	Stopped to enable new injection
385	0.59	3.06	269.83	IBM	1.8	41	0	"	new fill
96	0.41	0.75	270.58	"	1.4	6	0	"	Stopped for new filling
376	0.62	2.99	273.57	"	2.2	34	2	"	new fill
270	0.40	2.18	275.75	"	1.5	26	0	"	stopped for dump of beams
385	0.69	3.12	278.87	"	2.0	41	1	"	new fill
322	0.46	2.53	281.40	"	1.6	30	1	"	
38	0.33	0.30	281.70	"	1.3	5	0	"	stopped for dump of beams
383	0.77	3.04	284.74	"	2.2	42	1	"	new fill
337	0.52	2.68	287.42	"	1.7	41	3	"	
		≈282.5				3136	95		

(TOF)(1.5 GeV) (Tr33)(1.1 GeV)
(TOF)(1.0 GeV) (Tr33)(1.0 GeV)

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV

160

19 21 Finally going again. Run 3875

19 31 10 minutes into run. IBM Busy. 21 sec. Cumulative dead time for run so far only 5%

19 41 20 minutes into run. IBM Busy, very brief this time.
Inst dead time 3.7%. Run avg. 8.1%.
Was PLUTO to blame? Evidence inconclusive.

20:30 All the HV's are reset (by 'RI-HB')
for all the leadglass blocks (Barrel & End caps) S. Komamiya

20 58 End Run 3875 Stop to make standard histograms in view of Orito's request. LG Threshold 1 looks as if there is no threshold. Ask Mr. Minowa to look at it. He says it's ok. The other histograms look vaguely similar to the last spt.

→ Larry, you'd better to buy new glasses! sk.

22 03 We have several IBM hang ups of ½ to 1 min.
4 TASSO calls they want new filling but PKR says they can't do it now. They'll call back as soon as they can inject.

ON shift at TASSO: old friend of JADE D. Pandoulas. I ask whether TASSO football casualties were as heavy as JADE's. He isn't sure.
Goals: Jade 1 Tasso 1 Opposition put in hospital: Jade 1 Tasso 0
↳ 27/6/80 : recovered

22 12 Dump for new filling

23 24 Another fumbling effort to reinject. More than an hour.

27-6-80 Felst and Satz on shift

0 00 Beams lost
4 00 Beams dumped
4 20 new filling ready
7 05 new beams dumped, new fill
7 20 new fill ready
7 33 Beams lost, ID tripped

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan Plot on p151

27/6/80

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pm Komamiya, Warming on shift

8 57 New filling is ready. Run 3884 started

9 10 Cords calls up us. He says we have to look at the correlation between 'IBM busy' and 'on line jobs at PLUTO'. (They plan to test their chambers using IBM on-line in this morning)

9 20 IBM busy occurs every ~2 minutes, but it doesn't continue more than 3 seconds! no problem! event rate ~ 1.2 Hz

10 15 IBM busy comes up and sometimes it continues for 30 sec. (PLUTO is running)

10 30 Warming phoned to IBM and complained 'IBM busy'. ↳ Correlation is not clear.

11 00 Dmitrii, Komamiya on shift.
calm running

Please note completely for 10 min. During this 10 mins, there was over 30% dead time due to IBM busies. This seems to me to indicate that Pluto is not guilty. R. Marshall.

16:00 Matsumura & Darvill on shift.

16:20 Linac Kaput – therefore we stay with this filling as long as possible. They think they need at least 2 hours to repair it.
Although beam currents are now $I^- = 3.4$mA and $I^+ = 3.27$mA we have an event rate of 1,3 Hz and luminosity of $0,28 \times 10^{30}$

16:35 JDAS Error #00056 8 (TOF) Suberror #00371 Task 1 ?

18:05 Run paused to enable manchester to make a test involving cable changes on their corner.

18:15 Run restarted.

18:36 Herr Felst came and said that the Linac problem is likely to take 24 hrs since the electron gun must be replaced. At the end of this filling it is likely that the machine will be filled with electrons only. If we run on electrons only then for background measurements it is necessary to make changes to the Trigger – Hence we must call Fr. Naroska.
A telephone call by Herr Felst from here changes all this: It is now believed that although there was a vacuum failure on the Linac the filament is not broken. They are now pumping down the linac again and will be able to tell us by 21:00 hrs whether or not we shall have e^+ & e^- again this shift.

19:27 Herr Cords modified the IBM on-line program between Run No 3890 and 3891

20:06 JDAS ERROR 58 SUBERROR 405 TASK 1 (TOF)?

21:40 At the end of run 3891 we wait for a few minutes while the Matsumura repairs one amplifier which is found to be faulty in the inner detector electronics.

22:20 Tasso called back in response to an earlier call from us to say that the new filling is unlikely to take place before 2 or 3 am. Does this mean that having managed stable beams for 11 hours P.K.R. are going for a record which is unlikely to be broken?

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV

89015

11:32 Called Tasso again for a social chat as they were about to call us to update the last information:
It is predicted now that the new filling will not be until 3-4 a.m. The problem with the Linac is twofold: there was a vacuum problem and a filament problem and they say they now have to regenerate the filament.

11:41 PKR rang to confirm what we had already heard from Tasso.

11:42 PKR call again to say they have a few positrons and want to try injection

JUNE 28

0 00 Takeda & Loos on shift

0 20 PETRA has trouble with a stuck collimator.

2 25 New Filling

2 45 JDAS ERROR 56 SUBERROR 171 TASK 1 ← TOF : RUN 3892

4 30 Tasso requested new filling

5 20 New filling in the

PKR has to move all collimators manually

6 15 The first hadronic event appeared on this shift. God blessed us at last.

7 55 new filling requested for 8 15

8 00 Petersen and Drumm on shift

8 20 ~~Run~~ Run stopped, and beams dumped for a new fill (HV switched off)

9 10 new fill ready

calm running

12 16 stop for beam dump and new fill.

12 40 new fill ready. We start run.

A very stable and very good fill. At begin: $I^+ \approx 6.10^{\pm 00}$ mA, $I^- \approx 5.90^{\pm 80}$ mA. $L \approx 0.9 - 1.0 \cdot 10^{30}$

13 22 JDAS ERROR 56 SUBERROR 405 TASK 1 ← TOF Run 3900

13 47 Run 3900 has the highest <L> per fill (of 8000 events) for this running period up to now: $\langle L \rangle = 0.77 \cdot 10^{30}$

15 45 new filling requested for 16 00

calm running under good conditions

16 05 stop for beam dump and new fill.

16:05 Ball, Boudary, Hassard on shift.

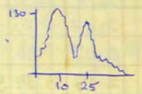
16:42 New filling ready. Start run 3903.

17:35 IBM busy + link timeouts. TASSO have same problem.

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan PMB on p151

18:00 IBM problems seem to have cleared up.
Stop run 3903 after 8000 events. Start run 3904.
Try to print standard hists. Unable to communicate with Tektronix.
Try ESC – then PUB etc, as per instructions on Tektronix. Doesn't work, phone Peter Dittman.
He eventually suggests re-load. This works successfully.
Resume histograms for run 3903 OK.
However, run summary and hists for run 3904 lost. Noted readings of TV scalars.
Start run 3905

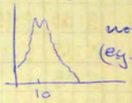
18:41 LG threshold 1 for run 3903 shows uncharacteristic 2-peak structure.



This has gone away in run 3905, but phone Minowa.
Minowa coming from computer building

Latch

instead of normally (eg. run 3817)



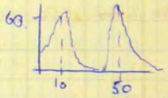
Krchlivel: Gate for Forw. Muon Counters ~~made~~ made earlier
to account for Clarks speeding of signals. 20 nsec earlier.
Old Delay Duodial Setting 9.20; New 9.04

19:31 TASSO call. Suggested refill at 19:45. We agree.

19:45 Stop run 3905. Beams dumped.

20:07 New filling ready. Start run 3906

20:20 Problem with LG has returned. Even more distinct 2 peak structure in LG threshold 1



Check thresholds on DVM. Get values. 678, 812, 740, 739, consistent
with values on table for α = 40mV, and α does = 40mV.
Ring Minowa – this time he's at home. Coming ~½ hr.
Data fetched.
also YVONTS ~~this~~ LG / BP Power Supply 1:183 should be 1.97.

20:40 Minowa / Data investigating ..... but the show goes on .....
Apparently it's an ADC problem. Some of the pedestals are not being properly subtracted.
Does NOT affect the trigger. YVONTS error can be ignored. Read error.

Using B. Naroska's → program HV B.N.

We check HV's of BP counters. Typical differences between actual and 'correct' values are 50 V. Some are more obviously wrong eg # 22 out by +300V
Although sample has errors similar to "typical differences" there are none so appalling eg # 22 is 40 V out.

Kuhn tried to read the ~~clock~~ actual and values !! an reference !!
Otherwise you have old Hard Data values in the program

← unfortunately, this is not made clear in the write up & example on JDAS folder!

21:18 Run 3906 finished after 8000 events. Start run 3907

21:27 LG ADC problem seems to have gone away. MHS still investigating.

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 ACC + POST P. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1 TR.	T1 LG>4 GeV
3902	28.6.80	15^{14}	16^{06}	3.8	3.8	$52\cdot10^{-9}$	3060	4188	796	31.9	764	2.3	2340	807	1217	1225	1183	462
3903	"	16.42	18.00	4.8	4.9		4412	7854	1148	120.9	1027	12.8	4811	1470	1955	1869	3010	680
3904	"	18.00	18.12	4.7	4.8		653	1037	169.7	10.0	158	168	593	201	247			
3905	"	18.18	19.45	4.1	4.2		5242	7638	1364	57.3	1307	4.9	4343	1411	2136	2117	2298	780
3906	"	20.07	21:19	4.00	4.00		4280	7859	~~1113~~	107	1005	11.1	4787	1512	1862	1890	2929	675
3907	"	21:19	22:08	4.00	4.00		2936	4470	763	36.4	727	3.6	2463	832	1172	1189	1327	473
3908	"	22:14	22:16	4.16	4.2		79	285	102	0.7	198	0.076	43	25	42	26	18	11
3909	"	2257	0:07	5.79	5.83		4138	7848	1077	90.5	1007	13.2	4694	1551	1934	1928	2831	687
3910	29.6.80	0:07	1:36	4.30	4.40		5289	7677	1374	64.0	1310	6.1	4288	1483	2174	2121	2250	776
3911	"	2:17	3:35	5.64	5.73		4630	7854	1205	68.9	1136	12.1	4594	1606	2027	2043	2608	710
3912	"	3:35	5:15	4.13	4.22		5710	7860	1487	58.9	1428	5.5	4302	1401	2331	2346	2036	890
3913	"	5:15	5:33	3.37	3.45		1002	1269	261	8.4	252	0.6	613	223	372	428	285	152
3914	"	6:05	7:15	5.93	5.98		4176	7852	1087	66.1	1020	11.9	4687	1575	1945	1946	2804	704
3915	"	7:15	8:46				5414	7863	1408	88.3	1352	5.8	4376	1465	2184	2210	2257	857
3916	29/6/80	8:46	8:55	3.50	3.57		451	587	117.4	5.6	112	0.3	298	128	176	162	140	82
3917	29/6/80	9:41	11:10	5.89	5.69		5322	9814	1385	84	1301	15	5873	2035	2407	2454	3471	858
3918	29/6/80	11:11	12:40	4.25	4.19		4976	7231	1295	55.7	1295	5.2	3885	1372	2095	2085	1935	822
3919	29/6/80	12:39	13:01	3.58	3.54		1304	1647	339	11.0	328	0.9	815	357	550	515	316	180
3920	29/6/80	13:25	14:38	6.2	5.9		4368	7842	1136	69.6	1067	13.7	4415	1870	2001	2064	2379	812
3921	29/6/80	14:38	15.56	4.51	4.44		4566	6417	1188	~~1150~~ 47.6	1140	6.1	3402	1525	1888	1898	1549	709
3922	"	15.56	16.46	3.8	3.8		2958	2963	769	214.9	554	1.8	1563	606	867	857	736	359
3923	"	17.08	17.34	5.8	5.8		2627	2571	385	71.2	313	5.9	1372	575	781	638	724	219
3924	"	17.36	19.03	5.0	5.1		5207	7860	1353	61.9	1292	10.8	4125	1972	2282	2400	1762	842
3925	"	19.04	20.00	4.0	4.1		3385	4242	880	34	845	3.4	2025	1008	1411	1389	669	536
3926	"	20.34	21.59	5.8	5.8		5093	7852	1323	68	1255	16.0	4037	2183	2381	2466	1533	791
3927	"	21.59	23.22	4.6	4.7		4928	7291	1281	53	1228	5.9	4121	1425	1991	2090	2153	790
3928	"	23.51	00.54	5.9	5.9		3787	7849	984	75	909	13.6	4851	1628	1783	1708	3219	702
3929	30/6/80	0055	0157	4.39	4.51		3655	6062	950	46	904	5.3	3536	1054	1495	1491	2161	667
~~3930~~	30/6/80	3930	DOES	NOT	EXIST			3931	only	300	events.							
3932	30/6/80	0269	0323	5.70	5.77		1965	4149	511	108	402	6.8	2761	800	828	786	2041	333
3933	"	0327		4.66	4.77		2482	4909	646	39.2	607	4.9	3107	882	1064	1065	2100	469
3934	"	0409	5.18	4.12	4.13		4075	6663	1060	486	1011	4.7	3967	1183	1668	1670	2414	696
3935	"	0545	6:42	5.95	6.06		3392	7853	882	74	808	11.2	5230	1471	1555	1571	3723	611
3936	"	0643	8:00	4.41	4.55		4579	7857	1141	58	1134	5.8	4725	1335	1923	1923	2925	741

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULTI HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS
142	0.37	1.13	288.55	IBM	1.4	9	1	18.200	499662.5	~~stopped for dump~~ of beams
341	0.61	2.68	291.23	IBM	1.8	38	0	"	"	problem with HC threst 1 – see histograms + P.183
	0.36	0.57	291.80	"	1.5	?	?	"	"	NORD 'crash'. Restarted. Numbers are from TV + manual counters
260	0.39	2.01	293.86	"	1.3	22	0	"	"	beams dumped.
343	0.65	2.76	296.62	"	1.9	34	3	"	"	
175	0.48	1.42	298.04	"	1.8	19	0	"	"	
3	0.34	0.03	298.07	"	1.8	0	0	"	"	beams dumped
310	0.60	2.48	300.55	"	2.2	29	1	"	"	
269	0.41	2.16	302.71	"	1.5	17	2	"	"	beam dumped
329	0.57	2.62	305.33	"	1.9	30	1	"	"	
256	0.36	2.07	307.40	"	1.5	24	0	"	"	
35	0.28	0.28	307.68	"	1.2	3	0	"	"	beams dumped
315	0.60	2.51	310.19	"	2.1	42	2	"	"	
265	0.39	2.10	312.29	IBM	1.5	21	0	18.200	-	
20	0.35	0.16	312.45	IBM		1	0	18.200	-	beams dumped
421	0.63	3.36	315.81	IBM	2.0	37	2	18.200	-	
268	0.42	2.10	317.91	IBM	1.5	28	0	18.200	-	stopped due to 'no trigger' problem.
57	0.37	0.48	318.39	IBM	1.3	2	1	18.200	-	beams dumped.
390	0.71	3.09	321.48	IBM	2.1	32	0	18.200	-	
257	0.44	2.02	323.50	IBM	1.5	38	1	18.200	-	
106	0.28	0.83	324.33	"	2.1	13	0	"		
119	0.65	0.96	325.29	"	1.9	10	0	"		New filling
352	0.53	2.36	328.05	TAPE	1.9	34	0	"		Tape no. F11109.
157	0.36	1.28	329.26	IBM	1.8	19	1	"		
395	0.62	3.14	332.40	"	1.6	36	0	"		
230	0.37	1.80	334.20	"	1.6	18	0	"		
296	0.63	2.40	336.60	"	1.9	24	2	"		NEW FILL normal end
192	0.41	1.49	338.09	"	1.6	19	1	"		ended because ~~1~~ IBM problem. Beams dumped.
184	0.52	1.02	~~339.11~~ 339.61	IBM	2.0	13	0	"		New filling. Run ended – IBM problem.
146	0.47	1.16	340.27	~~TAPE~~ 37	1.7	21	0	"		Tape F11137. Run ended after 5000 events
181	0.36	1.48	341.73	IBM	1.5	24	2	"		
252	0.60	2.05	343.78	"	2.0	26	0	"		
249	0.44	2.00	345.78	"	1.7	20	1	"		

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV

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29.6.30

Run 3907 in progress.

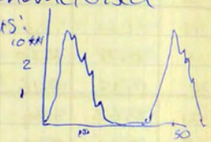
22:3. Ring round the experiments. Tasso 0.4 10^{30} MarkJ 0.5 10^{30} Cello don't know, were on 0.52 so Tasso want refill at 22:15

22:9 IBM problem 53 (oct) again. (2nd time tonight)
IBM problem 54 (oct). Try restarting the run after 300 seconds. (Stop run 3907)
(Start run 3908) Surprisingly, it works. I suspect it's a quirk of fate.

22:16 Beams dumped. end run 3908

22:57 Start run 3909

23:5. Dr Mirowa suggests the following: Every time one starts a run, one should check Lead glass threshold 1. Incorrect ADC pedestals are characterised thus:



The run should be restarted and the LG Threshold rechecked. If the problem persists please call Mirowa.
See page 183 for a sketch of a good profile.
Also- YVOLTS error on LG/BP HV appears to be unassociated with LG. A check program showed no LG voltage errors.

29.6.

0:00 Warming and Takeda on shift

μ crate 10 suddenly very noisy. (4 towers in μ chamber bitmap between chambers 290 and 450) Solved by changing 4 single card computer. However, there may still be a problem (crate cooling) If 4 towers (~10 bins wide each) re-appear, call expert. AB.

1:10 All the high voltages of LG counters are set correctly by means of 'RI-HB'.
1:25 TASSO calls. New filling in ten minutes.
1:35 RUN 3910 ended for a new filling.
2:17 Beam ready, RUN 3911 start
Lead glass threshold 1 was checked. No problem. OK,

3:30 JDAS ERROR ΦΦΦΦ56 (OCT) SUBERROR ΦΦΦ445 (OCT) TASK 1
4.15 ID trip (anode current)
4.20 JDAS Error 000044 Subroutine 000204 Task 1

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLott RUN	SLott Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan PGB on p151

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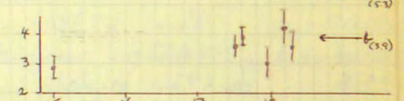
29.6.80

5.20 phoned ~~Tasso~~ to TASSO, because this fill is now more than 3 hours old. They say, that PETRA cannot ~~now~~ be refilled in the moment due to problems with the positrons. So we keep this till for the moment.
5.34 PKR announces new fill
6.05 new fill ready
8.00 Pearce/Nozaki on shift

8:45 Tasso want new filling at 8:55
8.55 Beams dumped.
9:40 New fill now available (after one failure)
9:60. Start run 3917
So far 62 ev in 196.28 nb^{-1} at 18.3 GeV ($R \sim \frac{4.3}{2.6}$) and 4300 in 116.2 nb^{-1} ($R \sim \frac{5.7}{3.6}$) at 18.2 GeV!
(mult by factor $\frac{0.8}{1.1}$ gives $R \sim 3.6 (\pm 3)$, $4.1 (\pm 10\%)$ or $R \sim 3.5$ for weighted average.)
12:40 Run stops with no triggers – pause/restart does not help. Stop run (3918) and start a new one – this solves the problem.
13:01 Beams dumped for new fill.
13:25 New filling ready.
Start run 3920
14:38 Start run 3921 LOOKECANN/NAROSKA on shift
15.86 stop run 3921 because of noisy lead glass
Start run 3922
15.50 30% deadtime due to IBM busy, try telephone all experiments, nothing but we seems to have the problem. The 2 errors happened (53 = timeout). After that it seems to have improved. Maybe FSB was working somewhere? IBM confirmed they did nothing.
17.02 New fill, start run 3923
adjust LG thresholds to 45 mV
HV on LG supply 19 nearly 20V wrong
(Last dumping message ???)

(~~empty~~) so far this book (-online!)

E_b	#ev.	nb^{-1}	R	$R \pm \frac{0.8}{1.1}$
17.5	102	288.43	5.0	$3.6 \pm .35$
17.9	24	95.75	4.13	$3.0 \pm .6$
17.5→17.78	368	971.29	5.43	$3.95 \pm .2$
14.95→14.97	57	154.88	3.8	$2.8 \pm .4$?
18.3	62	196.28	4.9	$3.56 \pm .45$
18.2 of 6 run 3919	46	122.14	5.75	$4.18 \pm .6$
Σ	659	1818.8	-5.4	$3.93 \pm .15$



17.35 Stopped run 3923 in order to switch over to mag. tape output (due to continuing IBM problems). 3924 started.
19.00 Run 3925 on IBM again. Program was moved to AA meanwhile and now we seem to run without problems (Eichhorn did that at IBM)
21.45 LG thresholds adjusted to level of 35 mV.
23.20 dump beams

RUN	DATE	START	STOP	I^+	I^-	Vac	TIME (sec)	NORD EVTS ACC.	ALL TRIGGER $\times 10^6$	T$\emptyset$ REJECT $\times 10^6$	T$\emptyset$ ACCEPT $\times 10^6$	T1 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV
188	30/6/80																	
	00.00	Stephan / Petersen. on shift.																
	0054	Run 3928 ends																
	55	3929 started.					LG. threshold OK after ~1600 events.											
	0200	IBT pissles.																
	0210	TASSO want to dump in 10 mins.																
	0211	we demande the run 3929.																
		Cannot get started — Go to tape.																
		Store run no Run 3930.																
	02.13	Run 3931 started to tape.																
		Muon crate 14 missing at run start.																
		beams dumped after only 300 events.																
	02.49	Run 3932 started	IBT OK.				LG. threshold OK.											
	03.15	IBT 'jammed' for ~ 5mins																
	03.22	IBT again jammed. and run 3932 and so to tape. F11137																
	03.28	Run 3933 started																
	0407	" ended	IBT 'cured'															
	0409	Run 3934 started	— IBT.															
	0501	TASSO want a new fill at 05.15																
	05.18	Run 3934 ended.																
	05.45	" 3935 started																
	06.42	" " ended																
	06.43	" 3936 started																
	08:00	Nozaki / Kawabata, on shift.																
	08:25	Cello called us. beam is dumped at 8h 30. For the new filling we change beam energy to 17.52																
	08:30	stop runs #3934. beam dump.																
	09:09	Filling is ready. Energy = 17.52 GeV. Run 3938 started.																
	12:40	New filling is ready. We changed the Experimental Number from 13 to 15.																

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLott RUN	SLott Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS
										Scan PLB on p151

13.00 Coords asked us to pause the run 5 minutes.
13.10 Restart run.
Event rate ~3 Hz. dead time ~12%. I_{e^+} = 8.6 mA. I_{e^-} = 8.6 mA
14.35 New filling is ready, but we cannot take IBM due to IBM busy
14.45 Beam lost
15:50 After run 3940: tagging lead-glass threshold on +z decreased to its value before ~~the~~ 30.4.80
(the problem with the high tag * 1track trigger-rate seems to have been settled. If it shows up again, i.e. tag * 1track > 2* lumi, tag * 1track > 15% of all triggers, contact W. Wallraff, please. Compare note on 30.4.80, p. 99).
16:00 Orito & Darvill on shift.

18:42 filling finished
18:57 Inner chamber trip
19:10 With 9 mA e^+ and 9 mA e^- high background the trigger rate ~3.6 Hz after filling
B.p about 2.4. ~30% dead time Increased the LG threshold from 1.0 GeV to 1.5 GeV.
The trigger rate about 2.9 Hz and dead time ~10%.

18:40 We don't understand what happened to run # 3941. There is no run summary sheet and I don't remember the run number which was on the screen immediately before this one started. I do remember that the last run displayed said that the run had lasted ~ 10 minutes and read no events.
Please note: the time of this entry records the time of the entry and not of the observation! That was, of course, immediately on starting run # 3942!

21:05 CELLO call to ask what luminosity we have at this energy and to say that they want to change to 17.51 GeV.

1/7/80 Ball, Elsen on shift
00:00

2:55 After ~5 hours stable beams again. Run 3945 started. Petra Control had tried to get stable beams > 10 mA during that time. They claimed their problems had nothing to do with the high currents but for this fill the initial current was below 9.5 mA.
BP ~ 2.1, event rate ~ ~~3~~ 2.5 Hz, dead time ~ 8%.
03:54 Run 3945 ended after 8000 events. Start run 3946. Histograms for 3945 look OK.
05:06 Run 3946 ended after 8000 events. Start run 3947.
06:00 Stop run 3947 to dump beams

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 ≥2TOF LG>1 ≥1TR.	T1 LG>4 GeV
190																		
3937	30.6.80	8.01	8.29	3.7	3.8		1650	2536	429	17.9	411	1.2	1473	410	671	695	814	297
									New Energy Scan									
3938	"	9:05	10:14	6.2	5.9		4117	7853	1071	55	1016	3.94	4616	1747	1594	1808	2864	773
3938	"	10:14	11:36	5.4	5.1		4884	7859	1270	66	1204	2.3	4217	1726	1845	1944	2377	907
3939	"	12:41	13:43	8.5	8.6		3055	7855	795	80	714.8	6.3	5096	1868	1264	1562	~~1562~~ 2446	696
3940	"	13:44	13:52	7.0	7.14		390	976	101	7.9	93	0.6	587	234	180	183	422	104
3942	"	18:43	19:35	10.3	9.7		2615	7857	680	139	541	11.4	5057	2472	1118	1738	2645	751
3943		19:36	20:38	8.3	7.8		3683	7857	958	62.6	896	9.7	4180	2870	1674	2161	1683	1010
3944		20:40	21:40	7.0	6.5	5.7 mg	3628	6245	944	47.0	898	5.3	3041	2010	1515	1796	977	864
3945	1.7.80	2:57	5:55	9.7	9.2		3490	7852	908	68.1	840	13.1	4160	2688	1669	2088	1368	861
3946	"	3:56	5:07	8.0	7.6		4265	7860	1110	59.9	1049	8.3	3825	2542	1826	2093	1328	1052
3947	"	5:08	6:00	6.7	6.3		3143	5075	818	35.2	782.9	3.3	2317	1355	1318	1435 ~~1761~~	709	682
3948	"	6:36	7:35	9.93	9.18		3508	7849	913	66.7	846	13.4	4121	2598	1694	2054	1313	890
3949	"	7:36	8:48	8.1	7.5		4279	7858	1114	62.1	1052	7.8	3747	2474	1852	2219	1089	1047
3950	"	8:48	9:41	6.8	6.2		3143	5010	818	37.6	781	3.3	2258	1521	1282	1447	665	718
3951	"	9:42	10:12	6.0	5.5		1821	2893	474	19.0	455	1.4	1299	722	747	835	358	417
3952	TDC Test run																	
3957	"	17:29	18:27	9.01	8.47		3452	7861	898	69.1	8286	11.1	4290	2642	1576	1920	1678	966
3958	"	18:27	19:41	9.67	9.19		4401	7863	1145	80.0	1065	6.4	4007	2462	1833	2113	1557	1040
3959	"	19.42		6.45	6.44		2178	3511	567	23.9	542	2.0	1666	1008	903	990	590	458

T1 LUMI	<L> $\times 10^{30}$	SLdt RUN	SLdt EXP	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS. Scan PbB on bis1
191										
64	0.32	0.52	396.30	IBM	1.6	8	0	18.200		
									4996650	
641	1.15	4.75	4.75	IBM	1.3	76	2	17.520		[illegible] IEXT=13
675	1.02	4.98	9.73	"	1.2	74	2	"		
600	1.44	4.41	14.14	"	1.8	57	3	"		IEXT=15 new filling Beam lost
70	1.23	0.48	14.62	"	.	7	0	"		
					~~2.9~~ 1.9			"		new filling
622	1.70	4.44	19.06	IBM	2.4	48	1	"	--	LG threshold 1.5 GeV
712	1.38	5.08	24.14	"	1.9	67	4	"	--	Normal ending
606	1.19	4.30	28.44	"	1.6	55 ~~78~~	2 (a)			Run ended to enable new filling
870	1.78	6.21	6.21	"	2.1	88	3	17.510	499,665	
915	1.52	6.50	12.71	"	1.8	79	4	"		
617	1.38	4.36	17.07	"	1.7	49	3		499 665.	
833	1.68	5.90	22.97	"	2.0	85	2	"	"	
885	1.45	6.21	29.18		1.5	77	2	"	"	
599	1.36	4.26	33.44		1.5	58	2	"	"	
343	1.33	2.42	35.86		1.3	36 ~~42~~	0 (b)	"	"	
				~~IBM~~	~~2.0~~			~~17.500~~		
			5.51							
785	1.60	5.51	~~41.39~~	IBM	2.0	81	3	17.500	4996650	New filling μ crate 6 missing at start
733	1.19	5.23	10.74	"	1.8	59	2	"	"	
351	1.11	2.41	13.15	"	1.4	32	1	"	499672.0	μ crate 3 missing at start. Beam Lost
					192					

Continued in new book

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 ACC + POSTP. $\times 10^6$	T2 ACC	T3 REJECT	T3 ACC	T2 COLLIN.	T2 $\geq$2TOF LG$>$1 $\geq$1 TR.	T1 LG$>$4 GeV	T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	SLdt RUN	SLdt Exp	IBM/TAPE	BP	BHABHA	MULT. HADRON	ENERGY E_B (GeV)	FREQUENCY (kHz)	REMARKS

Scan PGB on p151

192

07.07.80

06:30 New filling ready BP ~ 2.0. Start run 3948

07:35 Run 3948 ended after 8000 events! Start run 3949.

8:00 Nozaki, Warning on shift

9:22 JDAS Error 000056 Suberror 000405 Task 1

10:00 we request to Cello to make a new filling since we have got 35 nb^{-1}, Tasso x35, Mark J ≥40, Cello ≤30

10:12 beams dumped

11:05 Spikes on the DESY main power line caused ⇒ PETRA loosing the new fill, which was just about ready
⇒ Magnet fluctuation of JADE-solenoid
checked histograms:
1 forw. counter ADC dead – counter 31 is claimed to be dead but counter 33 (which does not exist!!) is claimed to be alive !!! i.e. total of 32 counters are working. Is this a display error – hardware looks alright.

11:30 PETRA down until 1:00 pm

13:00 PETRA down until 3:00 pm

16^{00} J. Allison & H. Takeda on shift
still no beam. They are trying to inject.

19^{00} Beam filled.
RUN 3953 started. but no triggers come in.
Try again RUN 3954. No triggers come in. All triggers rejected at T0.
⇒ RUN 3955 in fail.

Who made TDC test run (# 3952) ??
Called Krehbiel. ——— who says → Lemo T piece for Emergency Runstop was plugged in so as to hold down the white Reset Event Pushbutton.
RUN 3956 started, in fail.

17^{30} p-crate 6 reset
RUN 3957 started. ! Now OK. changed the situation and everything runs fine.

17^{45} ~~Lemo~~ JDAS ERROR 000044 (OCT) SUBERROR 000302 (OCT) TASK 1

18^{04} For TAGGING SYSTEM personal: Note large signal has appeared in LG block ≈ 190! Small signal every event? Checking

18^{27} RUN 3958 starts.

19^{05} JDAS ERROR 000044 SUBERROR 000504 TASK 1

19^{20} "Magnet Fluctuates" error occured. We checked BVM. It was 749.6 mT OK (standard is 750 mT)

19^{42} RUN 3959 starts. μ-crate missing Faulty part 3 → reset. ~~TAGG~~ TAGG LG OK again!

20^{19} " 3959 ended – beam lost.