JADE LOG BOOK V Runs 5202 - 6885

Ein Brunnen-Erzeugnis

JADE LOG BOOK

Nº V

RUNS 5202 – 6885

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HADRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG ? ≥1 TR	T1 LG ?4

T1 LUMI.	⟨L⟩ x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

17⁵⁰ on October 8TH 1980. Bartel/Pearce on shift. [We start a new book / new runsheet file / new filling / new energy and, who knows, maybe a new threshold.
Petra tripped on a water sensor trip. We await news.
Meanwhile we power down the JADE magnet.

21 25 Petra back at 17.970 GeV start run #5202
23 55 Tasso wants a new fill around midnight. ok with us

09/10/80

0:00 Cords & Sato on shift
1:30 our first luminosity
run 5205: error 44 suberr 703 task 1: time-out for DL8 crate
2 00 beams lost
5 05 new filling
7 00 jet chamber anode current has more trips than before.

The holes are the dead chambers 9, 3/4, 13.9, 17.1 and 17. 3/4. In the beginning of a filling one has often overflowing channels which bring the zero-line of the histogramm to negative values
Rbg

8 00 Weber and Rieseberg on shift.
8 40 Run 5210 started
JDAS ERROR 56 in TOF
9 05 LG thresholds are on 55 mV, should now be 35 mV. Not changed for the rest of this filling
9 15 stop for new fill.

11 00 PKR: A transmitter, which switched off several times last night, is now dead by experts. Therefore the injection was interrupted one hour ago.
North west hall: Water leak in the water circuit of the main magnet.
11.21 Decide to turn down magnet in order to fix water leak (Seidels estimate is: it will take ~ 1h) since the machine is not running anyway.
When the water cools down, several other flow meters start to leak! Mr. Seidel and Mr. Trogin try to tighten the leaks, but it is impossible in the given time, since the washers have to be exchanged. (Time needed about 1 day)
12 20 PKR: Still investigation of transmitter in south hall. Time estimate: 1h ± ?/2
JADE Magnet 4000 A: Leakage of only 1 flow meter (1 drop/sec ≈ 0.7 l/h)

15 10 BREAK, RESTART 3.00 PM changes to 4.00 PM
15 20 PKP: still busy with transmitter in south hall. But meantime also problems in North hall. Power switch of transmitter does not switch on.

9/10/80

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tϕ REJECT x10⁶	Tϕ ACCEPT x10⁶	T1 ACCEPT +POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3 TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1 TR	T1 LG>4
5202	8/10	21^{21}	22^{13}	7.1	7.4		3070	7834	799	93	706	32.3	4896	0	1005	1973	1713	1775
5203		22^{13}	23^{18}	4.7	5.0		3874	7846	1008	99	909	24.5	4764	0	981	2315	1610	1709
5204		23^{19}	23:57	4.3	4.4		2269	4049	590	89	552	10.5	2467	0	540	1255	673	1050
5205	9/10	1[illegible]48	2^{00}	6.5	6.8		635	1412	165	19	146	8.3	868	0	207	381	289	331
5206	"	5^{06}	5^{27}	7.3	7.6		2046 1398	6837	533	81	451	26.7	3809	0	871	1568	1226	1323
5207		5^{51}	6^{14}	6.3	6.5		1648	3186	363	36	327	11.7	1912	0	414	832	623	795
5208		6^{15}	7^{19}	5.5	5.7		3866	7843	1006	80	926	24.2	4744	0	1037	2288	1378	1971
5209		7^{20}	8^{40}	4.6	4.7		4710	7829	1225	73	1153	20.4	4719	0	1078	2509	1262	2091
5210	"	8^{41}	9^{13}	3.9	3.8		1932	2768	502	24.3	478	6.4	1733	0	375	1027	381	760
5211	"	18^{09}	18^{19}	7.4	5.9		824	2014	215	28.3	186	9.3	1338	0	416	584	392	358
5212	"	18^{25}	19:15	5.9	4.7		2953	6142	769	68.7	700.	24.5	3772	0	846	1732	1222	1360
5213	"	18^{15}	11^{19}	5.7	4.5		217	467	55	4.4	50.6	1.4	263	0	71	136	84	111
5214	"	19^{32}	20^{09}	5.3	4.2		2149	3935	559	39.1	520	12.0	2385	0	494	1300	660	937
5215	"	21^{56}	23^{01}	3.8	5.5		3815	7824	992	83.5	909	26.3	4895	0	1211	2351	1409	1788
5216	"	23^{01}	0^{15}	3.1	4.4		4375	7849	1137	74	1062	27.7	4728	0	1033	2492	1347	2108
5217	10. 10.	0^{15}	1^{27}	2.5	3.5		4265	5761	1109	59	1045	15.0	4139	0	791	2276	1184	1788
5218	"	2^{13}	3^{02}	6.8	7.2		2839	7477	738	115	623	30.1	4768	0	1035	1809	1763	1938
5219	"	3^{02}	4^{03}	5.8	6.0		3651	7851	949	82	866	26.9	4807	0	1111	2230	1504	1773
5220	"	4^{03}	5^{21}	4.5	4.8		4332	7809	1127	80.5	1046	22.9	4804	0	1220	2398	1333	2043
5221	"	5^{21}	6^{01}	3.3	3.6		2008	3782	522	37	492	8.3	2085	0	607	1147	455	779
5222	"	6^{29}	6^{44}	6.6	6.7		839	2425	218	37	181	11.1	1591	0	357	600	530	538
5223	"	7^{43}	8^{33}	6.7	6.6		2833	7484	738	100	637	30.4	4875	0	1230	1898	1594	1751
5224	"	8^{34}	9^{25}	4.5	4.5		3049	7835	794	107	686	28.1	4930	0	1072	1969	1802	1869
5225	"	9^{26}	10^{12}	2.5	2.6		2629	4403	684	49.6	634.6	16.0	3023	0	771	1507	880	1155
5226	"	17^{01}		7.6	8.0		213	812	55.5	38.0	35.4	3.6	520	0	145	190	205	140
5227	"	12^{32}	12^{45}	6.9	7.3		662	2009	172	367	135	9.7	1368	0	410	392	532	426
5228	"	13^{40}	13^{55}	6.7	7.0		823	2664	214	53	161	13.3	1842	0	442	630	736	526
5229	"	1401	14.50	5.6	5.8		2801	7447	729	105	624	31.4	4914	0	1034	1722	1816	1773
5230	"	1452	16.00	4.5	4.7		3410	7825	887	99.2	788	25.6	4874	0	1134	2143	1594	1877
5231	"	16^{02}	16:56	3.8	4.0		2966	5831	771	62.2	709	16.6	3614	0	865	1770	1049	1464
5232	"	16:58	17:32	3.4	3.6		2015	3164	524	29.6	494	8.9	1909	0	438	961	572	819
5233	"	17:34	18.12	3.1	3.3		2219	3160	577	27.8	550	6.9	1993	0	427	1075	537	829
5234	"	19:58	20:46	5.4	5.8		2828	7845	736	81.7	654	18.5	5071	0	1203	2020	1699	1693
5235	"	20.47	21:48	4.4	4.7		3694	7853	962	74.0	888	18.1	5021	0	1172	2263	1573	1793

T1 LUMI.	<L> x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

T1 LUMI	<L> (x10³⁰)	$\int L dt$ (RUN)	$\int L dt$	IBM/ TAPE	BEAM PIPE CURRENT	REJECT EVENT FRACTION OF COSMICS	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	REMARKS
										3
796	1.75	5.37	5.37	IBM	2.9	.68	36	3	17.97	
810	1.52	5.90	11.27	"	2.8	.68	71	0	"	
360	1.18	2.68	13.95	"	2.0	.68	26	1	"	Beam Dumped
122	1.34	.85	14.80	"	2.8	.67	16	0	17.97	New Filling ; beams lost
548	1.69	3.87	18.67	"	3.0	.69	43	2	"	
329	1.65	2.30	20.97	F22B64	2.5 2.4	.69	24	1	"	IBM PROBLEM 54 → TAPE F22B64
752	1.41	5.46	26.43	IBM	2.5 2.4	.68	59	1	"	
611	0.98	4.59	31.02	"	2.0	0.67	43	3	"	
174	0.69	1.33	32.35	"	1.7	0.70	16	2	"	NEW FILLING beams dumped for re fill
191	1.69	1.40	33.75	IBM	2.6	0.69	12	2	"	Run ended due to computer crash.
712	1.83	5.41	39.16	F22B40	2.5	0.67	37	0	"	WRITTEN TO TAPE.
48	1.65	0.35	39.51	IBM	2.2	0.74	2	0	"	
402	1.43	3.08	42.59	F22B71	2.0	0.72	25	1	"	Beams lost
747	1.55	5.90	48.40	IBM	2.2	0.70	49	1	"	NEW FILLING
644	1.14	5.01	53.41	"	2.0	0.70	45	1	"	
330	0.59	2.52	55.93	"	2.0	0.67	18	0		
688	1.68	4.76	4.76	"	3.5	0.71	44	0	17.98	New Filling ; New Energy
671	1.36	4.88	9.74	"	2.4	0.67	56	0	"	
552	0.88	4.25	13.99	"	1.7	0.67	57	1	"	
185	0.73	1.47	15.46	"	1.6	0.70	13	0	"	
209	1.63	1.37	16.83	"	3.3	0.65	9	0	"	New filling → Beams lost.
713	1.76	4.88	29.81	"	3.1	0.68	51	3	"	
533	1.25	3.80	25.61	"	2.5	0.66	40	0	"	
322	0.94	2.47	28.08	"	2.0	.67	25	0	"	Beams lost, chamber alarm
49	1.44	0.31	28.39	"	3.0	.69	5	1	"	beam lost.
143	1.40	0.93	29.32	"	2.8	.64	6	0	"	beams lost, collimer trouble in coll trigger
194	1.43	1.18	30.50	"	2.8	.69	10	0	"	
726	1.77	4.96	35.46	"	2.6	.69	52	2	"	
690	1.47	5.03	40.49	"	2.3	0.70	57	1	"	
474	1.23	3.64	44.13	"	1.9	0.66	33	1	"	Run terminated to allow I.O. adjustment.
247	0.93	1.87	46.00	"	1.6	0.67	21	0	"	" " " " " "
217	0.75	1.66	47.66	"	1.5	0.68	10	0	"	Run terminated due to beam dump
772	1.84	5.20	5.20	"	2.5	0.66	50	2	17.99	New Energy, New filling
699	1.35	4.97	10.17	"	2.0	0.66	57	2	"	

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT +POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1 TR	T1 LG>4

T1 LUMI.	<h> x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

16⁰⁰ B. King + P. Steffen on shift : still no beams
18⁰⁰ beam are back restart Run 5211
18¹⁹ IBM crashes : Message IBM PROBLEM 54 (OCT) appears. STOP RUN 5211.
I ring the IBM people and they say that the IBM will be off for more than 1 hour.
18²⁴ Start RUN 5212 : WRITTEN TO TAPE F22870 due to computer problems.
During parameter setting the following JDAS error occurs :-
ØØØØ51 (OCT) SUBERROR ØØØ165 (OCT) TASK 2.
Data continues to flow and the tape revolves.
19¹⁵ Run stopped to change back to ~~sending~~ sending data to IBM. — Run 5213.
19¹⁹ After 490 events IBM crashes again.
19³³ Run 5214 written to tape, F22871.

19⁴⁵ Muon crate 12 missing. Reset OK.
20¹² Beams lost.
21⁵⁵ beams back again
22³⁰ We ring TASSO since we now have well over 40 nb⁻¹. They say MarkJ has ~40 nb⁻¹ but TASSO has only ~30 nb⁻¹. Reluctant to raise energy for the time being.

10. 10. 1980

0.0 Felst and Totsuka
3.10 Muon crate missing -12-. Reset OK.
5⁰⁵ ID-trip
5²⁰ ID-trip
5⁴⁰ ID-trip
5⁵⁰ ID-trip
} 23/3
6⁴⁷ Beams lost
08⁰⁰ McCann, Olsson. Bucket emptied
8¹⁵ IBM Problem 00 (cod) occurs. Get Eichler on TSO, he says IBM-status NEW to be compared with N50 events. A small difference (<10 events) is seen. We will watch it.
8²⁹ ID trip HV 23 spark.
8³³ End Run 5223 - Start run 5224
~~8~~ 9²⁵ End Run 5224 Start run 5225
10¹⁵ beams lost due to HF-failure, ID-trip
12¹⁰ HV 23 sparkd ID-trip. Drop beam immediately after such
12²⁵ " " "

9/10/80

13⁴⁵ Tekbyte starts printing endless error messages Error 50 in 34761 at 1236666, was never, subrun 7
Eichler will comm; related to Code changes to program at launch? (not true)
Errors in VOLTS, TOFHV
14⁵⁵ HV 23 sparking
15⁰³ " " "
15⁰⁵ " " " Phoned Heinzelmann.
15¹⁵ JDAS error 56 SUB 405 TASK 1 — Beate is around but causing this!
16:00 Bell + Warning on shift
16:03 End run 5230, start run 5231
16:05 bucket emptied
10:50 I.D tripped. Reset
16:52 I.O. tripped. Reset

There was an unused LeCroy powersupply which caused these errors. We took it out of the chain (PS 59)

16:57 Run 5231 terminated to allow Riesebery to ~~adjust I.D. HV's (not needed)~~ disconnect 23.3 for a while
16:59 Run 5232 started
17 34 Run 5232 stopped to allow Riesebery to put in new resistor into the powerline of cell 23.3
→ 23.3 reconnected with reduced potential voltage
18:14 Run 5333 stopped as PKR wish to dump beam and store new till at new energy 17.994eV
18:55 new filling ready, but PKR has severe problems with the beams, lifetime is almost zero
our background is ~~the~~ 9.5 Volts, we are unable to switch on
within 5 minutes currents dropped to 28 mA/beam
All experiments agree to ask for a new fill
20:00 finally got new fill at new energy 17.99. Run 5236 started
20:47 Run 5234 ended, run 5235 started
21:50 Run 5236 started.
22:16 Bang heard coming from TEKTRONIX unit. Does not now work.
Fuse has blown, but noise was too loud for it to be only a fuse blown.
22:20 Phased Cards. He will come, as we wish to switch the graphics terminals over.
22:35 Cards arrived. Switched over graphics to right hand side terminal
22:45 I.O. trip. Reset.
23:08 Run 5236 stopped. Run 5237 started
23:13 TASSOphone. Shall have new filling in ~10 minutes.
23:25 Beam dumped. Run 5237 terminated. Short break.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT POSITRONS $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 $\geq$2TOF LG>1 $\geq$1TR	T1 LG>4
6																		
RUN	DATE	START	STOP	I^+	I^-	VAC.	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT POSITRONS $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR	T2 COLLIN.	T2 $\geq$2TOF LG>1 $\geq$1TR	T1 LG>4
5236	10/10/80	21:49	23:08	3.5	3.7	"	4546	7834	1197	71.0	1126	17.4	4845	0	1107	2610	1264	1817
5237	"	23:08	23:24	3.3	3.5	"	924	1271	240	11.1	229	2.9	778	0	179	460	164	330
5238	11/10/80	0:06	0:58	5.3	5.8	"	3119	7829	811	90.4	721	27.2	4946	0	1247	2204	1399	1788
5239	11/10/80	0:58	1:54	4.3	4.7	"	3579	6944	931	68.7	862	21	4307	0	1067	2180	1053	1753
5240	"	8:11	8:21	6.1	6.6	"	585	1592	152	21	131	6.1	975	—	373	443	224	317
5241	"	9:10	9:54	6.9	7.1	"	2595	7828	675	124	551	32	4782	0	1203	1910	1768	1746
5242	11/10/80	9:54	11:13	5.6	5.8	"	4667	9806	1215	119	1096	40.7	6100	—	1521	3014	1804	2168
5243	"	11:13	11:41	4.3	4.5	"	1582	2858	412	29	382	10.8	1799	—	442	973	486	636
5244	"	14:25	15:07	7.3	7.1	"	2476	7618	632	120	511	35.9	4982	—	1310	1816	1830	1697
5245	"	15:06	15:21	6.2	6.3		790	2493	206	29	206	9.1	1525	0	319	566	591	587
5246	"	15:26		5.8	5.9		368	1070	~~197~~ 95	12.4	83	3.7	664	0	169	257	241	247
5247	"	15:34	15:45	5.4	5.5		629	1762	164	19.7	163	6.4	1102	0	249	434	421	427
5248	11/10/80	15:46	16:12	5.4	5.5		1465	3666	379	39.8	339	13.1	2191	0	522	1011	687	876
5249	"	16:13	16:40	~~4.5~~ 0	~~4.6~~ 0		1543	3310	402	33.1	368	10.2	1978	0	462	938	618	786
5250	"	16:39	17:43	4.5	4.6		2792	6897	987	66.9	920	19.5	4135	0	903	2078	1248	1756
5251	"	18:09	18:52	6.9	7.2		2532	7837	659	100.4	559	24.4	5134	0	979	1740	2263	1789
5252	"	18:52	19:45	4.8	5.0		3100	7856	807	79.2	728	19.8	4960	0	966	1897	1971	1961
5253	"	19:44	20:47	4.7	4.9		3740	7851	973	71.9	901	16.8	4905	0	935	2161	1858	2077
5254	"	20:47	21:13	3.9	4.1		1493	2718	388	24.6	363	5.4	1743	0	360	809	616	698
5255	"	22:13	23:00	6.9	7.2		2753	7817	716	102.7	609	39.4	4997	0	1340	2040	1738	1664
5256	11/10/80	23:01	23:59	4.5	4.8		3466	7847	902	92	810	36.3	4887	0	1260	2349	1441	1742
5257	12/10/80	0:00	0:43	3.9	4.1	"	2572	5007	669	54	614	21.2	3077	0	815	1704	761	1182
5258	"	0:48	1:16	3.6	3.8	"	1647	2735	427	29.7	398	11.5	1767	0	480	1012	373	603
5259	"	1:54	2:34	5.6	6.0	"	2386	7836	620	12.4	495	35.5	5134	0	1242	1778	1713	1578
5260	"	2:34	2:45	5.3	5.7	"	633	2104	164	28.4	136	7.4	1373	0	245	452	486	424
5261	"	3:27	4:10	5.9	5.9	"	2450	7814	636	120	516	36.7	4484	0	1311	1903	1622	1743
5262	"	4:11	5:04	4.7	4.7	"	3204	7843	833	90	743	33.0	4840	0	1223	2259	1256	1803
5263	"	5:04	6:02	3.8	3.9	"	3425	5823	891	60	830	21.1	3626	0	~~1933~~ 918	1974	772	1418
5264	"	6:31	7:29	5.5	5.8	"	3499	7831	909	95	814	36.9	4684	0	1235	2407	963	1810
5265	"	7:30	8:48	4.1	4.3	"	4701	7844	1222	78.4	1144	24.0	4787	0	1140	2703	1007	1875
5266	"	8:49	9:28	3.6	3.8	"	~~2335~~ ~~3334~~	3328	613	38.4	582	8.4	2283	ø	452	1267	402	835
5267	"	9:55	10:47	5.6	5.6	"	2861	7842	705	109	636	26.8	5011	ø	961	1788	2129	1842
5268	"	10:46	11:56	4.3	4.3	"	4111	7849	1076	77.2	993	19.5	4792	ø	~~3366~~ 883	2258	1689	1887
5269	"	11:56	13:13	3.4	3.4	"	4589	7019	1184	65.8	1128	13.4	4293	ø	764	2231	1747	~~1783~~ 1784

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXPERIMENT	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION OF COSMICS	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	REMARKS
9										
T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ EXPERIMENT	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION OF COSMICS	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	REMARKS
848	1.46	6.71	16.88	IBM	1.8	0.68	48	3	17.99	
102	0.85	0.79	17.67	"	1.5	0.68	3	0	"	Beam dumped.
696	1.51	4.72	23.39	"	3.0	0.68	45	2	17.99	
551	1.10	3.93	27.32	"	2.5	0.68	43	2	"	Beam dumped.
160	1.94	1.13	28.45	"	*	.67	12	0	"	* see remark page 8
601	1.57	4.07	32.52	IBM	2.6	~~.70~~ .68	43	0	17.99	
893	1.53	7.14	39.66	"		.70	72	4	"	
207	1.05	1.66	41.32	"	1.8	.69	16	0	"	Beams lost
635	1.79	4.35	45.67	"	2.8	.67	32	0	"	
212	1.72	1.36	47.03	IBM	2.5	~~.68~~ .66	14	0	17.99	IBM link problem
93	1.76	0.65	47.69	TAPE R22CA1	2.5	~~.69~~ .67	3	0	"	Written to TAPE.
145	1.54	0.97	48.66	IBM	"	~~.68~~ .67	9	1	17.99	
343	1.72	2.51	2.51	IBM	2.2	~~.70~~ .71	18	0	18.000	NEW ENERGY with same filling.
341	1.67	2.57	5.08	TAPE F22CA1	2.0	~~.69~~ .66	22	2	"	I RUN CDISK OVERFLOW, WRITTEN TO TAPE
662	1.36	5.16	10.24	IBM	2.0	.65	54	1	"	
580	1.40	3.55	13.79	IBM	2.8	6%	45	1	"	New filling
620	1.35	4.19	17.98	IBM	2.0	.67	43	2	"	
575	1.11	4.16	22.14	IBM	2.0	.64	39	2	"	
180	0.90	1.34	23.48	IBM	1.7	.71	15	ø	"	
617	1.69	4.65	28.13	IBM	2.8	.66	44	3	"	New filling
620	1.41	4.87	33.00	IBM	2.5	~~.68~~ .67	36	0	"	
343	1.06	~~2.72~~	35.72	"	2.0	.65	21	1	"	Run ripped as no triggers recorded for 140 seconds.
178	0.85	1.4	37.12	"	1.7	.67	10	0	"	Beam dumped
584	1.26	3.01	40.13	"	3.0	.65	34	0	"	
156	1.00	0.63	40.66	"	2.6	.62	3	0	"	Beam lost.
639	1.62	3.96	44.62	"	3.1	.66	37	2	"	
726	1.39	4.44	49.06	"	2.5	~~.65~~ .65	37	2	"	
439	0.94	3.23	52.29	"	2.0	~~.68~~ .68	33	2	"	Beams dumped
951	1.92	6.71	59.00	"	2.8	.67	69	3	"	
781	1.26	5.93	64.93	"	2.2	.67	56	2	"	
272	0.89	2.11	67.04	"	1.6	.74	25 (60)	1 (3)	"	
658	1.51	4.32	4.32	"	2.8	.64	38	ø	18.000	
856	1.59	6.55	10.87	"	2.2	.68	62	4	"	
664	1.09	4.99	15.86	"	1.8	.65	46	ø	"	

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT +OSTRONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG74

T1 LUMI.	⟨L⟩ x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

11/10/80

0:00 ELSEN + BAMFORD ON SHIFT

1:50 TARO PHONE TO TELL US PKR WANT TO DUMP THE PRESENT BEAM BECAUSE THEY ARE HAVING RF PROBLEMS

1:52 PKR " " " " THE SAME THING.

2:00 BEAMS DUMPED - SHORT BREAK

7:30 Short breaks over - finally.

7:35 When switching on BP-current ≈ 7.0. PKR will try to correct orbit.

7:50 STILL UNABLE TO SWITCH ON, PHONE TASSO THEY ALSO HAVE SAME PROBLEM

good Pearce Heinz 8 scintillation chambers to see the background here. Chamber is quiet, so it must be a beam pipe chamber looking the wrong way.

20 Over 30% of beam pipe current is coming from tube #9. Obviously a noisy tube. We take this one out of the current monitoring box

8:10 Start Run 5240

8:21 Beams lost.

9:20 Histograms look ok

10:05 IBM hung ~ ½ min

Beam pipe counter #16 reinstalled in B.P. current monitor as it is seen to have only a normal effect once more.

11:43 Beams lost

12:00 Hans ⇄ Olsen

13:45 DESY repairs a kitchen. I hope about to end?

15:05 IBM link problem - #53 and then #54 (OCT) We call F58 and complain.

End run 5246

Start run 5246 writing to TAPE

15:33 IBM link problem cured. Return to using IBM link.

15:33 Start run 5247, IBM link

15:44 Energy changed to 18.0 GeV in mid-fill.

16:00 Cords / Minowa

16:12 IBM DISK OVERFLOW STOP RUN 5248

START RUN 5249 : Written to TAPE F22CA1.

Many tape units on IBM are switched off because they cause errors.

17:45 beams dumped because TASSO requested new filling.

18:12 new filling

20:45 emptied the bloody lucht

21:15 ~~new filling~~ beams dumped

22:10 new filling

12/10/80

0:00 Bell, Heier on shift Run 5257 started.

0:47 Run 5257 stopped as we had no triggers. This seemed to be caused by our changing the attenuator. However run 5238 started with triggers, so all is well

1:17 Run 5258 stopped as PKR are to refill

1:55 Run 5259 started with new fill.

2:36 Run 5259 finished, run 5260 started.

2:37 Standard Histograms of Run 5259 checked, seems o.k.

2:47 Beam lost. Run 5260 stopped.

3:27 New fill. Run 5261 started

3:30 I.P. tapped. Run paused.

4:11 Run 5261 ended. Run 5262 started

5:03 Run 5262 ended, Run 5263 started

5:05 We phoned TASSO for new energy with the next Filling. They have big problems at the moment. So we agreed to continue with 18.000 GeV.

5:20 TASSO wants orbit corrections at the beginning of the next Filling, we agreed

5:35 PETRA makes 'horizontal + local' orbit corrections already in this filling → our BP-current goes down by ≈ 5%

6:02 Run 5263 stopped, Beams dumped

6:30 Run 5264 started

7:15 a little bird came throught the window and ~~went into~~ landed a ten of the μ-chambers

Who's been playing Adventure ?!!!

7:31 Run 5264 ended, run 5265 started

8:00 McCann & Matsumura on shift

8:48 End Run 5265 Start run 5266.

9:00 We have 65 nb⁻¹ at end of run 5265. TASSO have only 26 nb⁻¹ !!! (at 18.00 GeV) MarkJ also have ~ 60 nb⁻¹

Agree to dump beams at 9:30 and move up in energy.

9:30 End run ~~2~~ 5266 for beam dump.

9:50 New filling ready, according to PKR. Initially background very high, BP ~ 4.0, so we wait for fall-off.

9:55 BP ~ 2.8, so start run 5267

Mon Coats Missing 12, 6

Orbit corrections to improve background at Tasso

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT +POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4	T1 LUMI.	<L> x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)
10																												
5290	12/10/80	16:36	19.31	5.35	5.54	6×10⁻⁹	3211	7835	835	192	664	19.1	5121	Φ	973	1751	2075	1734	570	1.00	3.20	19.06	IBM	2.2	71%	40	1	18.01	
5291	s	19:30	18:54	3.89	4.05		4813	7399	1253	65.4	1187	15.6	4533	Φ	874	2365	1384	1953	591	0.92	4.43	23.49	"	1.6	67%	53	Φ	"	Beam dumped
5292	"	21:23		6.92	7.30		226	761	59	11.6	47	3.2	468	Φ	142	193	154	150	89	2.47	0.56	24.05	"	2.7	74%	6	Φ	"	Beams lost
5293	13/10/80	00:41	01:38	5.4	5.8		3347	7825	871	97.4	774	36.7	4992	Φ	1042	2148	1704	1703	789	1.66	5.55	29.60	"	2.6	67%	66	2	"	
5294	"	01:37	02:46	4.4	4.7		3995	7157	1040	79.0	961	23.9	4943	Φ	896	2254	1852	1876	701	1.32	5.26	34.86	IBM	2.1	70%	45	3	"	
5295	"	02:45	04:10	3.4	3.7		5075	7844	1320	70.2	1250	17.5	4640	Φ	877	2458	1381	2009	852	1.33	6.77	41.63	"	1.8	67%	66	3	"	
5296	"	04:10	04:29	3.3	3.5		1098	1436	286	12.1	274	2.9	883	Φ	164	491	245	364	126	0.93	1.02	42.65	"	1.35	68	9	0	"	beam dumped
5297	"	04:59	05:51	5.2	5.7	5.7·10⁻⁹	3071	7435	799	89.0	711	27.3	4961	Φ	1008	1875	1902	1828	694	1.44	4.43	47.08	"	2.40	68%	35	2	"	
5298	"	05:52	06:58	4.2	4.6		3943	7118	1026	76.2	950	21.2	4755	Φ	876	2245	1568	1935	842	1.58	6.21	53.29	"	1.9	74%	69	0	"	
5299	"	06:58	8.14	3.3	3.7		4509	7348	1173	66.9	1107	16.5	4406	Φ	778	2270	1436	1905	686	1.19	5.35	58.64	"	1.5	67%	50	2	"	beam dumped Access begins.
5300	"	19.50	} only pedestal events to IBM because of Camac problems																				"					
⋮																							"					
5292	"	21.30																					"					
5293		21.40	22.03	4.7	4.5		1297	2516	337	164	172	8.1	1979		100	285	1505	304	94	0.66	0.86	0.86	IBM	2.0	69%	3	0	18.02	} partially. branch 5 crate 3 or 4 missing
5294		22.05	22.08	4.6	4.4		166	275	43	23	20	0.3	207		16	44	159	32	13	0.59	0.10	0.96	"	"	65%	2	0	"	
5295		22.22	22.55	4.2	4.1		1975	6213	514	87	426	6.0	4882		242	801	8760	810	301	1.08	2.14	3.10	"		66%	19	1	"	
5296																												
5297	14/10/80	01.50	02.14	6.2	5.8		1646	4769	428	81	347	15.6	3360	Φ	360	875	1850	812	427	1.46	2.40	5.50	"	2.5	65%	12	0	"	never really started (CAMAC problem)
5298	"	0233	0230	5.4	5.0		3391	7858	882	82	800	21.9	5137	Φ	656	1718	2098	1609	780	1.21	4.10	9.60	"	2.0	70%	45	1	"	
5299	"	03.31	04.31	4.7	4.4		3575	7231	930	68	861	16.8	4724	Φ	589	1811	1731	1531	692	1.08	3.87	13.47	"	<2.0	67%	40	0	"	Beams dumped
5300	"	05:36	06:15	6.9	6.8		2325	7841	604	184	419	31.4	5601	Φ	636	1253	2439	1252	691	0.91	2.11	15.58	"	2.7-2.8	68%	30	0	"	Normal except high background → modest luminosity
5301	"	06:16	06:54	6.1	6.8		2293	7476	597	106	491	23.1	5032	Φ	610	1348	1963	1376	766	1.37	3.14	18.72	"	2.4	68%	32	1	"	Beams lost
5302	"	9:32	9:43	8.1	7.9		627	1991	163	100	63	5.7	1482	-	168	234	665	245	191	.66	.42	19.14	"	2.5	64%	6	0	"	beams lost
5303	"	10.27	11:07	7.8	7.5		2388	7834	621	140	481	27.8	5529	-	623	1314	1798	1320	950	1.25	2.99	22.13	"	2.6	69%	39	2	"	
5304	"	11.07	11:37	6.8	6.3		1776	5404	462	73	389	14.4	3640	-	799	981	1186	964	698	1.74	2.38	24.51	"	2.1	65%	35	3	"	beams lost
5305	"	14.45	14.52	7.3	7.0		397	1340	103	21	81	4.5	910	-	111	274	292	218	153	1.29	0.51	25.02	"	2.3	62%	6	0	"	beams lost
5306	"	17.22	18:01				2311	7845	601	127	474	21.6	5535	Φ	607	1255	2178	1241	794	1.15	2.67	27.69	"	3.0	69%	31	0	"	
5307	"	18:01	18:46	6.0	5.9		2660	7857	692	93	598	17.3	5343	Φ	553	1389	2078	1449	831	1.20	3.18	30.87	"	2.4	67%	34	0	"	
5308	"	18:46	19.03	5.3	5.2		1016	2902	264	28	239	5.6	1831	Φ	181	511	711	507	286	1.31	1.33	32.20	"	2.4	69%	19	0	"	same fill
5309	"	19.05	20.02	5.1	5.0		3402	7854	885	74	811	14.9	5265	0	536	1637	1954	1479	858	1.28	4.36	4.36	"	2.3	69	39	0	18.03	
5310	"	20:03	20:30	4.5	4.4		1557	3013	405	68	337	4.9	2008	0	229	671	739	622	282	0.90	1.41	5.77	"		69	15	0	"	Beam dumped (!)
5311	"	21:18	21.59	6.7	6.3		2441	7843	634	104	530	21.4	5433	0	520	1302	1906	1277	879	1.30	3.17	8.94	"	2.6	67	34	3	"	New fill
5312	"	21.59	22.47	5.0	4.7		2859	7847	743	78	665	16.1	5284	0	538	1465	1797	1454	862	1.40	3.99	12.93	"	2.2	66	44	2	"	
5313	"	22.47	23.44	4.4	4.1		3406	7856	886	72	814	14.1	5219	0	540	1610	1813	1602	807	1.16	3.34	16.87	"	1.9	68	39	1	"	
5314	"	23.45	0:06	4.2	3.8		1261	2644	328	23	305	46	1733	0	193	623	559	573	265	1.12	1.41	18.28	"	1.7	65%	13	0	"	

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HOSTPONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG≥1 ≥1TR	T1 LG≥4

T1 LUMI.	⟨L⟩ x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

12-10-80

16:00 Takeda & Warming on shift

16:36 RUN 5270 started. 18.01 GeV
LG threshold 45 mV.

17:30 RUN 5270 stopped. 5271 started.

~~17~~:58 ID Trip (anode current)

18:45 Tasso calls and says "The beam will be dumped in 5 minutes. And ~~PETRA~~ PKR people want to check the background problem for half an hour". I agreed.

18:54 End run 5271.

21:20 new fill ready, RUN 5272 started.

21:25 Beam lost. ID tripped. End of RUN 5272
"SHORT BREAK" starts (until ?)

22:45 start injection

22:50 new message on screen "restart (tomorrow morning) 1:00 am" Lets on dumped to 11:30 pm

13-10-80

00:00 Ball & Watanabe on shift

00:20 New filling ready.
Try to switch on. ID ~~trip~~ alarm. Unable to reset. No anode or chain current alarm. No alarm indicated on alarm interupt register. Temperature OK (17.2). Magnet OK. Only NOT NUS light + we can't reset it. Phone Peter Warming. He will come back.

00:41 Start 5273 P. Warming quickly fixed the problem.
Comparator for UD3 failed. By switching Fluke a little bit higher, I got it working again. Continued working after switching back to nominal value.

01:00 Histograms look OK. LG threshold 35 mV.

01:20 LG threshold 20 mV

02:00 Bucket emptied

03:40 LG threshold 15 mV

03:45 Std. Histograms inspected. OK. (run 5275)

04:15 Tasso call. Want to refill at 4:30. OK with us.
They only have 15 nb⁻¹. We have ~ ~~35~~ 40 nb⁻¹. New fill probably at same energy, unless other expts. disagree.

04:30 beam dumped.

05:00 New fill ready. But BP voltage ~~over~~ off scale! Tried all cables just in case! Yes #16 is causing it. 4 disconnected. (see p8 also)
" Run 5277 started. μ-crate #3 missing reset OK.

06:00 Mark J call. Have requested orbit corrections to improve their B.G.
Check std. hist of 5277. OK.

07:15 LG. threshold 10 mV. Std. Hist of 52~~7~~8 ok.

08:05 PKR phone. Beam will be dumped in 10 mins.

08:00 Pearce, King on shift.

08:20 Beams dumped. Access begins. Magnets wound down. Water pumps switched off (Pearce compressor + magnet).

16:00 Heinzelmann & Hardt & Wenninger on shift
Access extended to 17 h

19:30 Start run - problem with ID branch 5 JDAS ERROR ECBr5 i.e. Camac branch 5 crate 4 off line
action: exchange twice Cratecontroller no success, exchange Camac branch cables ⇒ crate 4 on line but JDAS ERROR 44 Br. 5 i.e. line ont Branch 5 Crate 2 and Crate 4
action: exchanging cables between LAM Gradus and Crate controller, LAM Gradus and Crate controller ⇒ finally ok, only bad contacts. Inspection of Histograms showed:
1, wire map for chamber 2 badly ok when run Crate 4 Br. 5 missing
2, LG-threshold to low

21:00 Beam lost

14/10/80

00:00 Mirowa and Bowdery on shift. Heinzelmann remains to check ID when new fill ready

00:37 PKR seem to have acceleration problems. We are stuck at 14.399 GeV/beam.

00:44 Eventually the beams are lost. We wait. PKR say they have a transmitter problem. Heinzelmann leaves.

01:06 "Kurze Unterbrechung" on TV

01:45 Fill ready. Run 5296 began but CAMAC problem (BR 5 CR 3) terminated it after only a couple of events. Mirowa initialised it and it seems to be OK now. We still have gap in ID wire map. We phone Heinzelmann ⇒ he will come

01:57 LG-Threshold set to 35 mV

02:00 We get a regular message on graphics screen before event plotting #15 NON-INCREASING WIRE NUMBER 976 72

02:26 Run terminated after excessive CAMAC Time Outs (BR5 CR3) ⇒ exchange to Suicali branch cables ⇒ o.k.

02:40 All errors now fixed. We continue. $\mathcal{L} = 1.27 \times 10^{30}\ cm^{-2} s^{-1}$ Event rate = 2.2 Hz Dead Time = 9.7% BP = 2V

04:12 JDAS Error 56 TOF Bank wrong length

04:31 Beams dumped (MARK J's proposal to which we agreed)

05:10 New fill ready but at the instant we were going to power up to stage 2, PETRA lost nearly all its current

MARK J now coordinating

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HADTRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG≥1 ≥1TR	T1 LG≥4	T1 LUMI.	⟨L⟩ x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

14/10/80

05:38 New fill ready. Crate 10 of μ system needed re-setting.

05:57 High event rate (7.4 Hz) + high background ⇒ 35% dead time ; $\langle \mathcal{L} \rangle = 0.89 \times 10^{30}\ cm^{-2}s^{-1}$ (a bit low)

06:55 Beams suddenly lost

Histograms show an unusual shape for the BP + TOF counter multiplicities ⇒ should be looked at by an expert in the morning, we think.

JADE 18.72 nb⁻¹ MARK J ~32 nb⁻¹ TASSO 16 nb⁻¹

07:41 PKR again lose almost all of the beam after acceleration to 18.0 GeV. Schade!

seems to be a question of background

8.00 Allison + Kenny

8.40 Short break according to TV-screen (1 transmitter mining)

9.40 Background conditions look normal, event rate 3.8 Hz (2×8 mA), 50% dead-time

9.42 Background gets very bad (3-4 V on beam pipe chs)

Most of our events are LG > 1 GeV, LG-threshold doesn't look ok

9.43 Beams lost - transmitter failure.

10.17 Filled and accelerating.

10.25 BP current high. A telephone call to PKR revealed that 1 collimator was not in.

10.27 Run started.

Tobuka is still working on LG thresholds

Background v. bad — 40% deadtime.

JDAS ERROR: 000044 SUBERROR 000701, 603, 403 (they happened during background fluctuations)

Tobuka says, beam conditions (probably in forward direction, since bg in jet-chamber looks normal) are bad and therefore causing the additional triggers. Also tagging ≥ 1 track is too high (forward peaked background!). LG-thresholds raised a bit.

11.38 Beams lost

12.40 "BREAK - RESTART 2 PM" (Trouble with transmitter)

14.32 Accelerating again (after 1 abortive acceleration).

14.43 18.02 achieved — high background (BP current fluctuating in bad 5-10 V)

14.55 BP-current fluctuations only from ch. #21. I took it out ~ 17:23

16.00 Naroska + Takeda

16.40 Beams lost at ~11 GeV

17.25 Got beams at 18.02 GeV ~4 Hz 30% DT LG threshold adjusted to 45 mT

1 beam very bad : e^+ probably, especially the forward detectors (LG Endcap and tagging) show high rates at +z.

18.01 End run 5306. RUN 5307 start.

18.46 " 5307 " 5308 "

18:50 Mark-J called and asked our luminosity. ~30 nb⁻¹ (Mark-J has 49 nb⁻¹!)
They proposed the increase of energy at 19:00 I agreed

19:00 RUN 5308 stopped And the energy will be increased.

19:05 Now the beam energy is 18.03 GeV. RUN 5309 started.

20:02 RUN 5309 stop. RUN 5310 start.

20:30 RUN 5310 stopped for a new fill.
Not a single hadronic event so far in our shift. How unlucky we are!

21.10 And again we arrive at 18.03 GeV, background 4.5

21.18 Now background is 2.5. start run 5311 trig rate ~4 Hz 15.5% DT
μ-crate missing Faulty part. 13. → reset.
Dripping flow meters seem to nearly have ceased dripping. Hardly any increase in water level.

22.07 JDAS error 56 Suber. 405 TOF bank wrong length

23.20 LG threshold adjusted to 40 mT.
Background strongly forward, at positive z a factor 2 more than at negative. Maybe one should try some bumps, moving collimators or ?? next filling.
Agreed with PKR to move collimators ~10 mm before the end of the filling to find the minimum. Maybe one should watch the dandelcument then.

0.00 Moved one and more collimator on both sides, no improvement.

"SHORT BREAK" until 07.40

8.00 Haeger, Ohldt

8.34 Beams lost

10:00 Break will last for about another 30 min. - talk PKR

12.15 beams are back, but PKR people are repairing our Collimator control
BP background at present 5-6 V

12.35 Collimator work interrupted

12.45 Run gets finally started, after link problems due to wrong link program (after Frehse + Cords tests)
Run 5317 has 1 event due to these link troubles

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACCEPT +POSTPONE $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 $\geq$2TOF LG$>$1 $\geq$1TR	T1 LG>4
5315	15.10	7:40	8:26	5.2	4.5		2708	7843	705	150	554	15.3	5462	0	521	1307	1559	1315
5316	"	8:26	8:34	5.1	4.4		460	1353	120	12	108	2.1	801	0	81	221	241	208
5317		IBM	Link	problems														
5318	"	12.43	13.20	4.9	5.6		1593	3335	474	100	373	accept 1707	7 930	0	-	-	-	772
5319	"	13.35	14.03	4.1	4.7		1608	3927	3886	36	434	8.1	2549	0	313	837	848	822
5320	16.10	16:55	17.26	8.0	8.2		1625	5560	423	227	196	35.7	4076	0	396	746	1373	695
5321	"	17:58	18:36	8.1	8.0		2252	7848	586	363	223	25.0	5961	0	470	843	1681	892
5322	"	18:37	19:12	6.7	6.7		2090	7859	543	242	301	15.7	5656	—	470	860	1769	1131
5323	"	19:12	19:16	5.8	5.9		210	851	54	20	34	1.5	569	—	62	112	201	126
5324	"	19:18	19:54	5.2	5.2		2107	7862	548	133	415	15.5	5407	—	540	1080	1768	1319
5325	"	19:54	20:33	4.7	4.7		2306	7853	600	113	486	17.7	5377	—	676	1272	1614	1328
5326	"	20:33	20:54	4.6	4.6		1215	4527	316	92	224	8.4	3097	—	305	623	1391	691
5327	17/10	0:52	1:31	6.2	6.6		2327	7837	604	159	445	45	5353	—	804	1547	1912	1342
5328	"	1:31	2:19	5.5	5.9		2860	7843	743	104	638	42.4	5709	—	949	1875	1578	1482
5329	"	2:20	2:53	5.5	5.9		1927	4819	501	57	444	21.7	3051	—	565	1183	911	960
5330	"	3:33	4:18	5.8	6.1		2726	7835	709	112	597	46.8	4431	0	958	1785	1444	1516
5331	"	4:19	5:15	5.0	5.4		3360	7848	874	96.3	778	38.5	4946	0	876	2023	1480	1570
5332	"	5:16	6:26	4.4	4.7		4212	7848	1096	87.9	1008	33.7	4825	0	869	2373	1291	1758
5333	"	6:27	6:46	4.38	4.66		1157	2084	300	21.3	279	7.4	1292	0	241	677	369	480
5334	"	10:16	10:43	6.3	6.8		1430	3951	372	129	244	29.4	2558	0	645	1027	841	864
5335	"	10:48	11:15	5.8	6.3		1578	4379	411	77.3	334	33.9	2738	0	595	1147	931	985
5336	"	11.21	1141				~~3408~~ 1161	3408	302	515	251	23.8	2067	0	499	951	593	828
5337	"	16:30	17:06	6.1	4.6		2123	7841	553	2.2	341	22.3	5748	0	503	979	1856	1150
5338	"	17:09	17:36	5.5	4.1		2236	7825	583	342	241	14.5	6182	0	316	643	1671	907
5339	"	18:00	18:07	5.4	4.0		387	1226	101	89	12	0.8	1125	0	11	25	337	58
5340	"	20:57	21:54	5.5	5.7		3402	7814	883	128	755	66	5020	0	1256	2504	1073	1454
5341	"	21:54	22:39	5.0	5.1		2641	5484	686	82	614	33	3393	0	802	1733	896	1171
5343	"	22:48	23:48	4.4	4.6		~~3686~~	~~4669~~	9.7	16	910	.25	42	0	9	18	16	1553
5344	18.10	23:48	23:50				JUNK											
5345	"	23:51	0:12				JUNK											
5346	18.10	0:52	1:45	5.8	6.3		3147	7815	898	142	666	67.4	5463	0	1218	2229	1764	1526
5347	"	1:52	2:55	4.9	5.4		3375	7833	982	169	874	52.3	4867	0	1283	2578	1868	1728
5348	"	2:56	3:47	4.4	4.9		3058	5339	796	66	729	27.4	3215	—	780	1840	786	1205

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI-HADRON	BEAM ENERGY (GeV)
838	1.08	2.94	21.22	IBM		63%	33	2	18.03
133	1.35	0.62	21.84	"	1.6	63%	5	0	"
	—	—	—			—	—	—	
	~1.0	~1.60	23.44	IBM	1.7	-	?	?	"
379	0.98	1.63	25.07	"	1.5	67%	18	0	"
534	0.50	0.82	25.87	"	3.5	67%	10	0	"
728	0.33	0.93	26.60	"	2.7	73%	27	1	"
792	0.77	1.61		"	2.0	3*	27	0	"
84	0.85	0.18		"		3	3	0	"
778	0.87	1.83	30.22	"		4	29	1	"
845	0.74	1.71	31.93	"	1.5	5	24	0	"
521	0.15	0.18	32.11	"	1.5	5	15	1	"
845	1.15	2.68	34.79	"	3.1	4	31	0	"
892	1.40	4.02	38.81	"	2.6	6	37	4	"
517	1.26	2.42	41.23	"	2-3	7	22	0	"
980	1.84	5.02	5.02	"	2.8	6	58	1	18.04
966	1.54	5.19	10.21	"	2.6	8	56	3	"
875	1.32	5.56	15.77	"	2.3	10	57	0	"
197	1.16	1.34	17.11	"	2.1	12	7	0	"
343	1.48	2.12	19.23	"	3.2	5	16	2	"
422	1.77	2.80	22.03	"	3.0	6	32	0	"
294	1.71	1.98	24.01	"	2.8	5	19	0	"
630	0.64	1.36	25.37	IBM	3.0	4%	11	0	"
496	0.39	1.75	27.12	"	3.0	2%	15	0	"
38	-0.03	-0.01	27.12	"	?	0	0	0	"
947	1.88	6.40	33.52	"	2.8	9	51	3	"
614	1.65	4.37	37.89	"	2.5	10	41	1	"
656	1.39	4.96	42.85	~~IBM~~	?	0	46	0	"
				IBM			40.9	10	
				IBM					
710	1.63	5.08	5.08	IBM	3.1	4%	54	0	18.15
799	1.64	6.03	11.11	"	2.7	4%	54	2	"
636	1.66	5.07	16.18	"	2.4	10	37	0	"
							184		

17

New fill

New fill
IBM Jam 12.08. IBM Problem 53. No Run summary
Figures from "Scalers"

New fill

New fill

* Please monitor the reject fraction of the total number of events. This number should correspond to ~0.2 Hz (as long as T3 is switched off). The other number is always ~70% and not sensitive to anything.

New fill.

Beam low.

New fill, new energy.

Beam low

new fill.

New fill

Junk vacuum leak.

new fill vacuum is normal.

Stop the run due to IBM problem

Tape F11016. ~~There was no T2 trigger.~~ skip these runs
no T2, T1 postpone was missing

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HOSTPONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG≥1 ≥1TR	T1 LG≥4

T1 LUMI.	⟨L⟩ x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

18 15.10.80

73.20 IBM Problem, and all telephone links to JADE Hall disconnected.
All DESY telephones off (Schmidtmann has found out)

14.03 beams lost, ID trip
during run 5319 IBM tranfer problem. 3 events lost. D.C will investigate

14²⁰ PKR calls: from now until ≥noon tomorrow no beam!
machine shifts which were scheduled from 15th onwards until 7 am tomorrow will be used to repair HF-emitters. Beams back tomorrow afternoon.

15⁰⁰ switched magnet off, also main magnet water pumps, * inner-detector-alarm switched off
* start the magnet again call Pillet * magnet-off alarm cable disconnected (for Hermes) must be reconnected before start of Detector. AW
12:40 – 14:00 Problems with tagging EM's on +Z (UFR 61). R. Feyt
Repaired. Runs 5318 & 5319 have too low luminosity.

PETRA restart will be 16/10/80 14:00, according to Bartel

17.25 Checked Experiment, nothing exploded, nothing burnt. Naroska
21:30 " " " " Watanabe

4⁰⁰ It was closed and nothing happened until 8 h 8. Kandt

08⁰⁰ Gobbard and O'Neill show up for day shift. I.D. temperature alarm ringing. Detector about to detonate. But Malcolm would prevent it under remote control by P. Steffen. Since most of the heat sources (Magnet + Petra) are switched off, the cooling system for the I.D. is too efficient. Temperature inside pressure vessel fell from >25° to <23° causing temperature alarms ("too low temperature"). For the time being cooling system switched off and alarm threshold lowered.
15:50 ID put into normal working state again P.W.

16:00 Dittmann & Takeda on shift
16:10 Injection starts.
I raised the magnet current, waited one minute every 1000 A and set to 7500 A. After 2 or 3 minutes, the magnet tripped.
Mr. Wriedt called for some people of ~~PKR(?)~~ K.V. (Ext. 3388). We wait for some time.
Mr. Wriedt says. "We must wait for 5 minutes at ~5000 A and raise up to 7500 A.
16.40 The fault was reset. Now it is ok and the magnet was set to 7500 A.
The compensation magnets were also turned on.

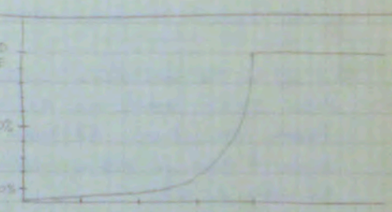
16:48 New fill ready.
16:55 5320 started. LG threshold adjusted to 55 mV.
High background. BP ~ 3.5 V
Chamber currents at 4 μA, rate 4 Hz with 50% dead time
Everybody has bad beams, PKR tries to improve with orbit corrections
ID trip on anode current
Beams lost
17:58 RUN 5321 started. Conditions still intolerable.
18:36 RUN 5321 ended and 5322 started.
Fielst is now trying to optimize the beam condition with PKR people.
PKR found several pumps not working. Pumps switched on.
The effects: BP 2.5 → 1.6; deadtime 60% → 20%; rate stays at 3.8 Hz.

19⁵⁰ Trigger-rate still too high.
Note: Correction coils of PETRA seem to be coupled: if one experiment optimizes background with the correction coils, the other experiments may get worse conditions.

20¹⁰ CELLO and MARK J still cannot run. I ~ 5 mA now; we have 3.2 Hz with 15% dead time
20⁵⁴ Beams lost with ID trip
Short Break until 23:00

Some comments concerning bad beam conditions:

1) If the trigger rate which is accepted by the computer is between 2 and 4 Hz one can only use the BP rate to judge if beam conditions get better or worse, because the BP rate is the only ungated rate we have. In certain circumstances the dead time itself can be used as indicator (i.e. if the dead time is not near to 100%). All other rates go through the trigger box and are gated. They may stay constant or even increase, if beam conditions change drastically. See above for a nice example. The BP rate is sometimes background, despite other rumors.



2) Do not compare absolute BP rates from one shift to another. We found 3 wires pulled out (#9, 16, 21). We have put them back.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT FASTPOS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG≥1 ≥1TR	T1 LG≥4

T1 LUMI.	⟨L⟩ x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

16.10.

23⁴⁵ New shift at PKR — New ideas: PKR found the orbit very much distorted due to the fact that the CELLO Magnet is in operation again. They now try to optimize the orbit with low currents.

17/10/80

0:00 Warning Bell on shift

0:52 Beam stored and run 5327 started.

0:53 46% dead time, 3.8 Hz event rate. Increased the L.G. thresholds. Reduced dead time to 35%

1:17 Dead time now at 20%.

1:31 Run 5327 stopped, 5328 started.

2:19 Run 5328 ended normally, 5329 started

2:30 PKR phones they want to readjust collimators and make orbit corrections in our injection zone. Beampipe rakmeter shows almost no difference, but rate went down from 2.8 to 2.3 Hz

2:54 ID tripped. Run 5329 paused

2:55 Mark J phoned. New energy at ~ 3.10

2:56 Beams lost. Run 5329 stopped.

3:33 New beam. Energy = 18.04 GeV. Run 5330 started.

4:19 Run 5330 ended, run 5331 started

5:16 Run 5331 ended, run 5332 started

~~5:55~~ dead TOF ADC channel found

~~6:15~~ ADC inputs 25,26 checked, OK. Looked to histogram again, gap disappeared. Do I dream?

↕ start to belief in ghosts

it was the ghost "Minus": gap is due to overflow in integer arithmetic (scale from −3.2 to +3.2)

6:27 Run 5332 ended, run 5333 started.

6:47 Beam lost. Run 5333 ~~as~~ stopped.

8.20 Minowa & Haidt on shift

Run starts at 10¹³

11⁴¹ beam lost

16.00 Bamford & Nozaki on shift

16.20 New fill is ready but background level is very high. BP ≈ 5V ≈ 150 call PKR

16.30 BP goes down to 3.0 and start new run 5337

Dead time is very large ~ 50%. This may be due to large background since the display is very dirty.

Message "IBM on-line job error check 2" appears:

↳ Bad banks.?

16.50 DEAD TIME STILL ~ 30% WE PHONE PKR TO SEE IF THEY CAN IMPROVE IT.

WE adjuted lead glass thresholds.

17.06 Felst arrived. Bartel is in the PKR office. ~~PKR~~ PKR changed several parameters as well as the collimators but situation does not change.

18.30 PKR found that the reason of high background at our detector is the bad vacuum. The vacuum of NW Right is ~ 100 factor worse than the normal one. Now technician will work after the end of this fill for repair of it. We stopped the measurement and wait for the fixing of the problem.

18.42 Beam lost. SHORT BREAK.

19.50 * VACUUM LEAK IN NORTH WEST RIGHT NO. 32 — IF BACKGROUND GOES HIGH PHONE PKR THIS IS A WEAK POINT IN THE SYSTEM !!

20.00 Felst called us to say that the vacuum problem is solved. Injection starts.

20.45 New filling is ready. high background. BP = 9 V PKR are looking for the reason.

20.57 Felst arrived. He fixed the noise of the B.P counter and now BP = 3.0 V. Start RUN. Event Rate ~2.6 Hz, Deadtime ≈ 20%.

21.25 PKR are working for reducing the background at Mark J.

21.45 Event rate = 2.0 Hz, Dead time Inst = 12%, AL = $1.9 \cdot 10^{30}$

23.07 We readjusted the threshold for the lead glass. The threshold for the run 5340 was too tight.

~2.40 IBM problems IBM DISC: 96% FULL

Stop the run,

22.48 start run 5343 with Tape.

28.48 We found that there was no T2 trigger for this run.

23.50 some problem with Krehbiel's box no T1 postpone Dittmar phones Krehbiel to see if problem.

18.10.80

0:04 Dittmann & Matsumoto on shift 0:18 Beams lost

Krehbiel comes in: touching cables gets T1 postpone going again.

1.00 Running fairly smoothly now: 20 min. after fill: BP ~ 3.0, rate ~ 3.0 Hz, D.T. ~ 20%.

~~Some~~times we get IBM ERROR 2 (once / hour)

3.50 Beam lost: Sender overfall

4.40 When ramping up the energy, PETRA kept staying at 15 GeV for 5 minutes with 9 mA in each beam

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT +POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG>1 ≥1 TR	T1 LG>4
5349	18.10	4:51	5:42	5.8	6.3		3447	7823	792	143	650	76.9	5100	0	1459	2391	1395	1466
5350	"	5:43	6:44	5.0	5.5		3636	7839	945	116	829	59.3	4914	0	1436	2602	1441	1572
5351	"	6:44	7:54	4.2	4.8		4144	7829	1078	100	978	44.7	4836	0	1315	2778	939	1657
5352	"	7:54	8:08	4.3	4.7		779	1310	203	16	187	6.6	798	0	203	498 ~~454~~	151	285
5353	"	8:09	8:25	4.1	4.5		971	1599	253	18	234	7.8	950	0	265	603	141	383
5354	18.10	8.27	9.48	3.6	4.0		4782	7207	1245	78	1167	29.3	4513	0	1031	2653	1071	1670
5355	"	10.22	11.12	6.1	5.9		2985	7820	776	140	636	58.8	4966	0	1188	2137	1647	1651
5356	"	11.12	12.04	5.3	5.2		3067	6215	798	81	717	37.1	3680	0	871	2003	917	1378
5358	"	12.07	12.14	5.2	5.1		424	797	110	10	101	4.1	473	0	104	267	118	173
5359	"	12.15	13.29	4.5	4.4		4449	7841	1157	91	1067	37.1	4703	0	1050	2699 ~~1460~~	1045	1812
5360	"	13:30	13:41				599	983	156	10	146	3.8	576	0	142	363	140	218
5361	"	1421	15:10	5.0	6.4		2877	7825	749	130	618	46.7	5013	0	1100	2014	1822	1708
5362	"	15"	16:17				3946	7837	1077	95	982	39.4	5028	0	1103	2577	1728	1784
5363	"	16.17	16:25	4.3	5.5		408	904	106	10	97	3.2	600	0	119	275	209	204
5364	"	18.25	19.14	5.8	4.0		2877	7840	749	148	601	15.9	5448	0	1081	1822	2395	1572
5365	"	19.14	19.31	5.3	3.7		976	1882	254	18	235	5.36	1190	0	270	609	349	414
5366	"	20.12	20.55				2586	7843	660	114	546	25.5	5196	0	1174	1950	1960	1186
5367	"	20.55	22.02	5.5	5.7		4013	7845	1044	84.6	959	28.5	4797	0	1235	2607	1127	1748
5368	"	22.02	23.10	4.8	4.6		4059	6588	1056	68.1	988	23.2	3982	0	1015	2363	785	1513
5369	"	23.36	23.43	6.9	7.4		384	1388	99.9	26.9	73.1	7.03	864	0	221	323	300	324
5370	19.10	00.15	1.10	7.2	7.5		3322	7819	864	118	746	569	4866	0	1460	2490	1062	1588
5371	"	1:10	2:15	5.8	6,3		3833	7836	997	98	899	41.7	4823	0	1304	2654	1029	1737
5372	"	2:15	2:55	4.7	5.1		2335	4173	608	48	560	18.8	2535	0	656	1499	518	948
5373	"	2:56	4:13	4.6	5.1		4615	7846	1200	88	1112	34.7	4768	0	1316	2825	872	1790
5374	"	4:13	4:51	4.0	4.4		~~2236~~ ~~3811~~	3427	581	36	545	13.2	2117	0	518	1291	418	805
5375	"	6:30	7:25	8.1	7.6		3266	7809	848	127	721	63.5	4902	0	1356	2448	1249	1533
5376	"	7:26	8.31	5.7	6.4		3565	7847	1005	102	903	46.9	4889	0	1287	2630	1149	1626
5377	"	8:32	9:45	4.9	5.7		4373	7846	1138	92	1046	36.2	4704	0	1142	2707	1066	1774
5378	"	9:45	11109	4.3	4.9		5016	7843	1305	82	1223	28.8	4730	0	1075	2830	1063	1706
5379	"	11:10	11:42	3.6	4.2		1956	2797	509	27	481	8.7	1656	0	328	1031	378	672
5380	"	12.32	13:27	>5.5	x.3		3013	7782	783	138	645	67.6	5038	0	1511	2321	1495	1574
5381	"	13:27	14:40	5.5	6.3		4365	7848	1137	101	1036	46.7	4762	0	1250	2657	951	1743
5382	"	14:41	16:06	3.9	4.6		5079	7838	1322	85	1236	33.2	4690	0	1108	2846	960	1818
5383	"	16:06	16:31	3.7	4.4		1444	2059	375	21.5	354	7.4	1232	0	300	762	220	461

T1 LUMI.	<L> x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)
756	1.78	5.42	21.60	IBM	3.1	66	47	0	18.05
795	1.65	6.00	27.64	"	2.9	69	47	0	"
882	1.68	6.94	34.54	"	2.6	67	62	2	"
143	1.46	7.13	35.67	"	2.3	68	15	0	"
176	1.48	1.44	37.11	"	2.1	66	15	0	"
661	1.12	5.34	5.34	"	2.1	~~65~~	~~45~~	0	18.06
762	1.82	5.43	10.77	"	3.6	6	50	3	"
766	1.95	5.97	16.74	"	2.6	10	64	0	"
100	1.89	0.80	17.54	FH016 TAPE	2.4	10	8	0	"
889	1.61	7.18	24.72	~~IBM~~	2.3	11	90	3	"
113	1.48	0.89	25.61	"	2.0	14	5	0	"
738	1.88	5.42	31.03	"	3.4	7	54	1	"
658	1.28	5.06	36.09	"		10	42	0	"
62	1.12	.46	36.55	"	2.4	~~10~~	6~~8~~	0	"
486	1,10	3.16	3.16	IBM	2.4	6	26	0	18.07
168	1.36	1.33	4.49	"	2.4	10	14	0	"
499	1.21	3.07	7.56	"	3.5	6	31	1	"
864	1.78	7.16	14.72	"	2.3*	10	61	2	"
688	1.39	5.62	20.34	"	2.0	13	44	2	"
108	1.41	0.54	20.88	"	3.1	4	8	0	"
869	1.97	6.56	27.44	"	3.0	~~48~~	70	3	"
816	1,65	6,33	33.77	"	2.6	10	50	2	"
431	1.46	3.40	37.17	"	(2.3?)	~~11~~ ~~34~~	34	4	"
806	1.42	6.55	6.55	"	2.0	12	65	0	18.08
314	1.16	2.59	9.14	"	1.9	13	21	0	"
881	2.04	6.67	15.81	"	3.1	~~28~~	52	0	"
880	1.80	6.97	22.78	"	2.6	10.	60	2	"
939	1.76	7.70	30.48	"	2.3	12.	81	2	"
983	1.64	8.22	38.70	"	2.0	13	60	2	"
318	1.36	2.67	41.37	"	1.7	15.	22	1	"
664	1.72	5.17	5.17	"	3.0	6.	50	5	18.09
857	1.55	6.75	11.92	"	2.6	11.	60	2	"
873	1.40	7 11	19.03	"	≥1.8	13	62	3	"
237	1.35	1.94	20.97	"	1.8	15	17	0	"

23

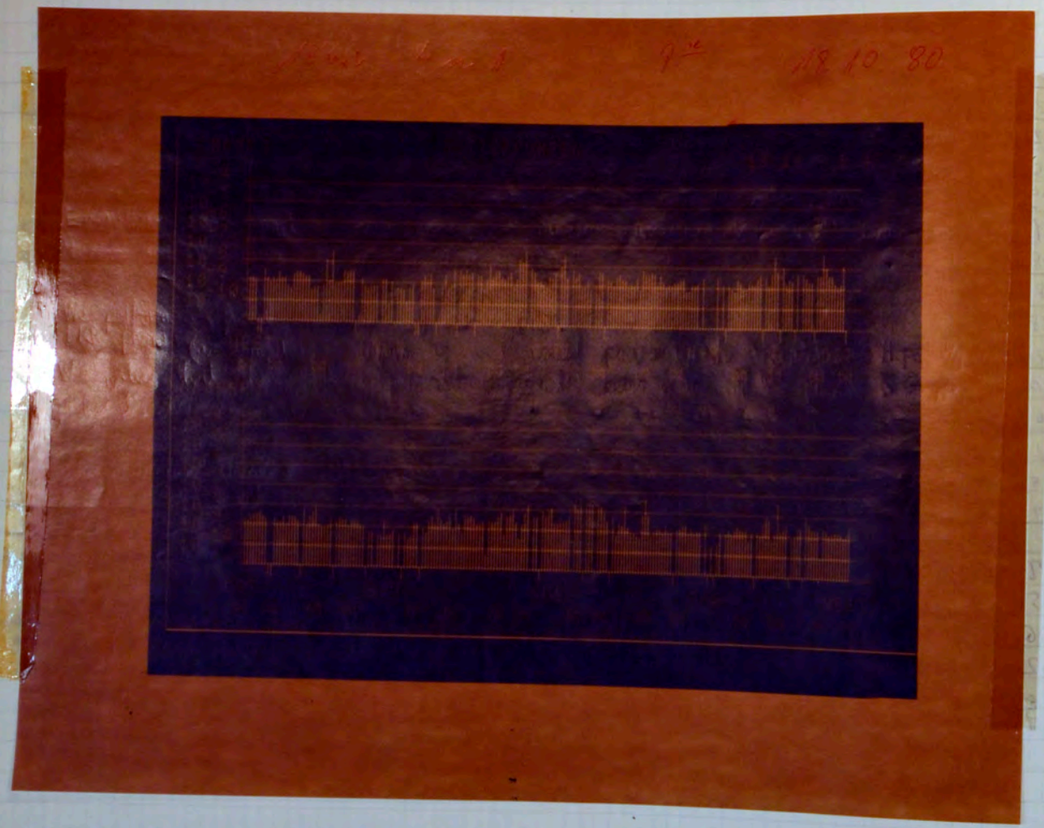
	Stop run because Dittmann had special NSB Programming + to rise energy
18.06	beams dumped for refill
	new fill
	Stop run because of IBM- trouble
	written to TAPE
	Stop after beam loss
	New fill
18.07	dumped for refill + energy change
	dumped for refill
	* chi²test again
	dumped for refill
	beams lost
	↓ same fill
18.08	
	Beam dump.
	New fill
	beams dumped
18.09	
	Beams dumped

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tφ REJECT x10⁶	Tφ ACCEPT x10⁶	T1 ACCEPT HADTRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG≥1 ≥1TR	T1 LG≥4

T1 LUMI.	⟨L⟩ x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

18.10.80 Minowa, Weber on shift.

Run 5352 stopped by Dittmann, in order to take out a N50 programm he had put in for test purposes.



at beginning of run 5355 at 10.21 dead time ~60% . Rate ~3.5 Hz B.P. 3.3 V
at 10.27 inst. " " ~25% " ~3.3 Hz 3.2 V
" 10.31 " " " ~17% " ~2.7 Hz
" 11:10 " " " ~12% " ~2.2 Hz 2.8 V

11.16 Run 5356 muon crate #3 missing, resetting the crate removed the message away.

at beginning of Run 5356 at 11.12 dead time ~11% rate ~2.0 Hz, BP = 2.6 V

12.04 "IBM error 54 (oct)" appears on C.T. } Stopp run, write on tape
"events not written" " " " }

call IBM. they fix it till 12.10. Start next run (#5359 using IBM Crate) at 12.15

16.00 Clarke + Heuer

18.16 Machine now at 18.07 GeV, high background BP = 9.2 V, we complain

18.20 They took a lot of current (2 à ½ h)

18.25 Start Run, since PKR did something to improve our background (now 2.4 V)

18.45 Background get slightly worse (+.2 V); PKR tried to improve conditions at Mark J because of our telephone call they stopped the fiddle and both exp. can work now.

19.05 Std.-Histograms checked, ok. LG-threshold 1 is a bit low according to histogram, but ok in the setting. Rate is 2-3 Hz, dead time ~20%

20.05 New filling ready but despite of "Reuter-salven" high background (again 9V)

~~20.30~~ "Reuter salven" helped last filling, now tuning Q-values is making life better

20.30 a few IBM online-job error check 2 (bad banks) and 4 × MON4

20.30 I visited PKR. Background problems also at Mark J, Luminosity is more or less the same for all experiments (~ 1.4×10^{20})

20.50 BP rate scaler shows fluctuations of about .5 Hz. Caused by chr # 9 → to take 79 out again!

21.05 Cello shell fights with background

21.20 Luminosity is now ~50% better. Reason: they took old file from ~~the pre-vakuum filling~~ 3 fillings ago!
Background conditions are ok.

21.35 again IBM error check 2 and 6 × MON4

22.00 Histograms look ok besides 1 BP ADC = 0 (#34)

22.20 In Run 5368 all BP ADC values are ok again

23.35 New filling ready with the same file as at 21.20. Backgrd now initially ~4.5 V, after some fiddles of the PKR ~3 V

19.10.80

00.00 Takeda + Nozaki on shift

00.15 New filling is ready.
BP = 3.0, Event rate 2.3 Hz, Dead time 15% $L \sim 2 \times 10^{30}$

3:15 LG threshold adjusted to 40 mV.

3:50 " " 35

4:51 end Run 5374. PKR studies beam orbits for half an hour.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT +VASTPONG $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 $\geq$2 TOF LG $\geq$1 $\geq$1 TR	T1 LG?4

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

26 19-10-80

8:00 Darming flow on shift

LG threshold adjusted to 45 mV

12:42 ID trip with spark alarm R3/14+15

14:00 JDAS ERROR 56 subError 371 TOF bank wrong length

16:00 Kawabata and Bowdery on shift. New fill at 16:30 at MARK J's request.

16:32 Beams dumped. Injection starts immediately.

? Accelerating beams

17:00 Power failure detected by computer and various JADE subsystems (ID, DL8 crate, alarm crate)
Beams lost, PKR TV & NORD TV went blank. PETRA will need time to restart says PKR.
Kawabata reset 3 alarms in the Huckzack. Reset DL8 crate. Restarted ZDAS.

17:35 Everything seems quiet and normal now. All systems functioning as usual (No beams though!)

18:10 Message over TV: "Power fail. Restart 8 PM or later"

20:45 " " " " " 10 PM " " . Where will it end? Or when??

20:53 We perform a "fiscal shutdown" of our magnet.

22:35 PKR phone (as requested) to inform us we should power up the magnet now. Hopefully injection will start.
We notice that the left compensation magnet seems to be off. We phone K Gruppe who will come to fix it.

20-10-80

0:00 Petersen and Noack II on shift. No beams!
HV power supply of TOF and Tag did not switch on by program!

2:32 LG Power failure due to 'over-load' of the NIM crate. reset → O.K.
all the H.V. of LG. reset by means of R_I-HB (Kawamija)

2:51 Almost all the NIM crate were 'over-load' reset → O.K. S.K.
Using Naroska's TOF program, checked TOF and Tagging counter HV. seems to be O.K. Y. Watanabe.
LG threshold adjusted to 20 mV

5:53 LG threshold adjusted to 30 mV

0800 Matsumura + Hassard inherit warning system and 8 plums. Thats 4 each.

0841 LG Thresholds too high → adjusted by: channel 1) −25 mV; 2) −50 mV; 3) −100 mV, 4) −100 mV. (0940 all readjusted up 50 mV)

0929 PKR have problems with PIA so we'll stick with old beams for an hour.

10:14 Tektronix LUN 34 blocked and doesn't respond to treatment. All output to LUN 35

10:20 ID Temperature too high Normally 23-24°C now 26.7°C Zetro was off. now on

11:31 Nord-10 Restart Tektronix now O.K. It appeared to get blocked after non-existant list to IOS input in LIST-by NUMBERS

13:47 ID trip. Reset OK

13:57 ID trip + beam loss.

14:57 JDAS error 44 OCT subError 701 4 times, 601 once, 404 once = Timeout Jetch. ring 3, 2

16:00 Ditmann & Watanabe on shift.

17:03 Run 5399 ended. std. hist. look ok.
Run 5400 started immediately. 2 TOF bank errors (#56) and 1 IBM error #12. (bad4 banks)

18:28 " ended. std. hist inspected.

18:53 turn down attenuator to 10dB. beam current ~ 4mA each. $\mathcal{L} \sim 1.5 \cdot 10^{30}$

19:45 ~~Mark J~~ called beam dump at 20:00. $\mathcal{L}$ (Mark J) ~ 25 and $\mathcal{L}$ (JADE) ~ 31

19:59 IBM down just before the end of run 5401 and before dumping the beam.
Std. hist of 5401 inspected.

21:29 New fill is ready.
High background: 3.6 V_{BP}. MARK J collimators have to be driven by hand.
Therefore it takes a long time until beams get optimised. We take data in the mean time (30% D.T.)

22:40 Mark J called. New energy at 11 pm. in the middle of this fill.

23:20 finally they are going to change energy. Stop 5403.

23:59 ~ 100 nb^{-1}/day achieved.

21/10/80

0:00 Ball, Heier on shift

1:32 Beams dumped

1:33 looked at histograms of Run #5406 LG thresholds, OK.

1:40 Message from PKR: Difficulties with Linac II → Short Break!

02:09 estimated restart 02:45. Decide not to turn down magnet yet, since this may make water-leak worse?

03:00 Injection started

03:15 New filling has been apparently stable for ~ 10 mins.

03:25 Now ready according to PKR screen. Note MARK J already have H.T. on.
ID trip. No alarm indicated on alarm interrupt register. Temp OK. Magnet OK
Only NOTAUS light. Is this the same problem with a comparator (see P 12)? yes AW
Phone Matsumura. He will come in.

04:00 Matsumura working on problem.

04:20 ID now OK. Running again. Run 5407 ... but spike in TTC mean hits/wire in channels 80–90. Slowly seems to go away as run progresses. (copy of histogram in ID book)

04:45 Try to clear hits/wire hists — display permanently locked — have to reload NORD.

04:51 Beams lost! From the ~300 events of run 5408, mean hits/wire now looks OK.

07:30 Repeated and unsuccessful attempts to accelerate beams.

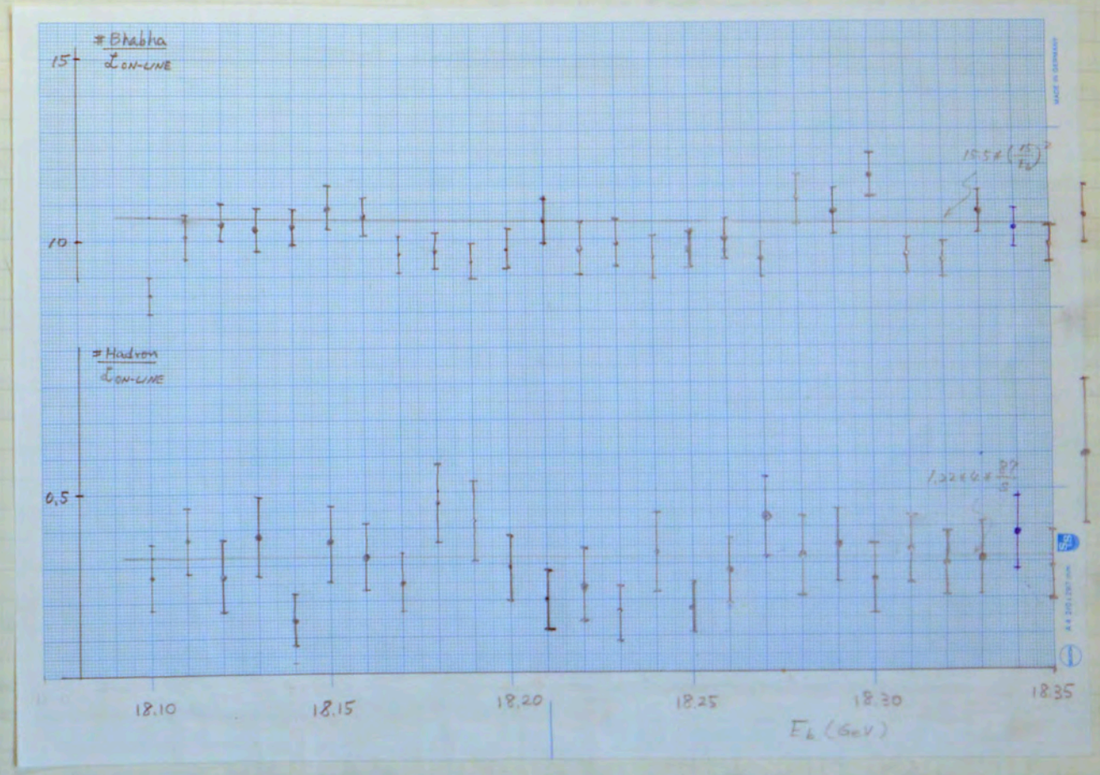
RUN	DATE	START	STOP	I^+	I^-	MARK DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT +BOSTRONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4
28 Run 5384	Date – 53 88	START	STOP Test	I runs		Vac	TIME (sec)	NORD EVENTS Accept	All triggers x10⁶	TΦ Reject x10⁶	TΦ Accept x10⁶	T1 accept +neutron x10⁶	T2 accept	T3 accept	T2 3 TOF 3 TR	T2 collin	T2 ≥2 TOF LG>1 ≥1 TR	T1 LG>4
5388	20.10.	3.02	4.15	5.37		Test run!												
5389	20.10.	3.02	4.15	4.4	4.7		4337	7834	1128	94.7	1033	39	4660	0	1081	2578	1160	1741
5390	"	4.16	5.10	4.0	4.2		3247	5442	845	584	787	21	3293	0	726	1979	839	1238
5391	20.10	5:48	6:42	6.0	6.2		3187	7818	830	133	697	71	4779	0	1357	2279	1210	1635
5392	20.10	6:43	7:49	5.2	5.4		3937	7837	1025	109	916	54	4797	0	1339	2639	997	1661
5393	"	7:49	9:02	4.5	4.7		4314	7831	1123	99	1024	41	4656	0	1184	2670	1009	1819
5394	"	9:01	10:24	3.9	4.1		4888	7838	1272	85	1188	36	4656	0	1465	2675	1162	1828
5395	"	10:24	11:36	3.5	3.7		3879	5846	1010	57	954	18	3446	0	698	1958	962	1446
5396	"	12:54	13:56	5.9	6.2		3165	7775	824	143	681	69	4937	0	1376	2245	1504	1595
5397	"	13:56	13:56	5.9	6.2		335	748	87	11	77	5.4	458	0	139	228	118	157
5398	"	14:52	15.50	5.9	6.1		3455	7797	899	150	749	72	4966	0	1314	2382	1463	1515
5399	"	15:56	17:03	5.0	5.2		4300	7823	1119	102	1017	47	4684	3 ?	1119	2661	1073	1692
5400	"	17:03	18:28	4.2	4.4		5075	7842	1322	86	1236	32	4522	3 ?	1006	2748	956	1840
5401	"	18:28	19:58	3.6	3.8		5350	7511	1393	75	1318	25	4391	—	961	2826	856	1742
5402	"	21:29	22.29	5.9	5.8		3444	7749	896	123	722	97	5081	—	1527	2552	1231	1402
5403	"	22:29	23:17	5.3	5.2		2868	5743	746	80	666	36	3486	1	812	1835	965	1292
5404	test run during energy change (test data for Dittmann)																	
5405	"	23:22	0:41	4.6	4.5		4717	7840	1226	93	1133	38	4640	0	1004	2692	1129	1744
5406	21/10/80	0:41	1:32	4.2	4.1		2997	4245	780	46	734	17	2535	0	549	1578	522	522
5407	21/10/80	4:19	4:45	5.4	5.7		1500	2959	390.5	63.1	327.3	366	2003	0	608	1123	404	585
5408	"	4:47	4:50	5.4	5.6		167	306	407	5.93	348	3.26	195	0	52	117	39	62
5409	"	10:41	20:49	6.84	7.40		374	7770	97.2	34.6	62.7	12.8	857	0	305	390	303	142
5410	"	13:49	14:19	5.9	6.2		1525	3643	3967	339.0	57.8	7.6	3757	0	725	222	2661	280
5411	"	14:20	15:23	5.1	5.5		3752	7827	976.9	729.4	847.5	62.1	5312	0	971	2481	1924	1649
5412	"	15:24	16:45	4.3	4.7		4875	7846	1264	96.6	1173	39.9	5126	0	921	2800	1551	1731
5413	"	16:46	18:29	3.6	4.0		6095	7843	1588	79.8	1510	24.7	4779	0	839	2587	1412	1963
5414	"	18:29	18:41	3.6	3.9		683	784	178	7.3	171	1.9	471	0	92	252	139	185
5415	"	22.18	22:58	~5	~5		2338	4810	608	110	508	53.2	3091	0	724	1238	1158	946
5416	23/10/80	00.49	01.51	6.63	6.37		3684	7833	958.7	140.0	818.6	69.6	5142	0	1045	2520	1646	1581
5417	"	1.52	3.18	4.8	4.6		5147	7844	1340	96.5	1243	40.2	4720	0	839	2814	1161	1715
5418	"	03.18	4.57	4.0	3.9		5762	7853	1499	75.5	1424	27.5	4667	0	708	2866	1188	1940
5419	"	8.00	8.46	4.9	5.1		2727	4613	709	60.4	649	27.4	2838	0	598	1645	719	1070
5420	"	8.49	9.10	3.8	4.0		4333	7581	1231	83	1145	30.8	4651	0	955	2537	1329	1315
5421	"	12.36	~~6.7~~ B.A	6.6	5.8	5.8	2496	6390	649	1447	505	72.4	4462	0	772	1658	2068	1193

T1 LUMI.	<L> x10³⁰	$\int L\,dt$ RUN	$\int L\,dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)
T1 Lumi	<L> x10³⁰	∫L dt run	∫L dt	IBM/ Tape	Beam pipe	reject event fraction %	# Bhabha	# multi hadron	Beam energy (GeV)
916	1.81	7.83	28.80	IBM	20	11	95	3	18.09
586	1.49	4.83	33.63	"	18	12	44	2	18.09 beam dumped
847	1.88	6.31	6.31	IBM	2.6	7	74	1	18.10
835	1.66	6.55	12.86	"	2.3	10	61	0	"
832	1.56	6.70	19.56	"	2.2	10	64	1	"
918	1.55	7.58	27.14	"	2.0	13	65	5	"
692	1.56	5.83	32.97	"	1.8	14	52	4	"
829	2.61	6.36	39.33	"	3.0	6	59	0	18.10
86	1.92	8.60	39.97	"	2.6	8	6	0	"
903	2.01	6.93	6.93	"	3.1	7	77	5	18.11
1013	1.88	8.10	15.03	"	2.5	11	91	4	"
1099	1.79	9.10	24.13	"	2.3	13	91	0	"
942	1.47	7.87	32.00	"	1.9	15	63	3	"
865	1.92	6.60	38.60	"	3.6	7	64	1	"
643	1.81	5.19	43.79	"	2.6	10	56	3	"
985	1.71	8.07	8.07	"	2.0	12	72	2	18.12
536	1.49	4.46	12.53		2.0	14	43	1	new Energy Beams dumped
349	1.77	2.65	15.18	"	3.2	8	30	1	" stopped due to NORD problems
39	1.87	0.29	15.47	"	3.0	10	4	1	" beams lost
774	2.10	0.79	16.26	"	3.4	4	70	0	" beams lost
65	0.70	0.15	16.41	"	4.1	1	3	1	" <L> see p. 32, 14.20
829	1.75	4.30	20.71	"	2.9	9	37	2	"
751	1.14	5.56	26.27	"	2.5	13	53	1	"
852	1.07	6.52	32.79	"	2.2	17	60	0	"
85	1.10	.75	33.54	"	2.2	17	5	0	"
574	1.73	4.06	4.06	"	3.5	8	36	1	18.13
921	1.77	6.52	10.58	"	3.2	9	70	6	"
1185	1.74	8.95	19.53	"	2.4	14	93	0	"
1024	1.37	7.90	27.43	"	2.1	16	89	4	"
564	1.55	4.24	31.67	"	2.4	13	38	1	"
730	1.26	5.95	5.95	"	2.2	13	80	1	18.14
563	143	3.57	3.52	FH 109	3.0	6	39	0	"

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HADTAGNG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG ? 1 ≥ 1 TR	T1 LG?4



T1 LUMI.	$\langle L\rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)



RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG≥1 ≥1TR	T1 LG≥4

32 21/10/80

8:00 Nozaki and Hellenbrand on shift

10:42 New setting is ready.

10:40 collimeter 58

6 — NW R outside is jammed and cannot be moved. ← has been repaired by Saran 11.20 U. Barth

The present position is 25 mm and this should be 30 mm.

10:40 Tagging high lead-glass thresholds slightly increased. BP

10.50 Beam lost

Unsuccessful attempts of new setting were repeated several times. BP = 4V

13:50 RUN 5410 started, dead time 97%, event rate 2,5 Hz, neg. luminosity AL = -0,09 E30

phoned to PKR, only slight decrease of dead time, afterwards increasing again

they are adjusting the beam bump and the collimators.

14.05 PKR asked us to switch off the high voltage of ID in order to adjust the beam.

14.13 Switch on ID again. Dead time ~ still ~100%. AL < 0

14.20 since event 3300 positiv luminosity

14.20 RUN 5410 stopped We adjusted the LG threshold 50 mV

14.30 JOBS ERROR 000056(OCT) SOBERROR 000045(OCT) TASK 1

14.20 Background become to the normal level. BP ~ 3V. Dead time ~ 15%. Ev Rate ~ 2

PKR adjusted a lot of beam bumps and two collimators.

New Run 5411 start. Average luminosity is ~ 1:10³⁰ factor 2 smaller than that of good core

15.10 Standard histograms are checked and found to be normal.

15.33 Run 5411 ended. Run 5412 started.

Dead time ~ 10% Event rate ~ 2,0 Hz

16 CO Barth & Nozaki II

17 30 histograms for run # 5412 ok

1 JOBS-Error #56 wrong TOF-bank length

Trigger changed for Run 5413: 2 coll.-trigger now asks also for 2 coll tracks does not make a significant difference in rate for beam conditions: I ~ 4 mA, 1.1Hz, 4.7Hz

18:40 RUN 5414 ended, beam stopped.

15:30 waiting for e^+ (Linac II down)

20:00 Linac has water problems turn down compensators and a little the main magnet (4000 A) watching the dropping flow meters.

The flow meters do not drop.

T1 LUMI.	⟨L⟩ x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

33

20:30 The flow meters drop at a tolerable rate at 4000 A.

21:00 Injection starts, switch magnets on again

22:17 start run 5415

During run 5415 test of 2 coll-Trigger.

long term observation: 2 coll tracks : 14.2% dead time 1.8 Hz

1 track : 14.6% dead time 2.1 Hz

22:57 Beams lost. Chamber did not trip

Transmitter Siegl links failed

22/10/80

00:00 Stephens, Kawabata on shift.

00:44 Run 5416 started - Beam conditions shitty. PKR adjust BP goes from 3.4 → 2.7 better.

Lead glass threshold OK.

03:18 adjust leadglass threshold

05:00 Beam to be dumped for new fill

06.45 New fill at about 0600 however backgrounds are so high BP ~ 8-9 that we cannot switch on. PKR try to adjust the Q's and Bumps but still no improvement. Talk to Mark J who are also not too happy with conditions (but at least they can run) decide to wait ~10 mins for new machine operation. If they cannot improve things then we will dump and start again. PKR claim that all settings for this fill are identical to those of the previous fill!!

0708. Mark J to ask PKR to dump.

07.15 PKR would prefer to adjust bumps and Q's before dumping. Have agreed that this should not be for more than ½ hr.

07.45 PKR have managed to reduce our BP from ~ 8 → 5.5 but now TASSO background has increased. They wish to investigate this further!! Mark J background also increased.

PROBLEM "CURED" BY A. WAGNER REMOVING COUNTER 16 FROM BP!!!!! — TRY pulling cables before believing BP.

8:00 H. Wriedt, A. Wagner

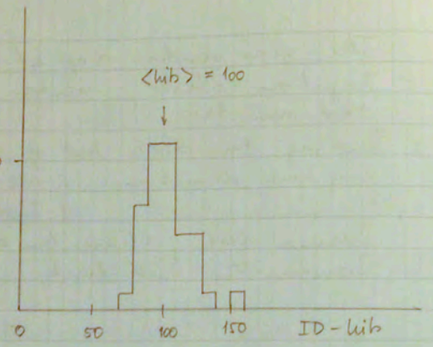
9.10 $\int L dt$ for 18.13 GeV from all 4 experiments Tasso 34.8 nb⁻¹, Celle ~ 35 nb⁻¹, Mark J 380 nb⁻¹ (due to late start in last fill) Jade 31.67 nb⁻¹ counter example in P38 See e.g. P13 also 8

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT +POSTPONE $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 $\geq$2 TOF LG>1 $\geq$1 TR	T1 LG>4

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

22.10.80 cont.

Study of background hits in I.D.:
trigger on LUMI events
E_B = 18.14 GeV
I^+, I^- = 4.2, 4.4 mA



↘ mean # of hits = 100 ↘ ~20 hits/mA beam current

This number (20 hits/mA) has to be compared with 10 hits/mA, which was the average background at 15 GeV.

9:50 ID-trip (overcurrent)
10:10 beams dumped on request of Mark J. PETRA wants temporary access (30-60 min) to fix some cavities.
12:36 beams again, but IBM down. We write onto tape
13:19 Start run 5422 (to IBM), beams lost after 11 events
14.27 beams again

16:00 Bartel & Nozaki II.
16:35 IBM-Problem error 140 000 (time out MPX) phone IBM after 5 min ok again
20:15 New filling ready, we cannot switch on, have to wait for beam steering. Problems with Mark J - collimators
Moving Mark J - collimators changes our background rate
We lost ~ 1/2 hour due to Mark J collimator problems
High background. Reduction of the background rate could be achieved by adjusting horizontal asymmetric beam bumps. NUL and R 4 : 2 : 1 !
NUL = North west left
NUR = " " right
BP = 2.4 3.8 Hz 36% dead time I = 6/3.3 mA
Lumi is very low: $0.66 \cdot 10^{30}$!
Beam steering in the other interaction region also disturbs us.
20:55 Visitor: P. Murphy

23.10.80 Goddard & Nozaki on shift
00.20 M.J asked us orbit then we agree with them for dumping the beam 12.30 because the ~~present~~ luminosity for the present filling is very low. We agree with them.

00.28 Run 5430 ended.
00.00 new filling ready.
BP=3.0 dead time = 40%. TU rate = 3 Hz
01.05 Beam lost ID alarm anode current
01.45 New filling is ready. But UP = 4V and fluctuating by ~~one~~ 1 V.
We wait for the stable beam and not switch on ID.
01.52 BP = 2.5 V switch on ID. ~~Then~~ we get immediately ID alarm.
Reset ID. Switch on, now OK, B.P ~ 2.2
02.47 IBM ON LINE JOB ERROR CHECK 2
JDAS ERROR 56 (TOF Bank wrong length) Suberror 405
06.22 stop run 5436 due to dumping the beam.
06.45 New filling is ready, but B.P of V. new energy 18.160 GeV
We asked PKR to reduce the background.
07.06 Beam lost after unsuccessful attempts of adjusting of the beam parameters
07.36 New filling is ready.
BP = 3 V but dead time = 85%. TU rate = 2.9 Hz.
PKR has problems with the program.
We pause the run until background ~~seems~~ goes down. B.P ~ 4.
08.05 restart. BP = 2.V. Dead time ~ 18%.

8.50 Mc Cann, Elsen on shift
8.35 We just got the 3rd "IBM online job error check 2" during this shift
11.00 Mark J still has background of ~ 15% 3 hrs after injection (usually only 5%)
They would like to have some orbit corrections as this filling though $\mathcal{L}$ is low.
11.35 PKR starts orbit corrections. We leave everything on. They want to read our $\mathcal{L}$ and background signals during changes.
12.25 "Clear-Histogram" blocks terminal, according to Dittmann's advice we restarted EDAS after ending run before (happened also in p27) (see p 49)
12.30 PKR announces change of energy ~~during~~ for these currents.
12.32 ID-alarm and shortly later: beams lost.
machine studies
15.10 Beams back. background high BP = 8.0. Petra adjusts working point → BP x 4.0
15.19 Start run 5442. Background high in (+x, -y) in I.D. Phone PKR. Dead time 70%
15.25 Orbit okay now. ~~Dead~~ Dead time 14%.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT +POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4
36 RUN	DATE	START	STOP	I^+	I^-		TIME sec	NORD EVENTS ACCEPT	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT +POSTP. x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR	T2 COLL	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4
5422	22.10	13.A	13:20					—										
5423	"	14:25	15:31	6.1	6.5		3879	7802	1009	154	854	87.8	5087	0	1017	2550	1728	1569
5424	"	15:31	15:36	4.9	5.5		3772	6322	981	84.8	896	40.7	3793	0	704	2144	1103	1435
5425	"	16:41	18:17	3.5	4.0		5752	7848	1497	80.7	1416	27.1	4690	0	727	2864	1260	1932
5426	"	18:18	19:11	3.2	3.7		3166	3738	824	33.1	791	7.7	2281	0	342	1458	539	952
5427	"	20:39	21:19	5.0	5.8		2403	7850	625	252	373	20.3	5677	0	685	1272	3332	1624
5428	"	21:20	22:10	4.5	5.2		3012	7857	783	83.1	700	15.0	5199	0	750	1736	2540	1918
5429	"	22:11	23:14	3.9	4.6		3752	7851	976	68	908	12.7	4988	0	756	2045	2104	2061
5430	"	23:14	00:27	3.6	4.0		4345	7851	1130	63	1066	10.1	4682	0	771	2139	1776	2286
5431	23.10	01.01	01.09	6.6	7.2		140	~~448~~	36	11	24	3	313	0	117	760	110	49
5432	23.10	01.40	02:47	6.9	7.1		3869	7838	1745	91.8	654	19	5287	0	792	1788	2559	1729
5433	"	02.47	03.47	5.4	5.6		3573	7859	928	73.0	856	14	5112	0	829	2851	2145	1879
5434	"	03.47	04:52	4.7	4.9		3850	7852	1001	87.2	934	11	4919	0	757	2018	2124	2042
5435	"	04:53	06:05	4.1	4.4		4347	7851	1130	62.5	1068	9	4510	0	737	2126	1961	2130
5436	"	06:05	06.22	3.7	3.9		~~325~~	1634	253	12.6	241	1.7	977	0	152	479	361	454
5437	"	07.40	8.35	6.3	6.3		2533	7847	660	209.8	450	16.0	5541	0	790	1463	2912	1633
5438	"	8:36	9:21	5.2	5.2		2715	7859	707	85.6	621	12.8	5257	0	752	1686	2633	1996
5439	"	9:22	10:18	4.7	4.7		3371	7860	878	70.8	807	10.2	4953	0	689	1778	2324	2111
5440	"	10:18	11:33	4.2	4.2		4436	7852	1155	62.5	1093	9.0	4731	0	725	2181	1806	2232
5441	"	11:33	12:30	3.7	3.7		3406	5406	887	42.4	844	5.5	3283	0	499	1589	1215	1496
5442	"	15:20	16:24	5.9	5.8		3832	7835	998	170.6	827	30.6	5058	0	1040	2173	1998	1640
5443	"	16:23	16:52	5.0	5.0		1614	2524	420	26.7	394	8.1	1676	0	358	950	471	656
5444	"	17:34	19:25	6.0	7.4		2945	7836	767	102	665	28.6	5014	0	961	1994	2016	1641
5445	"	18:24	19:29	5.0	6.4		3834	7236	999	79.1	919	23.9	4720	0	863	2285	1590	1927
5446	"	19:33	20:55	4.3	5.6		4799	7021	1249	69.6	1180	17.1	4642	0	862	2453	1447	~~2030~~
5447	"	20:54	21:10	3.2	4.3		859	1363	224	12.1	212	2.8	780	0	145	430	257	362
5448	"	21.11	22:20	3.1	4.2		2458	3899	744	37.0	707	8.2	2590	0	481	1368	789	1242
5449	"	23:34	0:07	5.7	4.1		1868	5560	486	352.	133.	6.49	4136	0	340	560	2310	1020
5450	24.10	0:08	0:40	5.0	3.4		1722	3057	448	29.7	418	7.8	2010	0	437	1075	597	781
5451	11~~.11~~	1:27	2:23	5.6	5.7		3308	7836	860.	726.	734.	38.	4780	0	1055	2120	1545	1919
5452	"	2:23	3:37	4.8	4.9		4385	7843	1241	82.	7059	28.5	4665	0	1004	2579	1179	1893
5453	"	3:38	4:30	4.3	4.4		3087	4795	802	~~458~~ 756	756	14.4	2777	0	607	1666	630	1257
5454	"	7:43	8:32	5.5	5.5		~~2873~~	7456	747.7	158.7	589	26.4	4722	0	889	1733	1423	1796
5455	"	8:32	9:20	5.46	5.45		2837	4982	738	53.8	684	19.5	3050	0	855	1623	836	1202

T1 LUMI.	<L> x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EV FRACT%	# BhaBha	# M.H.	BEAM ENERGY	
T1 LUMI	<L> x 10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EV FRACT%	# Bhabha	# M.H.	BEAM ENERGY	
—	—	—	9.52	IBM			—	—	18.14	beams lost after 11 units
899	1.66	6.45	15.97	"	3.0	8	56	1	"	
853	1.70	6.41	22.38	"	2.4	11	65	0	"	
996	1.35	7.76	30.14	"	2.1	16	68	2	"	
414	1.02	3.23	33.37	"	1.8	18	38	1	"	
324	.49	1.17	1.17	"	3.0	3	25	1	18.15	
473	.93	2.81	3.98	"	1.9	7	28	0	"	
580	1.03	3.86	7.84	"	1.7	9	45	3	"	
641	1.04	4.50	12.34	"	1.5	11	40	0	"	dump the beam
31	0.85	0.12	12.46	"	2.9	~~6~~	4	0	"	beam lost
596	1.25	3.58	16.04	"	2.2	7	48	4	"	
634	1.22	4.35	20.39	"	1.9	10	40	1	"	
646	1.16	4.48	24.87	"	1.6	~~10~~	~~39~~	0	"	
623	1.11	4.84	29.71	"	1.5	11	50	1	"	beam dump
159	1.22	1.19	30.90	"	1.4	12	18	1	"	
445	0.82	2.07	2.07	"	3.0	5	20	2	18.16	
492	1.04	2.82	4.89	"	1.9	7	34	1	"	
570	1.08	3.64	8.53	"	1.7	9	38	1	"	
682	1.10	4.88	13.41	"	1.4	12	42	0	"	
505	1.10	3.75	17.16	"	1.3	13	32	1	"	terminal blocked, beams lost
783	1.41	5.40	22.56	"	3.5	9	53	2	"	
331	1.49	2.41	24.97	"	2.3	13	25	1	"	beam lost
859	1.95	5.74	30.71	"	3.0	7	67	1	"	
880	1.64	6.29	3700	"	2.5	10	84	3	"	
910	1.44	6.92	6.92	"	2.1	12	72	2	18.17	
145	1.23	1.05	7.97	"	1.6	12	7	0	"	stopped due to IBM transfer error.
406	1.09	3.11	11.08	"	1.6	13	37	1	"	
224	—	—		"	3.4	2	1	0	"	
155	0.59	1.02	12.10	"	2.0	12	6	0	"	beams dumped
815	1.67	5.52	17.62	"	3.4	8	66	1	"	
988	1.70	7.45	25.07	"	2.4	12	67	1	"	
587	1.44	4.44	29.51	"	2.0	13	53	1	"	beams lost
648	1.09	3.14	32.73	"	3-3.5	7	31	1	"	
508	1.25	3.55	36.28	"	2.6	11	36	2	"	

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HADTRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG74

T1 LUMI.	⟨L⟩ x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

38 23/10/1980

16⁰⁰ O'neill & Takeda on shift.

16 53 Beams lost. End Run 5443

19 38 L6 threshold x-45mV. settings OK.
" Standard Histograms OK.

21 10 IBM transfer error 54(OCT) ~~RUN stopped~~ 5447 ✓ stopped
I tried to link IBM many times, but in fail. So RUN
21 11 RUN 5448 started. Now IBM OK.
21 16 Attenuator dial was set to 9. (e^+ 3.1 mA, e^- 4.2 mA)
(re-set to 10 at 22 25)

23 10 New fill ready. But background is too high. BP current overflows.
I pulled out the BP cable one after another, but I couldn't find
any special one.
23 30 The background condition became somewhat better. BP ~ 3.5.
RUN 5449 start.
ID tripped. about 20% of

Note. After the injection, ✓ the electron beams were lost.
This was so in the last filling.
The deadtime is about 75%. PKR is still working on the orbit correction.
I raised the LG threshold (for 1.5 GeV) some what.

00⁰⁰ 24/10/80 Hellenbrand + Hughes

Deadtime very large > 70%

00⁰⁶ Deadtime reduce to ~ 6% 1.8Hz — PKR were making a "bump" at
Cello which was giving us the high background
00⁰⁷ Run 5449 ended at 5671 events since beams now cleaner 6.5% d.t.
00²⁷ ID Trip
Mark J call beam to be dumped at 00⁴⁰
00:40 beams dumped, RUN 5450 ended
4:30 beams lost, RUN 5453 ended

39

24.10.80

08:00 Nozaki II and Kawabata on shift.
09:20 Beam energy increased to 18.18 GeV
09:40 Beam dumped: They (PKR) got magnet alarm. PETRA operation will be restarted at 11:00 AM. We make out magnet current down. to 4000A (main) and to 3A (comp.).
14 50 RUN 5457 started. Events on MT (F11102)
14 55 B.P current increased. so we stop the run. Dead Time ≈ 90%
15 02 B.P. current decreased to ~ 2.5. we started RUN 5458.
16:00 Pearce & Eichler
16:11 ID trip
17:10 lower LG-threshold
17:11 Fwd μ cptr no. 18 ~~out~~ re-connected to HV supply.
18 00 Beams dumped. Run 5460 ended. New filling.

20 43 Run 5462 ended — we have now had 4 multihadron events in each of the last 2 runs. — gives $\frac{\#\text{hadr}}{L} = \frac{4}{2}$ so far.!
Tagging LG has many blocks on in almost every event with 10-20 counts.
H. Wriedt and G. Hughes agree to raise the readout threshold to 20 counts, since offline cut is 30-50 counts anyway.
2145 Change effective from RUN 5464 on

22 25 New filling ready. IBM on-line link down. Estimate ≥ 10 min. → write to tape

25.10.80 0⁰⁰ H. McCann + A. Wagner

0 30 change of energy to 18.191 (nominal value of 18.190 exceeded by 1 MeV) We will remain for the rest of this point at this energy. (Agreed with Mark J + PKR)
1 45 beams dumped for new filling, which proves to be difficult.
4 34 ~~Start~~ New fill ready. Start run 5470

8:00 Dittmann and Watanabe
8:15 beam dumped, histograms for run 5472 were already printed by the previous shift crew.
10:45 New fill ready but BP ~ 6 V. # cable #9 contributes 1.5 V, still too high. & Jet ch. very high current. Switched off Jet ch. and wait. PKR will investigate. BP ~ 4
11:05 Start 5473, but dead time ~ 90%, Luminosity negative ≈ $-0.1 \cdot 10^{30}$. BP ~ K
11:25 BP ~ 2.9. but dead time ≈ 50%, event rate ~~of~~ of H_2. beam current 5.5 and 4.5 A
PKR says that this filling is bad and cannot cure unless beam is dumped and start again.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HADTRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3 TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1 TR	T1 LG>4
5456	24.10	9:21	9:39	4.6	4.7		1077	1723	280.	17.7	262.5	6.0	1017	0	215	550	271	439
5457	"	1450	1454			JUNK !							JUNK					
5458	"	1509	1553	3.9	5.1		2634	6478 ~~6485~~	685	180	505	20.2	4359	0	671	1402	2026	1421
5459	"	1557	1748	2.7	3.4		6412	7831	1668	73	1595	21	4817	0	906	3090	1033	1825
5460	"	1750	1800	2.71	3.4		547	636	142	5.3	137	1.4	390	0	52	272	78	170
5461	24/10	1829	1921	5.58	6.15		3048	5966	793	66	727	22	3757	0	718	1779	1366	1328
5462	24/10/80	1922	2043	3.6	4.5		4840	7843	1259	74	1184	20	4827	0	834	2527	1641	1855
5463	"	2043	2200	3.6	4.4		4579	6464	1190	56	1134	14	3918	0	634	2183	1215	1682
5466	"	2227	2307	5.5	6.4		2293	4477	596	50.6	546	18.8	2775	0	476	1353	1023	1005
5467	"	2307	026	4.3	5.5		4776	7834	1243	76.6	1166	22.9	4785	0	823	2481	1627	1788
5468	25/10/80	026	028	3.5	4.6		118	188	31	1.7	29	0.4	113	0	21	61	35	47
5469	"	038	146	3.4	4.6		3992	5590	1038	43.3	989	12.6	3403	0	593	1951	978	1390
5470	"	434	529	5.6	5.9		3235	7848	841	103.8	737	24.5	5137	0	767	1846	2475	1788
5471	"	529	642	4.4	5.0		4337	7843	1128	72.9	1055	19.5	4911	0	789	2283	1948	1870
5472	"	642	816	3.7	4.3		5561	7830	1478	67.8	1380	16.6	4654	—	769	2679	1360	2001
5473	4	11:05	11:46	4.0	5.2		2324	7858	605	370	235	13.9	5657	—	543	862	3400	1639
5474	4	11:46	11:55	3.8	4.8		507	1887	132	34		98.3	1255	—	174	309	645	473
5475	"	18:20	19:44	3.9	4.3		5060	7911	1318	87	1230	31.1	4710	—	1058	2805	1078	1713
5476	"	19:45	20:30	3.7	4.0		2709	3503	706	34	672	10.9	2062	—	387	1356	413	812
5477	"	20:31	21:31	3.1	3.6		3576	4161	930	39	891	11.8	2505	—	483	1659	466	993
5478	"	22:26	23:46	3.9	4.5		4840	7188	1259	87	1172	368	4439	—	1033	2816	831	1528
5479	5480		junk															
5481	26/10/80	0.00	-0.18					~ 1000										
5482	4	020	141	3.1	3.7		4813	5197	1251	53.4	1188	16.9	3225		635	2281	465	1227
5483	}	JUNK due to program error																
5484																		
5485	26.10.	704	08:45	3.3	3.7		6017	7838	1564	81.4	1483	27.4	4760		874	2870	1064	1879
5486	4	0845	08:51	4	4		313	376	82	36	78	1.0	243		30	147	65	84
5487	4	10:01	19:40	3.1	3.9		5880	7832	1530	88.2	1442	35.0	5797	—	1157	3162	1151	1933
5488	4	11:40	12:10	2.9	3.7		1802	2060	469	20.3	449	6.9	1353	—	255	874	287	540
5489	"	14:23	15:00	5.7	6.2		2212	9191	~~9933~~	62	513	26.5	2908	0	645	1393	903	979
5490	4	15:49	17:12	4.3	4.7		4892	7828	~~7824~~	99	1172	45	4719	—	1067	2752	1181	1782
5491	"	17:12	17:52	3.9	4.3		2099	2875	546	29	517	10	1732	—	339	1125	344	656
5492	"	17:54	17:54	3.9	4.3		35	46	9									
5493	"	17:58	19:47	3.2	3.6		6500	7842	1691	73	1618	22.3	4706	—	873	3089	907	1863

T1 LUMI.	<L> x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)
201	1.38	1.48	1.48	"	2.2	12	17	0	18.18
	JUNK			FH1102		JUNK			
454	1.03	2.72	4.20	FH1102	3.4	6	28	3	"
878	1.1	7.05	11.25	FH1125	2.0	18	53	1	"
56	0.83	0.45	11.70	FH1127		21	4	0	"
636	1.57	4.80	16.50	FH1127	3.1	10	49	4	18.18
886	1.44	6.97	23.47	IBM		13	69	4	"
649	1.13	5.17	28.64	IBM		15	48	3	"
513	1.72	3.95	32.59	F22AM	2.6	11	45	2	"
967	1.59	7.60	40.19	IBM	2.3	12	72	2	"
20	1.36	0.16	40.35	IBM	1.9	12	4	0	"
586	1.17	4.69	4.69	IBM	1.8	150%	37	0	18.191
638	1.34	4.33	9.02	IBM	~3.3	8	34	3	"
775	1.37	5.94	14.96	"	2.5	12	54	2	"
910	1.29	7.20	22.16	4	2.2	15	69	3	"
268	0.08	0.18	22.34	4	4 →2.8	~~10~~ 2	10	1	4
84	0.59	0.30	22.64	4	2.5	4	3	0	4
1089	1.87	8.43	31.07	"	2.5	13	79	4	18.190
419	1.25	3.37	33.44	"	1.9	17	34 (43)	1 (11)	"
487	1.01	3.60	3.60	"	1.7	18	40	3	18.200
911	1.37	6.62	10.22	"	2.6	14%	63	2	"
		~ 1.		IBM					
562	.85	4.11	15.33	IBM	1.7	19	39	1	4
					2.6				18.204
					2.2				4
891	1.00	6.02	21.05	4	2.0	15	61	2	4
37	0.86	0.27	21.32	4	1.8	20	2	0	4
363	0.40	2.37	23.69	4	2.2	15	17	0	18.200
90	0.31	0.57	24.26	4	1.5	20	1	0	4
					2.6	9	45	0	
490	1.55	3.43	27.69						
975	1.45	7.10	34.79	"	2.6	12	83	1	"
374	1.28	2.68	37.47	"	2.1	16	21	2	4
	1.28	0.04	0.04	"	2.6		1	0	18.210
945	1.06	6.88	6.92		2.0	17	62	3	"

40

41

Beam dumped.
JUNK

Beams dumped.
New filling.
beams dumped
Write to tape
Write to IBM again.
deadtime ~60% high background ~~& 260% of data~~ energ. lumi
beams lost
this filling ~~was retraced~~ could not be used.
NB. Small energy change.
Accelerated the fill
ca 1000 events. Problem with Nord (see pg. 42)
low lumi.
beams lost
stop run 5492 because TV did not close

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tϕ REJECT x10⁶	Tϕ ACCEPT x10⁶	T1 ACCEPT HOSTRONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

11:35 Other experiments also suffer from high background. PKR wants to understand the problem before dumping the beams. ~~DEP~~ Next filling may start with lower currents. BP = 2.5 and luminosity is now Vϕ crossed

11:54 ID trip beams lost

12:54 Fill is ready but our BP = 6.5 V! . No single cable ~~is~~ are contributing. (#9 is out) ~~Other~~ Other experiments are having the same problem. No body is using the beams Cello says they could not run at all in the previous ~~fill~~ fill. Tasso has software problem also. PKR is trying. life time is short. ⌊ compared to ⌊‾‾

13:10 BP 20~98. Sacrificing us to save ~~Mark J.~~ Mark J.?) We can not run at all.
↳ off scale at the other end.

13:20 $I^+ = 3.4$, $I^- = 4.1$ BP still off-scale. No good use ~~of~~ this fill except for giving us a bad feeling but the luminosity must be low also. Decide to turn off HV (only the first step was on). of course. to save beam pipe PMTs.
The life time for this fill was ⌊

15:45 Still "INJECTION".

16:00 Petersen & Bowdery on shift
Problems with injection ⇒ beams lost at end of acceleration.

16:43 PETRA people are checking their electronics in the NW hall.

16:52 Hellenbrand draws our attention to the high temperature in the hall (~27°C). We open the hall doors and agree to regularly check the meter in the trackroad.

17:47 We phone PKR to enquire why the fill has not yet been accelerated. They say that they have a klystrompoblem

18:05 Beams ready but ID trips when power-up commences. We cannot reset the NOT AUS but Hellenbrand comes. same problem as occurred on 21/10 and 13/10 (see p. 27 and p. 12) U_{D3}-comparator failed

N.B. Energy is 18.190 GeV / beam not 18.191

19:41 ~~Bi~~ In cogging logic, SM2 41 and SP2 Hi thresholds are now at 1200 mV

21:30 This has been a good night for inclusive muon events. 3 candidates so far ⇒ 1 is a di-muon candidate! (see Hadron File)

22:25 New fill ready. D.T. ~17% BP ~ 2.6 V

22:40 Ringing wire in JET-chamber found (ring 3)

23:45 IBM problems

26/10/80 Nozaki II, Eichler

Run 5481 problems with Nord. 30% of events not transferred to IBM, All histograms empty! Stop run and restart Nord 10, Run 5482 seems to work fine.

1:40 beams dumped.

02 05 Problem with Synchrotron. No Injection for at least 30 min. Turn magnet down

04 55 Injection started. We turned up the magnet current.

05 52 ID ~~trip~~ no alarm though. we called the expert. U_{D3}-comparator failed see 18:05 page before and so on...

Get "bad event structure". This was finally traced to an error in ZREAD which I made in the last filling pause. The ZREAD-program was modified for the Hiprec-Test next week. I am very sorry for the lost beamtime of ~30 min.

07 25 Histograms are checked. LG threshold was adjusted to 20 mV

08:00 M. Goddard & Y. Watanabe

08:20 Mark J. wants ~~new fill~~ to dump at beams at 18:30. Delay the beam dumps to refill DORIS.

08:45 Run 5485 ended, and 5486 had to be started because they have not dumped the bea

08:50 Std. list of 5485 printed. looks ok. 5486 ended to refill.

09:55 Wait about 20 min after beams at 18.2 GeV, before 'switch on' signal given.
B.P ~ 2.4 without cable 16 BP ~ 10 with cable 16
⇒ N.B. cable 16 of BP. contrs left out. (#9 has been out and must be out: the same effect.)
Turning on ID ~~gave~~ resulted in an alarm. (an half epoch) Heinzelmann is here waiting for it. The comparator prob.

10:01 Start 5487. LG thresh = 35 mV.

10:10 Lum only 0.5×10^{30}. Mark J has complained to PKR ($S.L = 4.88 \times 10^{28}$)
(currents 5 & 4 mA)

10:35 LG thresh = 30 mV.

11:40 End 5487. histograms look normal.

12:03 Mark J: dump at 12:10 Hopefully better.

12:10 End 5488. dumping the beams.

15:01 Beams lost quietly. run 5489. histograms inspected. LG th was 45 mV.
(The fill was very good)
Tasso has no luminosities so far at this energy. Computer problem(s).

15:49 New fill ready. Run 5490 started.

16:00 Stephens / Heinzelmann on shift.

17:20 Mark J will change energy but with same fill at 17.45

17:45 Energy change ⇒ 18.210

17:30 Mark J will dump ~~bank~~ the beams at 20.00

20:00 Beams dumped

20:33 start Run 5495.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS X10⁶	TΦ REJECT X10⁶	TΦ ACCEPT X10⁶	T1 ACCEPT HADRONS X10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4
5494	26/10/80	19:47	20.00	3.16	3.58		780	853	203	7.5	195	2.2	514	-	91	351	79	200
5495	"	20:33	21:42	6.21	6.15		4126	7831	1073	92	981	35	4830	—	1025	2397	1475	1793
5496	"	21.44	23:16	3.7	4.2		5533	7841	1439	78	1361	25.2	4731	-	890	2836	1148	1899
5497	"	23:16		3.72	4.15		3845	4855	1001	44	957	12.4	3028	—	573	1932	642	1183
5498	27/10/80	1.12	2.26	5.33	5.97		4382	7825	1740	86,2	7054	31,6	4788		7023	2483	7405	1851
5499	"	2.27	2.37	3.8	4.7		237	352	61.6	3,5	58,2	1,16	270		47	773	57	88
5500	"	2.33	4.10	3.87	4.66		5787	7842	1506	74,6	7431	23,1	4647		907	2847	1082	1945
5501	"	4.11	4.46 4.47	3.06	3.89		2041	2462	531	21,6	509,6	5,9	1474		255 ~~253~~	963	298	28
5502	"	5.29	6.52	4.99	5.81		4925	7827	1282	80,9	7201	25,7	4629		986	2574	7799	1978
5503	"	6.52	8.53	3.39	4.52		6090	7845	1586	68 6	1517	17.7	4572	—	810	2800	1069	1996
5504	"	8 36	9 23	2.5	3.5		2833	3781	737	25.9	771	5.9	1878		301	1221	420	149
5508	"	14 40	15 41	3.2	4.0		Nord Rany up w reboot											
5509	"	15 43		2.8	3.61		1274	1328	331	11.3	320	2.9	792	—	128	550	158	324
5510	"	18:12	18.24	5.26	5.99		722	1250	188	15.0	160	6.0	776	—	172	399	227	281
5511	"	19:17	20:51	3.6	4.5		5019	7838	1306	81 6	1224	27	4752	—	814	2639	1409	1904
5512	"	20:52	22:26	2.9	3.7		~~6636~~ 6636	6724	1466	58.2	1408	14.3	4025	—	577	2562	1013	1693
5513	28.10.80	0:25	2:03	3.3	4.5		5316	7825	1382 286	79.3	1343	23.5	4795	ϕ	846	2784	1333	1825
5514	"	2:03	2:23	3.1	4.3		1138	1459	~~260~~	133	283	4.0	867	—	188	563	179	367
5515	"																	
5516	"	12 20	12 23	3.8	4.4		121	280	31	2.5	29	0.5	157	—	66	44	42	69
5517	"	12:36	13:25	3.6	4.2		~~5933~~ 5300	~~7884~~ 7084	784	36.7	734	9.6	2427	—	~~62~~ 405	1508	599	1082
5518	"	~~14:51~~ 15:53	15:53	2.8	3.6		5731	7836	1492	73.8	1419	19.5	4725		883	2817	1141	2171
5519	"	15:54	16:39	2.5	3.3		2664	2760	694	22.0	671	4.7	1677	—	253	1150	331	772
5520	"	17:05	18:21	3.2	4.2		4558	7834	1187	96.1	1091	37	4760	-	1194	2646	1126	2016
5521	"	18:22	19:49	2.7	3.7		5201	7252	1354	82.0	1272	34	4506	—	1126	2826	818	1823
5522	"	22:12	22:47	4.7	3.7		2036	7839	530	153,6	377	22	5211	—	1039	1600	2262	2005
5523	"	22.47	0.08				4841	7852	1259	86.5	1172	26.5	5043	—	1055	2659	1340	2012
5524	29.10.80	0.15	0.46	4.0	3.2		1816	2304	472	22.3	450	7.4	1492	-	321	951	289	585
5525	"	1.27	2.41	6.45	6.33		4416	7840	1149	103	1045	46.0	4777	-	1082	2544	1248	1839
5526	"	2.43	3.04	5.13	5.15		1245	1873	~~2055~~ 324	20.5	303.5	7.9	1151	-	241	683	263	424
5527	"	3.05	4.43	4.90	4.93	-18.2	5847	7853	1522	80.2	1442	28.9	4878	-	965	2982	1079	1923
5528	"	4:44	5.00	4.12	4.5		973	1202	253	11.2	242	3.2	742	—	139	458	182	305
5529			JUNK.															

T1 LUMI	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	
100	0.96	0.75	7.67	IBM	1.5		6	0	18.210	Run ended - beam dump
888	1.51	6.21	13,88	"	2.9	10	63	1	"	
877	1.15	6.39	20.27	"	2.0	15	72	0	"	
467	0.89	3.40	23.67	"	1.6	18	51	1	"	
854	7.40	6.14	29.81	IBM	2.6	11	55	1	18.220	
41	7.25	0.30	30.11	"	2.1	12	7	06	18.210	
938	7.27	7,01	7,01	"	2.1	15	77	1	18.220	
257	0,95	1,93	8,94	"	1.7	17	23	0	"	
925	7.37	6.73	15,67	"	2,6	13	60	0	"	New filling. Positrons are vanishing much faster than electrons. $e^+ E = 6.7$h, $e^- E = 4.5$h
964	1.16	7.05	22.72	IBM	1.9	16	65	3	"	
326	0.85	2.40	25.12	"	1.6	18	19	3	"	
								1		new Filling
	0.94	~~3.54~~	3.54		1.9		≥1		18.230	
149	0.85	1.08	4.62	"	1.6	21	8	0	"	Beam lost
158	1.6	1.15	5.77	"	2.9	11	13	0	"	New fill, beam lost
974	1.38	6.94	12.71	"	2.6	13	69	2	"	
742	1.04	5.88	18.59	"	1.7	17	60	2	"	Beam dumped
924	1.26	6.78	25.29	"	2.3	14	62	ϕ	"	
141	0.92	1.05	26.34	"	1.6	17	13	0	"	Magnet trip
				IBM	1.4				18.240	fill - run
17	0.24	0.09	0.09	IBM	1.4	9	1	0	18.240	Stopped due to Overload on Crate 2 of LG
283	0.71	2.12	2.21	"		19	178	0	"	beam lost
697	0.87	5.00	7.21	"	2.2	16	56	1	"	
217	0.61	1.62	8.83	"		21	16	3	"	beam dumped
548	0.92	4.41	13.04	"	2.7	11	34	0	"	New fill
475	0.67	3.58	16.62	"	1.7	~~16~~ 14	36	2	"	beam dumped
278	0.65	1.33	17.95	"	2.7	4	7	1	"	New fill
455	0.62	2.98	20.93	"	2.0	12	23	2	"	
128	0.51	0.92	21.85	"	1.75	17	10	0	"	Beams dumped New fill
891	1.43	6.31	28.16	"	2.9	11	63	0	"	
231	1.37	1.71	29.87	"	2.4	14	20	1	"	
764	0.94	5.49	5.49	"	2.4	16	61	1	18.250	New Energy
111	0.83	0.81	6.30	"	1.9	16	5	2	"	Beam dumped.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HADTONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG≥1 ≥1TR	T1 LG74

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

21.40 check histograms all OK except TOF mean ADC Ras Byte

22.30 The "hole" in TOF mean ADC Ras gone.

27/10/80

0.00 Krehbiel / Mirowa

1.14. New ~~I~~ run with new filling running for 2 minutes. BP 2.6, Rate 2.3 Hz, Deadtime 9.7%. Decide ok

2.24 Mark I ~~wish~~ wants to change energy at 2.30. All experiments have now accumulated more than 30 nb⁻¹ (we only 29.87) . We agree

6.20 Mark I plays coordinating experiment (they say we, Jade, are it, but we have no order) They find out that there will be no injection from 6.30 to 9.00, (Sync. Energy saving) so we have to run down this filling for some time. It is not bad, in spite of the speedy loss of e^+. Luminosity now 1.45 E30.

7:04 Standard histograms are inspected. all ok.

8:00 Samford, Feist on shift **JADE is coordinating experiment for the next 2 weeks**

9:23 New fillings asked for. Beam dumped bei new PKR as being problem with injection.

11:00 the heatexchange unit of the main magnet is inefficient, water outlet temperature 74° (last Friday) 76° (now) decided to clean it immediately, hoping that it will work again this evening, experiment coordination given back to MARK J.

14:25 new energy 18.230 GeV

14:30 heat exchanger cleaned, magnet-water temperature now 64° at the outlet

14:35 problems with IBM connection, experts (Cords) working on it

14:40 start decent run

10:00 Heinzelmann ~~Hollenbrock~~, Bell on shift

16:06 Beam lost, run 5509 terminated.

16:40 "Short Break" appears on the TV monitor. Current in magnet reduced to 4000 A, in compensating magnets to 103 A.

17:40 magnet raised to nominal value

18:04 New fill ready, start run 5510 with $\langle L \rangle \approx 1.8 \cdot 10^{30}$

18:16 Beam lost, run 5510 stopped.

18:56 Left hand compensating magnet tripped, unable to reset. Trying to contact experts

19:19 Run 5511 started with new fill - Left hand side (+ or - ?) compensating magnet still switched off.

19:30 Two forward muon counter h.v.s are down. Trying to contact experts.

19:45 Compensating magnet reset, but ~~left side~~ 103 A shall leave at 103 A until the end of this fill in case increasing the current causes the beam to be lost.

20:15 Unable to contact experts on forward muon counters

20:43 Run 5511 finished, run 5512 started

20:45 The error message saying that two h.v.s in the forward muon counters are down persists. Cannot contact experts. Reset them ourselves.

22:05 Phoned PKR to ask for new fill in 20 minutes time. Informed other experiments.

22:27 Beam dropped.

2:30 Left hand compensating magnet reset to 80 A

22:55 "Short Break" appears on the TV monitor.

23:30 PKR say they have a magnet trip, they don't know how long it will take to fix it. So we ~~parked~~ the main magnet down to 4000 A but did not park down the compensating magnets as we feared they may trip again.

28.10.80

0:?? Nathusius Uhlich

0:15 Injection starts, magnet current raised to its original value

1:00 Found BP-counter #9 dead (must have happened between runs 5502 and 5512): send after exchange of head discriminator. ~~Test all two h.v. channels (BP) sufficient. # 26 & #35 & #14. Not understood (all inputs into the h.v.'s are there.~~ [Reason found: overflows in main ADC !]

2:22 Magnet-trip, K informed: Rectifier (?, Flussmesser) broken.

3:15 We ask PKR for a new fill

4:10 New fill ready, our magnet still down, awaiting expert...

6:15 Tasso wants a new fill and new energy, so we ask PKR for it

7:45 The magnet-experts seem to be here

8:20 Sato & Cords

Fuses are broken, no spare available: 3 diode & 10 fuses

12:23 Run 5516 stopped due to Overload on crate 2 of LG. It was due to temperature problem. We must keep the door behind the crates open.

12:25 LG threshold set to 55 mv

13:25 Beam lost. ID trip

13:55 new filling

14:45 JOBS ERROR 56 (01) SUBERROR 405 (05) TASK 1: TOF Bank wrong length 1: Task aut

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT +OSTPONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3 TR.	T2 COLLIN	T2 ≥2TOF LG≥1 ≥1 TR	T1 LG≥4

16.00 Bartl & Komamiya
16:00 LG threshold adjusted to 60 mV
17:25 μ crate missing #13
20:45 DESY- Synchrotron has problems with the Vacuum in the RF-section

29 october, 1980
0.00 K. Stephens and H. Riesberg on shift
0:10 Call other expts. Mark J $28\,nb^{-1}$, TASSO $25\,nb^{-1}$, CELLO $18\,nb^{-1}$ JADE $21\,nb^{-1}$
Total so far at 18.240 GeV = $92\,nb^{-1}$
we have asked for a new fill 00:45. PKR wish to do some tests to find out why specific luminosity is so low.

1.25 New filling ready, Start Run 5525
New fill seems very good
Histograms cleared after ~ 4500 events all seem OK.

2:40 Luminosities from all expts. M.J. $35\,nb^{-1}$, TASSO $31\,nb^{-1}$, JADE $28\,nb^{-1}$ CELLO $25\,nb^{-1}$
total $119\,nb^{-1}$ ask for energy change at 03:00 hr with Thurs fill.
3.03 Energy changed to 18.25 GeV. Run 5527 started. → LG Threshold set to 50 mV
0500 Beam dumped. for new fill
Thorsday shift "clock time" was wrong on T.V. monitor and also there were no end of run summaries. Occasionally peculiar event displays, which were "cured" by repeating F13 F4 operation.
To cure above problem we tried EXIT However on teletype the following messg appeared ERROR 00 in 36441 at 156274
ILL. MONITOR CALL (and no Tschews!).
tried L reload but after log-in always got following message on teletype:- ERROR 91 in 36441 at 60636
FORTRAN I/O ERROR
FILE ERROR No 3
END OF FILE
We could not cure so we called Flow Control - gave instructions by phone - system eventually operational. Clock works (ie gives current time) and we get automatic run summaries.

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

5.30 Fill ready but we were still sorting out computer problem
5.58 Run 5530 started NB # 5529 JUNK.
6.29 JDAS ERROR 000056 (OCT) SUBERROR 000371 (OCT) TASK:
↳ TOF Bank wrong length.
6.55 IBM PROBLEM 54 (OCT) Link problem, also TASSO has problems, stops Run 5530. Go to tape
8.00 Sato & Haidt on shift
8.31 Use IBM link for next run (5533)
11.45 CELLO notes that pickup signal is shifted by 12 ns, later confirmed by PKR
12:15 CELLO requested to continue this ~~run~~ event for more $5\,nb^{-1}$

Our Delay Generator
12.19 Check: Everything seems to be o.k. Distance Prepulse - Sync Pulse and Prepulse - simulated Sync. Pulse agree to 1 nsec. We are affected ~~only in the~~ by the shifting of the prepulse only in the following way: Headglass ADC Gate is shifted. Mu Chamber start shifted.
Note: It's the prepulse that drifted, not the pickup. Pickup = Sync pulse.
Most of our Gates, our TPC start and DLS start are locked with Sync pulse.
I think the muon people automatically correct for that time.
Note. Checks were made within an interruption of run 5533. For this run the hardware counters are not correct. For some time the run was running on "manual" condition, i.e. auto reset, no LAM.

15.04 The reason for the CLEAR-HISTOGRAM (P35, P27) problem is now understood and will be fixed soon
16.00 D. Hermann + Goddard
17.12 AA Down; start writing tape F11110
18:20 Ask for new fill at 18.30, following Larry's magic formula (see also next page)
19.33 start run 5540. ID. trips immediately (due to BV-input), restarted.
22:30 LINAC problems: LINAC is 'double-bunching'. Expert called
30th Oct. 30/10/80
00:00 Stephens & Meier on Shift
phone P.K.R for latest assessment of situation.
0:25 PKR phoned, they will try a new Filling
0:45 PKR inform us that ring cannot get positrons and advice us to switch off magnets.
MAGNETS TURNED DOWN.
0:55. Problem solved!!

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tφ REJECT x10⁶	Tφ ACCEPT x10⁶	T1 ACCEPT+POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4
50 RUN	DATE	START	STOP	I^+ [mA]	I^- [mA]	Vac. 10^{-9} [mbar]	TIME (sec)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tφ REJECT x10⁶	Tφ ACCEPT x10⁶	T1 ACCEPT+POSTPONE x10⁶	T_2 ACCEPT	T_3 ACCEPT	T2 3TOF 3TR.	T_2 COLLIN.	T2 ≥2TOF LG>1 ≥1TR	T_1 LG>4
5530	29/10/80	5:58	6:56	5.88	5.93		3454	6232	899	78	820	32.1	3896	–	791	2100	1119	1359
5532	"	7.01	8.31	4.99	5.08		5365	7846	1395	84	1312	29	4880	–	884	2757	1363	1342
5533	"	8.31	9:38	3.8	3.9		3983	4908	1036	47	989	14	3091	—	578	1949	728	1128
5534	"	10:20	11:40	4.8	4.9		4790	7844	1246	101	1145	41	4948	–	932	2685	1451	1684
5535	"	11:43	12:51	4.3	4.4		3708	4981	964	51	914	16.7	3213	–	532	1827	805	1075
5536	"	12:52	14:16	3.7	3.8		5030	6178	1309	55	1254	13.5	3774	—	599	2390	896	1525
5537	"	14:59	16:13	6.15	6.16		~~4928~~ 4931	7835	1152	97	1055	39.3	4770	—	953	2635	1292	1760
5538	"	18:17	19.10	4.3	4.4		3329	4318	866	50	817	16	2890	—	513	1765	713	1199
5539	"	19.13	18.30	3.8	3.9		4688	5099	1209	53	1156	14	3522	–	605	2258	791	1469
5540	"	19:33	20:49	6.1	6.2		4531	7825	1179	92	1086	37	4701	—	1072	2642	1166	1794
5541	"	20.49	22:15	4.0	4.3		5139	7469	1337	74	1263	23.9	4356	—	831	2700	1002	1879
5542	30/10/80	1:26	2.28	5.42	5.80		3677	7841	957	113	843	33.7	4884	—	1001	2225	1479	1816
5542	"	2:28	4.02	4.57	4.91		5572	7843	1450	84	1366	31.0	4764	–	1069	3107	828	1700
5544	"	4:02	4:46	3.5	3.8		2632	3143	685	80.2	655	48	1921	–	387	1343	274	694
5545	"	5.18	6:41	5.78	5.80		4962	7832	1286	94.6	1191	40	4745	–	1130	2952	892	1719
5546	"	6:41	8:01	4.42	4.56		4742	6421	1234	65.3	1168	22	3730	–	866	2428	613	1512
5547	"	8.37	9.54	4.8	4.9		2993	3255	780	49.5	731	22	1244	—	340	553	395	1172
5548	"	17:08	18:24	5.84	5.79		4557	7835	1186	91.9	1094	33.7	4781	—	919	2573	1454	1750
5549	"	18:25	20:08	4.62	4.66	–/5.6	6143	7850	1599	75.8	1523	22.8	4778	—	869	3098	1014	1782
5550	"	20:08	20:16	3.81	3.86		477	523	124.3	4.7	119.5	1.33	329	–	63	226	59	107
5551	"	21:03	22:37	5.84	6.88		5616	7833	1461	153	1308	35.1	4782	—	1048	2942	917	1773
5552	"	22:37	23:18	4.42	4.54		2436	2937	634	288	605	9.5	1767	—	376	1246	233	668
5553	"	23.22	00.44	4.04	4.17		4836	5094	1259	480	1211	14.7	3160	–	628	2304	414	1172
5554	31/10/80	01.28	01.52	48	5.1		1398	2878	364	32.9	331	11.2	1179		412	868	522	688
5555	"	01.58	03.14	3.9	4.3		4547	7843	1183	77.5	1106	28.5	4552		923	2461	1181	2181
5556	"	03.20	04.41	3.3	3.7		4843	7849	1260	70.1	1190	17.3	4699		864	2502	1373	2257
5557	"	05.21	05.59	2.8	2.7		2200	2366	573	19.5	553	4.0	1487		285	988	292	617
5558	"	06.43	07.44	4.3	4.7		3657	7827	952	79.6	872	22.9	4764		906	2078	1872	2016
5559	"	7.47	9.02	4.2	4.6		4490	6506	1169	67.1	1099	17.4	4270		810	2213	1341	2068
5560	"	12:40	13.41	5.2	5.5		3663	6348	953	65.3	8874	19.4	4194	—	638	1897	1225	1345
5561	"	13.46	13.50	3.5	3.9		175	243	455	2.1	38.9	0.5	162	–	48	81	65	47
5562	"	14:54	15:45	4.5	4.6		3349	7822	871	85.5	785.7	22.6	5145	–	735	1845	2650	1720
5563	"	15:48	17.07	3.1	3.2		4141	7498	1078	101.9	975.7	18.0	4755	–	893	2117	1213	1781
5564	"	18.28	19.50	5.85	5.81		5082	7828	1322	79	1243	23.1	4792	–	980	2715	1206	1733

T_1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ [nb^{-1}]	IBM/TAPE	BEAM PIPE [V]	REJECT. EVENT FRACTION %	# BHABHA	# MULTI-HADRON	BEAM ENERGY (GeV)	
T_1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ [nb^{-1}]	IBM/TAPE	BEAM PIPE [V]	REJECT. EVENT FRACTION %	# BHABHA	# MULTI-HADRON	BEAM ENERGY (GeV)	51
700	1.45	5.00	11.30	IBM	2.7	11	46	0	18.250	New fill. ← Run # 5531 is non-existent.
850	1.15	6.15	17.45	Tape Fitt 430	2.5	13	63	0	18.250	
488	0.91	3.62	21.07	IBM	2.0	19	25	0	"	Beam Dumped
1019	1.56	7.49	28.56	IBM	2.5	13	69	2	"	
653	1.36	5.03	33.59	"	2.2	~~15~~	60	1	"	Hardware scalers not fully correct. See pg. 49
722	1.08	5.44	39.03	"		19	59	1	"	Beam Dumped
1016	1.66	7.37	7.37	"	2.3	12	70	1	18.260	
653	1.43	4.78	12.15	IBM	2.0	14	47	1	"	
793	1.27	5.88	18.03	Fitt 6		17	57	2	"	
988	1.59	720	25.23	IBM	2.5	11	73	3	"	
979	1.42	7.28	32.51	"	2.0	15%	73_{230}	2_{17}	"	
836	1.58	5.83	5.83	"	2.8	9	48	2	18.270	
1046	1.39	7.76	13.59	"	2.1	15	66	4	"	
396	1.12	2.95	16.54		1.8	19	33	0	"	beam dumped.
1017	1.53	7.55	24.09		2.7	13	69	2	"	New Fill.
888	1.39	6.60	30.69		2.1	15	80	7	"	beam dumped
636	1.57	4.69	35.38		2.9	3	39_{230}	0_{17}	"	~~New fill~~, No T_2 triggers for second half of run, energy ramped during filling; data not used by us
983	1.59	7.23	7.23	IBM	2.8	12	92	3	18.280	New filling CELL 4.2 (wires 432-447) dead
1039	1.25	7.65	14.88	"	2.2	17	86	2	"	
67	1.04	0.5	15.38	"	1.9	18	4	0	"	Beam dump
951	1.24	6.99	22.37	"	3.2	14	77	1	"	
383	1.16	2.82	25.19	"	2.1	17	21_{230}	2_8		
567	0.89	4.29	4.29	"	1.9	20	44	1	18.291	Beam dump
283	1.40	1.96	6.25	"	2.8	10	23	0	"	New Fill
794	1.23	5.57	11.82	"	2.3	12	58	1	"	
620	0.88	4.28	16.10	"	2.1	13	46	1	"	Beam dump
152	0.49	1.09	17.20	"	1.0	20%	16	0	"	New fill – low lumi due to linac ?? Dump
739	1.43	5.23	22.43	"	2.5	9%	48	4	"	
682	1.10	4.92	27.35	"	2.2	13	53	4	"	
560	1.11	4.07	31.42	"	2.7	12	51_{230}	1_{17}	"	New filling
21	0.85	0.15	0.15	"	2.0	17	1	0	18.30	Beam dump
727	1.56	5.24	5.36	"	2.7	9	58	0	"	New filling.
706	1.21	5.03	10.39	"	2.1	10	69	0	"	beam partially lost, bad, dumped
1024	1.47	7.47	17.86	IBM	2.7	13	78	1	"	

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tϕ REJECT x10⁶	Tϕ ACCEPT x10⁶	T1 ACCEPT +POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG≥1 ≥1TR	T1 LG≥4

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

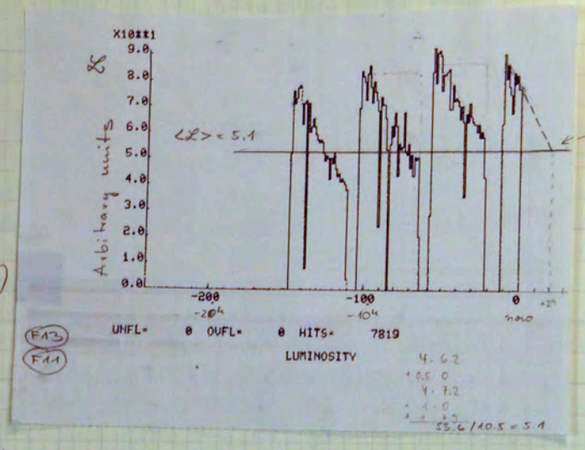
How to calculate the optimum refill time

Get the Luminosity history for the last 24h (F13: Miscellaneous, F11: Luminosity)

Use LHO's proposal (Logbook IV, p 112) that the best refill time is when the average luminosity is reached.

Determine from the histogram the average luminosity of, say, the last 10 hours including the gaps (example: $\langle L \rangle \approx 5.1$ in arbitrary units)

Ask for a refill if the last histogram bin approaches $\langle L \rangle$ (The histogram is updated every 6 minutes).



refill in 2 hours

0.55 Problems solved can now get positrons. Magnets — up again!!

1:26 Run # 5542 started

SDAS ERROR 000044 SUBE 000703 rash!

↳ time out tagging system.

Check histograms after ≈ 4500 events - seem OK.

Check Lead glass thresholds - they are set to 50mV.

3.55 All experiments happy with present fill so will continue to run with this fill. Check histograms OK.

4:46 Beams dumped for new fill

5.16 Beams ready

07:00 Mark J. 23 nb⁻¹ CELLO 25 nb⁻¹ TASSO 25 nb⁻¹ JADE 26.5 nb⁻¹

Total 99.5 nb⁻¹

07:45 Check histograms Here is a large spike in Jet chamber wire map. It seem to have started in Run # 5545. and in in channel 973

7:59 PWR wants new Filling, all experiments agreed

8.00 Elsen + Kowarsky on shift

8.50 I.D. trip

JDAS error 44 suberror 204

Rieseberg looks at spark problem in I.D., run paused.

9:10 continue data taking

9:30 Lead glass (Tilega) threshold reset for 35 mV.

9:50 Mark J 35, Tasso 35, Cello 34, Jade 35, agreed to ramp energy at 10 ea

9:54 Run stopped. Rieseberg checks I.D.

10.08 "CLEAR-HISTOGRAMS" now works HEM

10:35 & the still cannot switch on the I.D. New Thyristor Alarm in HV Supply.

Rieseberg + Hemes are investigating.

12:45 Beams dumped. I.D. still off.

13:45 Cell 4 Ring 2 has to be switched off.

All wires of this cell have been set to "on" for T2 logics.

(*) from 9:10 to 9:54 ID - Ring 2 not working so no T2 - trigger!

16.00 30th October H. Rieseberg + H. Mills on shift

Petra injecting. ~~Experts still working on I.D.~~

17.04 Finally beams ready for use! Run 5548 started. This is a good fill

18.25 Run 5549 started.

19.50 JADE 14 (3 hours lost) . Beam dump planned for 20¹⁵

Tasso 22

Mark J 24

CELLO 22

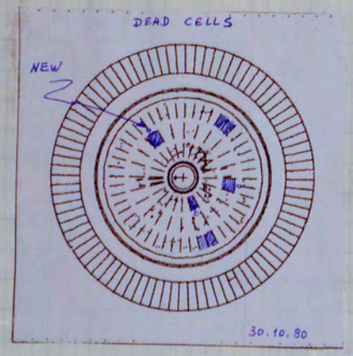
Σ 82 nb⁻¹

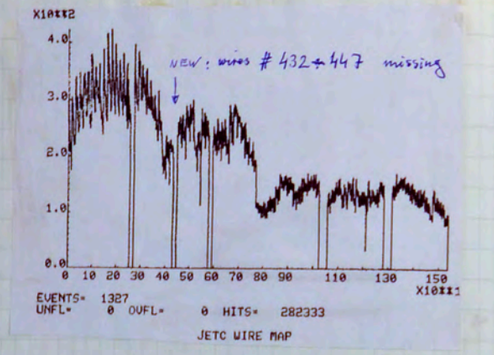
20.08 Run 5550 started

20.15 Freigabe for beam dump.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT +POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3 TR.	T2 COLLIN	T2 ≥2TOF LG≥1 ≥1 TR	T1 LG≥4

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)





21⁰⁰ New filling ready, start run 5551

21⁴⁷ IBM link goes busy - then problem 54 - Cleared by itself after several minutes

22²⁵ Adjust LG-thresholds, pulse height is only 25 mV now

22⁴⁵ $\int L dt$: JADE 23
TASSO 28
MARK J ~32
CELLO ~30

23¹⁷ Stop for increase of energy to 18.29 GeV, Run 5553 follows

24⁰⁰/00⁰⁰ 31/10/80 Hewitt and Marshall on shift

01⁵² Run 5554 ended due to IBM failure. 5 min off then back again

04⁴¹ Dump beams, wait for new fill.

05²¹ PKP have trouble with linac II during filling, can only get 2 mA/min & still so low than often we dumped - ½-1 hour estimate before we can have more current

9⁰⁰ Kawabata and Tateishi on shift

8⁵⁴ histograms checked: OK.

9⁰³ Petra Magnet Power Supply and Transmitter "Ausfall" beams lost

9:05 $\int L dt$: Jade: 27 nb⁻¹
Tasso ~~30.0~~ 30.0
M-J 30.0
Cello ~~32.0~~ 28.0

9:30 Reduce the magnet current to 4000 A

10:30 Run up the magnet again.

10:45 Petra got no e⁺. It will take ~50 min.

11:00 Thresholds on S1, S2, S3, S4 on tagging system changed from 250 mV to 1000 mV by Bell. !

12:27 Modifications made to ZDAS & RUNSM-HISTER to enable ~~3~~DERRs to appear on run summaries made during a run. HEN

12:40 Run 5560 start. (New filling)

13:40 new energy (18.300 GeV)

16-00 MEURER x BAMFORD on SHIFT

16-30 Beam partially lost Inner Detector Trip. Time. Very bad beam conditions ie ∴ decide to dump the fill and have a new one

17-09 Beam dumped.

17-40 Show track system on the TV screen (OH: NO)

18-29 Show run 5564.
Background conditions quite good, beams are quiet (also no multihadron since 10nb⁻¹!)
L6-threshold ok

19.10 Histograms checked, they look o.k., but still not a single multihadron so we have found the anti-top-resonance.

19.40 It is really a pity! Our anti-resonance goes away, we got the first multihadron!

22.05 The beams seem to be really clean (according to anode current in Jet-chamber), rate ~1.5 Hz, dead time ~8%), Lumi ~ 1.4×10^{30}

22.25 Integrated Lumi so far: ~26 Jade ~30 updated at 23.30
~24 Tasso ~28
~26 Cello ~30
~28 Mark J ~31

22.40 ZDAS error 302 suberror 2 - bad read station = message on TV screen.

23.30 all experiments agree to dump the beams at 23.45 and start then with E_B = 18.31 GeV

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT +POSTPONE $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3 TR.	T2 COLLIN	T2 $\geq$2TOF LG$>$1 $\geq$1 TR	T1 LG$>$1
5565	31.10.80	19.53	21.01	4.4	4.4		4022	4812	1047	42	1004	10.6	2891	—	539	1881	587	1172
5566	"	21.42	23.15	5.9	5.3		5540	7825	1442	82	1360	26.4	4758	—	918	2865	1156	1784
5567	"	23.15	23.45	4.4	4.1		1759	2145	458	19	439	5.3	1293	—	227	833	286	528
5568	1.11.80	22.12	22.57	5.30	5.52		2516	4813	654	100	554	52.7	3380	—	839	1734	979	878
5569	1.11.80 2.11.80	22.57	0:02	3.5	3.9		3685	6583	959	109	850	46.4	4491	—	953	2228	1437	1479
5570	"	1.42	0305	4.6	4.9		4995	7820	1300	140	1160	50.1	5399	—	1217	2908	1458	1786
5571	"	0306	0341	2.6	3.2		2050	2103	534	21.9	512	8.3	1415	—	302	1004	193	471
5572	"	0454	0611	4.73	5.09 ~~4.46~~		4589	7828	1194	132.6	1062	75.8	5352	—	1366	3174	1059	1776
5573	"	0611	0740	3.40	3.75		5309	6271	1382	72.3	1309	30.2	4220	—	951	2822	662	1501
5574	2.11	1051	1135	4.1	4.2		2577	7834	670	173.3	497	51.7	5357	-	1038	1797	3064	1490
5575	"	1135	1942	3.3	3.5		4004	7256	1042	101.0	940.7	43.0	5492	-	1126	2586	1937	1776
5576	"	1942	1955	3.2	3.4		705	1020	183	11,9	171,3	4,7	711	-	140	423	211	768
5577	"	1450	1548	4.0	3.8		3451	7810	898	157	741	81.3	5398	—	1377	2567	1632	1838
5578	"	1548	1604	3.8	3.5		879	1341	229	19.4	209	10.4	883	—	207	551	191	330
5579	"	1855	2038	4.9	4.8		6116	7837	1592	89.1	1503	34.7	4815	-	888	2993	1126	1891
5580	"	2038	2236	3.9	3.9		7064	7848	1838	66.7	1771	15.8	4883	-	644	3104	1326	2062
5581	3.11.80	2237	0046	3.2	3.2		7734	7096	2017	53.4	1962	9.9	4540	—	598	3179	923	1825
5582	3.11.80	2305	1115	5.34 in 3h20 4.64	4.24 in 4m 3.61		4748	7812	1235	102	1133	37	5766	-	1102	2684	1633	1778
5583	4.11.80	1:15	1:52				2179	2926	567	34	522	14	1928		436	1178	420	688
5584	"	10.04	10:14	4.9	4.5		532	1681	138	36	103	15	1174	ϕ	262	407	438	362
5585	"	10.16	10.25	4.7	4.3		482	1272	125	21,3	104	11	1107	-	173	314	360	268
5588	"	10:38	10.56	4.4	4.0		1028	2270	268	323	268	16	1457	-	310	686	477	589
5589	"	10:56	12.03	3.8	3.4		3928	6270	1022	80	936	36	4032	-	746	2207	1162	1536
5590	"	20:53	21:33	4.2	3.9		2363	7815	615	140	475	43	5320	—	1153	2021	1711	1917
5591	"	21:34	22:23	3.7	3.4		2947	7850	767	102	665	38	5148	0	1177	2182	1567	2014
5592	"	22:23	23:06	3.4	3.1		2556	6573	665	73	593	25	4251	—	958	1881	1440	1846
5593	5.11.80	01:40	02:58	5.3	4.5		4406	7770	1147	187	960	122	5473	—	1568	3013	1370	1482
5594	"	02:58		4.5	3.7			1187										
5595	"	04:43	05:17	5.7	4.2		1355	3817	352	144	209	193	7828	—	549	855	1196	731
5597	5.11.80	11:51	12:34	4.0	4.6		2579	7819	671	184	487	53.5	5607	-	1005	1715	2726	1586
5598	"	12:37	13:48	3.3	3.8		4209	7211	1086	108	988	48.8	5358	-	1235	2698	1423	1802
5599	"	13:49	14:09	3.2	3.7		1195	1833	312	26	286	8.8	1238	—	311	686	288	441
5600	"	14.56	14:57	4.8	5.0		41	151	10.6	1.8	8.8	0.5	88	—	55	44	29	16
5601	"	15 39	16.47	3.3	3.1		3655	5990	951	93.7	858	31.4	4010	—	957	2175	935	1443

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ [nb^{-1}]	IBM / TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ Run	$\int L dt$ [nb^{-1}]	IBM / TAPE	Beam pipe	reject event fraction	# BHABHA	# multi hadron	Beam energy (GeV)	
589	1.09	4.37	22.23	IBM	2.1	17%	51	1	18.30	beams dumped
997	1.32	7.30	29.53	"	2.7	14	87	4	"	
239	1.01	1.78	31.31	"	2.1	15%	24	2	"	beams dumped
401	1.14	2.86	2.86	"	3.3	9%	24	1	18.31	stop to exactfix the forward counter problem.
409	0.79	2.92	5.78	"	2.7	10%	27	0	"	beams lost
417	0.60	3.01	8.79	"	3.1	11%	28	1	"	
143	0.53	1.08	9.87	"	2.3	19%	14	1	"	beams dumped
462	0.72	3.30	13.17	"	3.3	10%	39	2	"	
358	0.50	2.64	15.81	"	2.5	17%	24	3	"	beam dumped
246	0.68	1.75	17.56	"	3.5	4%	14	0	"	New Fill
347	0,62	2,49	20,05	"	2,7	10%	29	0	"	
51	0.50	0.35	20.40	"	2,5	11%	1	0	"	Beam lost
364	0.73	2.51	22.91	"	3,5	6%	23	0	"	New Fill
74	0.58	0.51	23.42	"	2.6	13	3	0	"	Beams lost
863	1.03	6.27	29.69	"	2.7	15%	70	1	"	
690	0.71	5.03	34.72	"	2.0	19%	38	3	"	
538	.51	3.98	38.70	"	1.8	23%	54	1	"	Beams dumped
582	0.87	4.15	4.15	"	2.7	12%	29	0	18.32	
203	0.67	1.46	5.61		2.4	14	18	0		Beams lost
101	1.22	0.65	6.26	"	3.0	4	6	ϕ	18.321	New fill, stoped because IBM tank trouble
86	1.18	0.57	6.83	"	2.8	5%	4	0	"	" " " "
166	1.05	1.08	7.91	tape	2.8	8%	15	1	"	Stopp run to go back to IBM bank
520	0.93	3.65	11,56	IBM	2,7	12%	34	0	"	" " because of beam loss→I.O. alarm
354	0.66	1.57	13.13	"	3,0	5%	15	/	R.320	
338	0.63	1.86	14.99	"	2.7	6%	22	3	"	
235	0.58	1.47	16.46	"	2.4	7%	16	/	"	
489	0.82	3.60	20.06	"	3.5	9%	21	ϕ	18.320	
		0.49	20.55	"					"	Run summary lost.
99	0.35	0.47	21.02	"	3.3	3%	2	ϕ		new fill, beams lost
319	0.71	1.83	22.85	"	2.9	4%	14	ϕ	18.320	
362	0.56	2.34	25.19	"	2.0	10%	28	0	"	
85	0.47	0.57	25.76	"	2.0	13%	10	0	"	beam steering, no stop chambe, beam dump
7	0.75	0.03	25.79	"	2.0	5%	0	0	"	beam lost after new fill
307	0.51	1.85	27.64	"	2.3	12%	9 (really 8 since 1 Bhabha was a badpoint!)	2 3	"	forced beam dump

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT +POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3 TR.	T2 COLLIN	T2 ≥2TOF LG≥1 ≥1 TR	T1 LG14	T1 LUMI.	<L> x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

Saturday November 1, 1980

00⁰⁰ ~~Start~~ Sato and O'Neill on graveyard. Injection.

00¹³ (An unlucky number) The ominous message 'Short Break' comes up. Call PKR. Sonder Ausfall. The temperature in the Sonderhalle is too high. PKR looking into problem. No time estimate

~~00 58 1~~ 02¹⁷ Error 40 in 32251 at 2622: Power Fail

02²⁶ Call PKR again. Doesn't look good. They have just called for the sonder expert.

02³⁷ Power Failure fixed just by restarting NORD

02⁵⁰ Guess the short break will be long. Run down the magnets to 4000 A and 103 A.

04⁵⁹ Power Failure Error 40 in 32251 at 2622 again.
Fix as before. Just reload everything.

06⁴⁰ PKR calls. It will be several hours more. They suggest we run the magnet down. We already have done so. Run main magnet down to 1000 A from 4000.

08⁰⁰ Hellenbrand and Maserard. HV problems mean no beam expected for "five, six, seven.. hours."
Histogram Luminosity Monitor hasn't updated for at least 8 hours. Magnet run down to 300 A from 1000 A.

14⁵⁰ Petra attempts 16.9 GeV (Bartel in PKR): crashed after 2 minutes. restart at 17.00. Magnet at 1000 A. compensators at 103 A

16.00 Stephens & Nowakowski on shift
PETRA is still down. High voltage problem.

17.00 Estimated restart time — ~~7~~ 7.00 PM

Modifications made to JDAS in order to make further space available within the ZDAS steering program. These should not affect normal running — functions like RTCOMMON-STATUS and DAS-STATUS are now performed by YMENU instead of ZDAS. CAMAC-STATUS is performed by YMENU instead of YLIST (more logical). Tested as far as possible. HEIT

19.00 Estimated restart 21.00 hrs

19.15 Situation: - one cavity completely out - plane expert called all transmitters now working.
Plan to start at 18.31 GeV ~~GeV~~ from W. Bartel in PKR.

19.50 Injection started. Switch on the main and compensation magnets.
several attempts of ~~switching~~ were made unsuccessfully

21.30 Short break. MAGNETS TURNED DOWN

22.00 ~~to 00~~ Magnets turned on.

22.12 Run # 5568 started

22.14 I.D. trip due to unstable beam
Deadtime = 15% Event rate 1.8 Hz
channel 23 on FWD μ counters in zero.

Have put H.T. for #23 into vacant #3 and adjusted to 2500 V on FWD H.V. power supply. NB This was done at ~ 500 events into run #5569. There will still be error messages for #23 being zero and that ch 3 is 2500 instead of 2600 V

see p60

(and beam conditions carefully)

23.30 Luminosity is low ~0.8 10^{30}/cm² but we do not make new settings because PKR wish to log and understand present situation. Check again with PKR and the expts. (who have all complained about beam conditions) in ~ ½ hr.

2/11/1980

0⁰⁰ Steffen & Komamiya on shift

0⁰² IBM problem 54 just after calling up to IBM, beams lost

1³⁰ ~~Heat~~ overload alarm of lead glass crate 2. Open the door behind the electronics and cooling it down. → reset → O.K.

1³⁵ beam back, but very bad: regulator change at PKR

1⁴⁰ Start run 5570

2⁰⁰ LG threshold adjusted for 25 mV

3⁴⁰ Beams dumped for new filling

4³⁵ Muon crate Missing (#2) at the beginning of ~~the~~ Run 5572 reset O.K.

5²⁰ Muon crate Missing #2 reset O.K.

6²⁰ JDAS Error 56 Suberror 405 TASK 1 (TOF bank length = 45 (octal))

7³⁰ LG threshold adjusted for 10 mV.
Histograms taken at end of shift

08⁰⁰ Marshall and Closier on shift

08⁴⁵ New fill arrives bad background is very high (9-10 V) - same for other expts. Beam lifetime is correspondingly short Dumped

13⁰⁰ Beam loss, chamber alarm.

RUN	DATE	START	STOP	I^+	I^-	MARK DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HADTONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG71 ≥1TR	T1 LG74

T1 LUMI.	<L> x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

10⁵⁵ Try again — conditions are slightly better but not brilliant. Lifetime is large, but background still high (Specific luminosity is low)

16⁰⁰ Warning of Takeda

16⁰⁵ PKR starts orbit correction.

16⁰⁵ ID tripped. RUN stopped due to high backgrounds

16²⁵ Beams lost during orbit corrections

17⁴⁰ Modifications made to Colour Television program so that N50 rejection rates are calculated over a period of 5 minutes instead of 30 seconds (INST) and in the case of TOTAL are not displayed until at least 4 minutes into run. H.E.M. (but every 30 seconds after that). Tested with PLAY-BACK

18⁵⁵ New fill ready. RUN 5579 start.

20⁴⁰ We asked for ∫L dt CELLO : 17 (due to power failure) TASSO : 28-29
JADE : 30 MARK J : 26

21⁰⁵ Mark J asks whether it is possible to have a new fill now at the same energy and change energy in the middle of the fill.
PKR cannot make a new fill because of breakdown of Linac
so we keep this fill

23⁰⁰ Linac still down, we keep this fill for another ½ - 1 hour

3/11/80

0⁰⁰ Bowdery and Nozaki II

0⁴⁵ We asked ~~to~~ PKR to start new filling with new energy 18.32.
JADE ~38 nb⁻¹ CELLO ~22 nb⁻¹ MARK J ~35 nb⁻¹ TASSO ~29 nb⁻¹ at 18.31 GeV

0¹30 Injection problems → Kurze Unterbrechung (LINAC II problems)

U.B. over FWD μ Channel #23 (ie tube #24) currently on HT channel #3 (see p59) still shows very low number of hits on HIT MAP (1 or 0 per run). Will inspect again when new filling ready.

0245 We power down main magnet to 4000 A & compensators to 103 A.

0254 Have solved the FWD μ problem (maybe). During the evening of 1/11/80 HT channel #23 died. Cable #23 was then moved to position where cable #3 used to be and channel #3 was set to HT for channel #23. BUT cable #1 is connected to the channel known to the power system and computer as #0. Therefore cable #24 (ie in channel #23) should have been moved to vacant channel (which is channel #2) and channel #2 should have had its HT changed. This has now been done (except HT changes to channels). Hopefully this will solve the problem.

REMEMBER: FWD μ HT SYSTEM: cables labelled #1 - #32 are in HT channels #0 - #31 !

0300 TV screen & announcement: RESTART 6.00 PM (18.00 hr)

0330 Performed a stage 1 power up so as to reset FWD μ HT channels as explained on p60.

Channel	Requested	Actual	Action
#23	0000	9999	'9999' or a 'junk' value ⇒ left unchanged
" #3	2500	2500	changed to 2600 V O.K.
" #2	0000 ?	9999 ?	It looks as though this channel has died (cannot equalise 'request' with 'actual' voltage)

CONCLUSION: cable/tube #24 has a short or some problem and it has killed HT channels #2 & #23
We remove cable #24 from HT system which now has 2 dead channels.

0345 JADE HV is off again. We power down magnet to ~800 A.

0619 It had to happen..... a bulb blew on the unit above the colour TV! Replaced by spare in drawer.

0629 We are requested to turn all 3 magnets off. No ID alarm occured.

0800 Goddard & Krehbiel on Shift. Petra TV still says Restart 6 p.m. Telephone call to PKR. Experts are checking the Linac II Injection Gun. If it has to be exchanged, it will take 9 hrs, i.e. at least till 17⁰⁰. If not, restart will be at noon earliest. So there is no point in keeping up a two p hands watch. Magnets are switched off. I.D. run down. IBM down.

4000 All channels of HV power supply for fwd μ entrs reset. However cable 24, connected to HV channel #23 trips the HV supply immediately & therefore must be left disconnected. See Book 4 p81 (ch H) PM #3, (connected to HV channel 2) is dead and is therefore also disconnected.

1200 ~~I~~DAS system rebuilt to permit shortened ZDASX. Tested with PLAY-BACK.
Disc regeneration started at 12:00. It is expected to finish at about 12:45.
Will then dump the disc, if time allows (BACKUPS) (H.E.M.)

1315 Backup completed.

1430 Test of chaining two DL-8 crates together. Crate 7 branch 4 is now read out via crate 6 branch 4. Please watch carefully possible readout errors e.g. in Nord50 run summary. If many errors please call R.Eichler to have the system changed back (takes ~ 2 minutes)

1600 Hellenbrand / Minowa on shift
still no beams

2000 magnets powered up Error message says...

2355 RUN 5582 started. Many FWD μ HT channels have wrong values.

0:00 HEINZELMANN & BAMFORD on SHIFT.

4.11. 0:20 Phone M. Caldwell he says set the voltages to those given in the list in TOF folder. OK do the list error messages still appear.

1:52 Beams lost, new stable beam.

4:00 Phone PKR, they are having problem with the injection system. still no beam.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HADSTONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG ?1 ≥1 TR	T1 LG?4

T1 LUMI.	<L> x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

4.11.80 4:10 Shot track appears on the screen.
5:00 Rechts 9:00 Am Magnets turned off.
8:00 Watanuki, Weber on shift
Machine adjusted for running at 10.04 at E_B = 18.321 GeV. Dead time at beginning of run 5584 ~30%, rate ~ 83 Hz
10:10 FORWARD MUON COUNTERS. – HV values adjusted to values listed in B. NAROSKA's file at todays date. Ok CRHedgcock.
11 20 LG Threshold ok.
11 53 during run 5589 take standard histograms. Note that Muon Chamber hit map has more gaps than 2 days ago. Call McCann.
14:00 McCann and Lassard came to work on the muon system (at ~ 12.15) Hope they will return to record the present status of it in the log book. Status: There are 8 chambers with low count rates. These have all been noticed offline and checks are being made. JH. Please monitor muon hit map closely when running in case more holes appear.
15.00 There is still no beam because of trouble with an RF-cavity (waterleak) Estimated repair time ~ 1 hr. Therefore: Lower Magnet current to 4000 A
Comp. " s to 103 A
Do not forget to reset currents to required values before next run.
16:00 Watanabe, Direkt

There will be no injection before 19.00, therefore magnet currents already lowered to their power saving values
A:15 Magnet currents are up again
20:50 At least new fill ready, start run 5590. μ-cable 2 missing, reset ok
High background (30-40%), low luminosity ($0.7 \cdot 10^{30}$), PKR tries to improve
LG thresh. 10 mV.
time out errors four times in a row at ~~exits~~ 703 (~~fetch~~ Rip3), but no errors after that.
21:33 Run 5590 ended. std hists printed. look ok.
22:23 Run 5591 s std hists inspected "
time out errors at 703 Twice.
23:06 Run 5592 ended. beams are dumped.
Unterbrechung wiederbeginn 0 AM. on the screen. Lower magnet
To repair RF cavity which is on the edge of operation.

5.11.1980
0:00 McCann + Minowa on shift.
no beams, the TV screen shows "RESTART 1.00 AM".
0:39 Injection started.
0:48 I^+ = 6.7 mA, I^- = 6.8 mA; raise the solenoid and compensation magnet currents to the normal settings.
0:58 electron beam is lost.
1:40 Beams are ready Run 5593 started.
1:43 ID trip. Standard R1 call 7.
2:58 Start run 5594.
3:10 Beams lost. Causes I.D. trip. Causes NORD hang-up.
Have to stop & restart NORD. Run summary lost!
Discover afterwards that we should read notices re terminal non-response!
4:50 NORD says Channel (19) ~~FWD~~ μ counter (counter No 20) has HV = 0.019 kV, should be 2.650 kV
CRHedgcock says should be 2.700 kV. Set to 2.700 kV
4:53 Very high background reading suddenly occurs & remains (~5.0)
I.D. chamber current scope shows very high currents. Pause run and switch I.D. off. Phone PKR. In ~ 7 mins, B4 ~ 2.5.
5:02 PKR say they will maintain this condition, so switch on I.D. & continue.
5:17 Beams lost. Background now extremely low!
6:20 PKR announce a break until 09°°.
" Magnets turned down and switched off – by request of PKR or power people.
This sets off the I.D. 'magnet trip' alarm – can't get it to reset while magnet is off, so we just switch off buzzer.

DON'T FORGET TO SWITCH I.D. ALARM BUZZER ON AGAIN AT RESTART.

8:00 Wenninger + Totsuka on shift
9:20 Magnet on again.
11:50 start luminosity run 5597
12:20 LG threshold adjusted. to 30 mV
14:00 χ chan 19 = 2.650 adjusted. (spurious)
14:56 restart with new fittings – Magnet trip down in JET-DETECTOR – beam lost after a few minutes.
15:49 LG threshold adjusted to 25 mV.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HADSTONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG ?1 ≥1 TR	T1 LG?4

T1 LUMI.	<L> x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

05.11.80 16:00 Bardeen and Nozaki II on shift.
16:15 ID trip. Anode Current.
16:23 ID trip again same address
16:45 PKR requested HV Power Off → then we switched off the magnets ⇒ NO BUZZER

CELLO 15.2 nb⁻¹ TASSO 23 nb⁻¹ MARK J 30nb⁻¹ JADE 27.6 nb⁻¹

↓ V.bad background ↓ bad background last run OK ↓ fine except short beam lifetime caused 2 ID Trips

We agree to continue at this energy at 19.00.

Colour Television

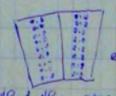
During the last few days we have occasionally noticed rubbish characters appearing on the TV. I suspect the hardware - such as the PADAC TV module or crate controller. If such characters appear I suggest you ignore them! HEM

19:05 Acceleration started
19:19 RUN 5602
19:40 LG threshold 20 mV
20:23 " 15 mV
21:00 CELLO 18 nb⁻¹, TASSO 26 nb⁻¹, MARK J 36 nb⁻¹ JADE 33 nb⁻¹
21:12 Beam lost. → All power supplies tripped and water leak alarm. PKR has to go into the tunnel

Energy change requested.

During the last run about 10% of all events were longer than 6000 words. It seems to be an inner detector problem. ID histograms look very peculiar. Herr Riesselberg will come. Runs 5602 + 5603 may be seriously affected.

The high rate of long events is due to the - known - type of peculiar events, where in several cells there are many hits near to the wire



etc.

Mr. Dallmann points out that the signals are coming from the V34 electronics as they are seen by the T_2 trigger. The phenomenon depends on the beam conditions.

In the next fetching, Run 5604, the situation has much improved:
24 MON1 events (more than 6000 words) in the first 500 events,
but only 36 MON1 events in the first 2200 events
Histograms look normal again Rainer

6.11.80 0⁰⁰ Pearce, Chilen
1³² Requested new filling at same energy in 10 minutes. I^+=3.1/3.2. SL=10²⁹
1⁵⁰ Beams dumped
2²⁵ Beams back. We get 2 spurious magnet trip alarms for 1.D. The magnet is stable
HV mainframe 1 channel 19 ?0. Set it manually to its nominal value = 2650 V.
6³⁵ Beams dumped. We switch off magnets and magnet pumps.

8⁰⁰ Nozaki / Eichler
Fwd. muon chs. Channel 19 - we have had several trips on this channel. Probably HV breakdown. If it persists. - we may have to run at lower voltage. CHH

9:50 Problem with compens. magnets. Call Hedgcock. Reset alarm in pump-house (alarm was set, because pumps were switched off)
9:55 Now alarm on main magnet. Rücklauftemp >80°
10,20 START RUN 5609. Magnet to 7000A only for a while
10.30 Change magnet current to 7500 A. LG threshold is adjusted.
10:48 Nord-10 crash. Stop in ZREAD or ZCAM. No reset event. Stop and restart runs did not help. Exit ZDAS and restart ZDAS did work! Crash occurred by: Display histogr., + Compiles running
11.20 ID-trip. beam lost
11:50 lower magnet current to 4000A, People have to go into Petra tunnel. Will take ~30 min.
12:30 Magnet on
12.46 beam back. BP 3,9. in a few minutes came down to 2,0 dead time 50% → 15%.
13.55 LG-threshold adjusted
13.01 IBM dust IRM Error 54. restart OK.
14,43 beam lost. Senderausfall (maybe bad vacuum). Several pumps down in Petra
1600 Steffen and Hassard; Cords replacing Steffen at 17.30
PKR say they wont have stable beams before 16,50. At 17.00 we start the energy saving for 2 hours. So we turn magnets down to 100 Amp main 25 Amps compens.
The problem with Petra is that there's a vacuum leak.

	Mark J	Tasso	Cello	Jade
nb⁻¹	23.7	~19	13	23.28

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SEC)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT +OSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1 TR	T1 LG>4
5602	05.11.80	19:20	20:41	3.8	3.9	[illegible]	4818	7554	1254	113	1141	47.5	5024	—	1496	3033	859	1579
5603	"	20:41	21:17	3.6	3.7		1879	2574	489	37.8	451	10.6	1777	—	549	1185	229	479
5604	5/11/80	22.46	00.09	3.7	3.8		5009	7813	1303	105	1198	46	5079	—	1326	3090	1005	1662
5605	6/11/80	00.09	1.48	3.7	3.8		5873	6731	1528	92.5	1436	28.7	4448	-	1006	3023	681	1493
5606	"	2:45	4:09	5.7	5.7		4982	6825	1296	86.3	1210	40.0	4561	—	1208	2974	662	1404
5607	"	5:17	5:19	≈5	≈5		84	230	21.9	4.7	12.2	1.1	185	-	89	110	18	28
5608	"	6:12	6:39	5.0	5.3		1602	2907	417.1	40.2	377	8.2	1892		606	1033	437	612
5609	"	10:18	10:28	3.2	3.7		1662	2571	406	31.7	375	13.6	1614	—	429	1005	280	563
5610	"	10:54	11:22	4.3	3.0		1692	2224	440	25.1	414	10.3	1399	-	331	922	220	503
5611	"	12.46	14:05	5.3	5.5		4700	7830	1223	138.4	1084	52.9	4894	—	1311	2766	1049	1748
5612	"	14.06	14:43	3.3	3.6		2218	2978	577	34.1	540.1	14.7	1887	-	425	1214	357	703
5613	"	1929	2048	5.4	5.5		4591	7811	1194	105	1088	47.7	5087	-	1321	2825	1267	1647
5614	"	2046	2214	3.7	3.8		5303	6943	1379	83	1297	35.9	4466	-	1109	2883	760	1574
5615	"	2248	2307	5.5	5.5		905	1947	235	32	203	13.5	1268	—	371	667	330	409
5616	"	2310	2327	4.7	4.1		875	1377	227	17	210	7.8	902	—	205	562	188	307
5617	"	2325	009	4.5	4.1		2475	3348	644	39	578	16.6	2155	—	456	1208	502	786
5618	7.11.80	058	100	5.0	5.1		348	837	91	13	78	5.4	552	—	199	289	152	162
5619	"	102	226	4.9	5.0		4825	7874	1255	100	1155	46.7	5101	—	1317	2890	1160	1813
5620	"	226	332	3.2	3.3		3938	5172	1025	58	967	24.1	3442	-	838	2117	693	1190
5621	"	406	529	5.4	5.3		4793	7820	1247	103	1144	47.1	5081	—	1385	2980	1022	1847
5622	"	530	638	3.8	3.6		4070	5298	1059	59	996	24.4	3410	—	811	2219	603	1365
5623	"	10:19	11:43	3.8	4.0		4994	7766	1299	103	1195	42.3	5147	—	1267	2923	1243	1618
5624	"	11:48	12.42	3.4	3.5		3194	3991	832	42.3	790	16.1	2630	-	587	1737	1737	894
5625	"	14:49	14.51	4.9	4.4		115	390	28.9	7.1	22.9	1.6	251	-	102	112	66	88
5626	"	15 56	16 06	4.2	4.1		566	2149	147	97.7	49.6	3.7	1527		182	225	626	422
5627	"	1928	2030	3.6	3.7		3625	7817	943	92.1	851	33.6	5769	-	1516	2531	1328	1965
5628	"	2030	2132	3.3	3.2		3617	5964	941	64.9	876	25.7	3852	-	1024	2280	725	1585
5629	"	2328	024	4.4	4.2		3526	7805	918	117	800	53.1	5730	—	1451	2529	1200	1921
5630	8/11	027	059	4.0	3.8		1870	3305	471	36	434	14.2	2093	-	541	1153	529	855
5633	"	107	141	3.6	3.4		1737	2663	452	30	422	9.4	1700	-	436	972	388	672
5634	"	508	607	5.6	5.5		3409	7828	885	112	773	43.1	5463		1200	2223	2206	1564
5635	"	607	743	3.6	3.1		5534	7830	1440	93.8	1346	35.0	5182	—	1257	3059	1202	1746
5636	"	743	751	"	"		438	611	114	6.1	108	2.2	401	-	87	241	10.2	140
5637	"	752	802	3.5	3.0		473	695	123	7.0	116	2.5	462		85	269	145	169

T1 LUMI.	<L> x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	
617	0.92	4.41	32.05	IBM	3.0	12	62	0	18.32	} possible ID problem : 10% of events > 6000 counts
765	0.63	1.18	37.23	"	2.5	16	8 [illegible]	1 [illegible]	"	Beam lost.
714	1.02	5.13	5.13	IBM	3.1	14%	61	3	18.33	
465	0.58	3.42	8.55	IBM	2.0	18%	27	1	"	Beam dumped
475	0.69	3.44	11.99	IBM	2.1	15	44	1	"	Beam Lost
10	0.78	0.07	12.06	"	2.4	7	2	0	"	Beam lost
229	1.02	1.63	12.69	"	2.7	10	14	0	"	Beam dumped
269	1.21	1.89	14.58	"	2.7	12	16	1	"	Nord-10 crash (?)
222	0.94	1.59	16.17	"	2.5	18	11	2	"	beam lost
735	1.14	5.35	21.52	"	3.9	11	51	0	"	
239	0.79	1.76	23.28	"	2.1	15	25	0	"	beam lost
678	1.06	4.88	28.16	IBM	2.5	11	56	2	"	
559	0.78	4.12	32.28	"	2.1	15	38 [illegible]	8 [illegible]	"	beam dumped
169	1.31	1.19	1.19	"	3.0	9	9	0	18.34	IBM down, run stopped
111	0.92	0.80	1.99	TAPE F22A03	2.5	14	8	1	"	↕ μ crate 8 dead (power trip)
243	0.72	1.78	3.77	IBM	2.2	13	22	1	"	beam lost
59	1.03	0.36	4.13	"	2.8	8	2	0	"	IBM down run stopped
482	0.70	3.36	7.49	TAPE F11044	2.6	12%	27	2	"	
255	0.46	1.83	9.32	IBM	2.5	15%	17	1	"	beam dumped
478	0.73	3.48	12.80	"	2.9	12	32	1	"	
270	0.47	1.92	14.72	"	?	16	18	1	"	beam dumped
646	0.93	4.63	19.35	IBM	2.8	13	48	4	"	IBM failure, run stopped after 7402 events
282	0.65	2.09	21.44	"	2.0	18	16	1	"	beam dumped
14	0.74	0.09	21.53	"	2.8	4	2	0	"	beam lost
90	0.27	0.15	21.68	"	3.5	2	0	0	"	BEAMS LOST.
252	0.44	1.61	23.29	"	2.0	8	10	0	"	
194	0.36	1.30	24.59	"	1.6	12	16	0	"	NEW FILL REQUESTED - BEAMS DUMPED.
430	0.76	2.69	27.28	"	3?	8	40	0	"	NEW BEAMS AT LAST!
178	0.65	1.18	28.46	TAPE	1.9	11	6	0	"	IBM Rung up
153	0.61	1.06	29.52	711 135	1.5	12	13	0	"	Went into high Beam Lost
439	0.80	3.06	32.58	IBM	2.5	8	40	1	"	
524	0.70	3.85	36.43	"	1.4	14	48	0	"	
32	0.55	.24	36.67	"	1.8	15	2	1	"	
28	0.42	.20	0.20	"	1.8	14	2	0	18.35	Beam lost

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT HOSTRONG $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 $\geq$2 TOF LG>1 $\geq$1 TR	T1 LG>4

6.11.80

19[30] new filling & magnet at full current.
RUN 5614: IBM ONLINE ERROR CHECK 2: WRONG BANK
22[15] new filling requested
22[40] new filling available!
22[55] FWD MU counter trip #19 again + again at 23[17]. Reset to 2700 and then to 2600. If this unit trips again please reset voltage to 2550 V.

7.11.80

0:00 Peterson & Takeda on shift
0:10 Histograms show that Muon power-supply for μ-crate 8 (roof) has tripped. Spelman replaced with Spelman from Halle II. For all Run 5617, much of 5616, this part of the filter was dead. Sparking persists in -Z endwall but since currents are still low I decide continue at old voltage. TH
Chambers affected are 311-322, 339-340, 407-419.

1:10 pl-hitmap was checked. OK.
1:20 LG-threshold was set −10 mV (minus 10 mV) !!
1:30 + 5 mV (rapidly changing)

8:00 Nozaki, Bell on shift
9:05 PKR says there is some water in beam pipe
10:15 New fill. HV's switched on.
10:17 Run 5623 ~~started~~ started
10:22 FMC channel 19 was 2000 V, should have been 2050 V. Was set
10:24 LG threshold 25 mV
11:43 IBM down. Run 5623 stopped
11:47 IBM back up. Run 5624 started
12:42 Beam dumped. Run 5624 stopped
14:41 ID HV input alarm.
14:47 Run 5625 started with new fill.
14:50 Beam lost.
15:54 New fill, run 5626 started
16[00] STEFFEN & HEDGECOCK (ALIAS A. WAGNER) ON SHIFT.
16[10] Beams lost
16[15] no lumi before 19[00]: magnets taken down
19[25] beams back, start Run 5627
23[15] VC THRESHOLDS ADJUSTED.

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

P. 11. 0[00]
Dimm, Felst on shift
0[45]: Cello: 23 nb^{-1} JADE: 28 nb^{-1} MARK J: 31 nb^{-1} TASSO: 16 nb^{-1}
1[00]: IBM hung up
1[41]: Beam lost, water in the PETRA tunnel short break
5[08]: Beams again
5[45]: Mark J: 35 JADE: 32 CELLO: 25 TASSO: 19
5[30]: By optimizing the background for CELLO specific luminosity dropped by almost factor of 2 compared ↑ change of R-value
6[10]: specific lumi o.K again
6[45]: Looked through Mod-80 Histograms and did not succeed in finding new faults
8:00 Drumm and Boudry on shift.
We power down the magnet to 4000 A as restart of PETRA is not until 9:30.
8:56 PETRA tunnel is closed after access to remove water. This water could become nitric acid under the action of synchrotron radiation on nitrogen and oxygen and the acid rusts the machine.
NOTE: Current energy is 18.35 GeV which was the energy we ran at in June 1980 (uncorrected energy 18.3 GeV) (Info. from S. Kurokawa)
9:27 We restore magnet currents to working values (7500 A, 8000 A, 8000 A)
10:36 Beams lost after 5 minutes of running. ID trip.
11:45 Phoned around the experiments ⇒ everybody is happy with this fill!: $\langle L \rangle_{TASSO} = 0.91 \times 10^{30}$ $DT_{TASSO} = 6\%$
11:50 Drumm replaced by Warming.
13:00 Warming replaced by Drumm.
13:35 Magnet trip caused inner detector trip while waiting for IBM repairs to be done (~5 minutes) and during discussions with the other experiments about refilling. If you think you are confused well. Refill agreed but we noticed that the numbers of triggers on the run summary were less than those displayed on the TV and the hardware scalers. Phoned Dittman ⇒ he says we should watch this, next run. K-Gruppe are here to look at magnet.
15:45 Run summary / scaler anomaly seems to have been only for one run. However we have noticed something else which is wrong ⇒ T1 ACCEPT+POSTPONE DOES NOT AGREE WITH T2 REJECT for long runs. ↓ (for TV > run summary) only 24 bits scaler
15:50 Beams dumped to allow 30 minute access into PETRA to repair CELLO collimator
16:00 Eichler and McCann on shift
16:45 New fill ready, but background is high (P ~ 4.0). Takes about 10–15 mins before it falls. Try to switch on at 2.8 and get I.D. trip, Start run 5643 at 16.59.
17[05] PKR asks for access to Cello area, because collimator is stuck. We give permission since otherwise Cello could not run. Estimate: 30 min.

RUN	DATE	START	STOP	I^+	I^-	VAC. DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT +OSTPONE $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 $\geq$2 TOF LG>1 $\geq$1 TR.	T1 LG>4
5638	8/11/80	10.31	10.36	4.5	3.8		284	1026	73.8	37.1	36.6	2.6	810	0	113	153	604	138
5639	"	~~11.14~~	12.24	~5.0	~5.0		4159	7835	1082	114.3	968	31.7	5434	0	1321	2617	1778	1517
5640	"	12.25	13.32	4.0	3.9		4020	5283	1046	57	989	22	3576	0	933	2368	523	1087
5641	"	14.37	15.12	4.3	4.3		2065	3705	537	48	488	22.5	2447	0	799	1406	404	762
5642	"	15.14	15.50	3.9	3.8		2123	3131	553	38.6	513.3	17.1	2077	—	549	1269	361	621
5643	"	16.59	18 13	3.9	4.0		4332	7806	1128	111.7	1016	43.7	5240	—	1442	2830	1201	1681
5644	"	18.16	18.42	3.6	3.7		1537	2111	400	23.5	376	9.8	1385	—	379	866	270	435
5645	"	19.59	20.59	3.9	4.1		3500	7830	910	98.5	812	38.6	4825	—	1293	2323	1225	2271
5646	"	21.00	21.05	3.9	4.0		272	425	70.7	5.1	63.7	2.0	270	—	77	161	42	113
5648	9.11.80	0.55	2.21	3.8	3.5		5131	7825	1335	107.9	1226.8	52.7	5134	0	1468	3168	817	1579
5649	"	2.21	4.00	3.2	2.8		5555	6916	1549	737	1468.6	34.0	4608	0	1136	3247	530	1445
5650	"	4.27	5.50	3.7	3.7		4428	7823	1282	105.6	1176.8	43.2	5084	0	1512	3124	735	1505
5651	"	5.50	6.07	3.5	3.5		925	1186	241	14.0	226.5	6.1	770	0	206	522	94	242
5652	"	6.40	8.00	2.9	2.8		4818	5543	1253	60.9	1192.4	24.1	3644	0	933	2543	392	1201
5653	9/11/80	8.44	9.52	3.7	3.7		4043	7825	1052	111	942	62.9	5201	0	1634	2827	1021	1771
5654	"	9.52	11.07	3.1	3.0		4505	6504	1172	73.6	1098	30.1	4241	0	1124	2591	749	1687
5655	"	15.11	15.31	4.5	4.5		1118	3679	291	64.9	226	14.3	2228	0	477	786	864	1069
5656	~~5 shots~~	No events	read in	~~5656~~			but had to be restarted (re initialized)											
5657	"	15.38	16.53	3.5	3.4		4513	7848	1173	89.6	1084	34.8	4863	0	1160	2521	1281	2250
5658	"	16.54	17.10	3.4	3.3		949	1172	247	13.0	223.9	5.0	712	0	179	426	126	352
5659	"	19.37	19.51	4.6	4.6		787	3122	205	86.7	118.2	12.4	2015	0	346	478	673	780
5660	"	20.03	20.23	4.0	3.9		1165	2383	303	29.2	274.0	12.2	1444	0	421	744	302	660
5661	No events since tape bad / tape unit error / tape unit OK. — IBM back again —																	
5662	"	20.46	21.54	3.2	3.1		4064	5943	1057	68.9	988.5	24.8	3789	0	1138	2346	434	1526
5663	10/11.80	4.10	4.43	5.4	5.4	$62 \cdot 10^{-3}$	2178	7716	566	157.4	408.9	22.2	5098	—	1879	1905	922	1750
5664	"	4.48	5.56	4.5	4.6		3684	8002	958	115.2	842.8	25.0	4799	0	1546	2542	1063	1749
5665	"	5.56	6.50	4.2	4.0		3177	6351	827	62.3	764.8	22.7	3840	0	1185	2231	771	1540
5666	"	11.48	12.04	5.01	4.9		955	2233	248	26.4	214	7.1	1606		415	684	615	415
5667	"	13.08	13.55	5.96	5.58		2793	7003	727	129.9	592.3	26.2	5200	0	1410	2025	2145	1329

6167	3.2.81	9.25	9.36	2197
6168		9.37	10.22	9420
6169		10.25	10.33	1568
6170		10.34	10.56	4530
6171		11.00	11.18	3751

Σ = 21466

U_D: 6046/8677/6393

U_A = 2286

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	COMMENTS
T1 LUMI	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$ CURRENT ENERGY	IBM/ TAPE	B.P. (VOLTS)	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	COMMENTS
17	0.30	0.09	0.29	IBM	2.7	3%	2	0	18.35	Beams lost (218 events with MU CRATE MISSING)
490	0.87	3.60	3.89	"	2.7	10%	34	1	"	
329	0.59	2.38	6.27	"	1.9	16%	18	0	"	Beams dumped (Numbers in pencil are from colour TV)
301	1.04	2.14	8.41	"	3.0	11%	13	1	"	
234	0.80	1.70	10.11	"	2.0	13%	19	0	"	Beams dumped, access for Tello-collimator-repair
467	0.75	3.27	13.38	"	2.9	11%	28	1	"	
120	0.56	0.86	14.24	"		14%	12	0	"	
354	0.61	2.14	16.38	"	3.0	8%	22	0	"	
22	0.45	0.12	16.50	"		11%	1	0	"	Beams lost.
685	0.93	5.07	21.57	"	3.0	13%	50	5	"	
493	0.62	3.68	25.25	"		18%	32	0	"	Beams dumped
791	1.11	5.85	31.10	"	3.2	12%	66	2	"	
106	0.86	0.80	31.90	"	2.2	18%	9	0	"	
417	0.63	3.05	34.95	"	2.0	18%	37	0	"	Beams dumped
333	0.61	2.46	2.46	"	3.1	10%	30	2	18.36	
275	0.43	1.94	4.40	"	2.3	14%	18	1	"	Beams dumped.
152	0.73	0.81	5.21	"	2.4	5%	4	0	"	
372	0.53	2.38	7.59	"	1.9	10%	23	1	"	
52	0.38	0.36	7.95	"	1.8	14%	4	0	"	beam lost
159	0.76	0.60	35.55	"	3.0	2%	6	0	18.35	← test for PKR luminosity meas. at 18.350 GeV !!
160	0.90	1.04	8.99	"	2.5	9%	7	1	18.36	← IBM link down + IBM down
369	0.64	2.62	11.61	"	1.5	14%	34	3	18.36	Magnet trip — no beams to reset — beams dumped.
376	0.67	1.45	1.45	"	2.0	4%	15	0	16.300	no fill; transmitter broken → lower energy; ~~begin~~ run of "wrong points"
589	0.93	3.44	4.89	"	≈2.0 ≈1.0	8%	45	3	"	high background at begin of run, and not to good run
431	0.85	2.71	7.60	"	0.9	10%	31	1	"	beam dumped for ~~workday morning~~ ~~—~~ power switch off
123	0.42	0.88	12.49	"	2.4	8%	10	1	18.36	Beam lost
354	0.93	2.59	15.08	"	~2.5	6%	30	0	"	

Tape FH 101 "

Tape FH 112 "

MIRAC gestorben

MIRAC gestorben

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT HADTOTAL $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 $\geq$2TOF LG71 $\geq$1TR	T1 LG7/4

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8.11.80

19:55 New fill ready. Start run 5645

21:40 Magnet tripdue to trip of water pump
Problems with Desy magnets continuing ⇒ K-people cannot come immediately

9.11.80

0:00 Hanabata, Wriedt
K gets our magnet working again, magnet back to 7500 A.

~~ADC~~ TEST-ADC bank has now ≈ twice the old length. Mipro ~~ADC~~ 2099 is reading the same data as Nord and both results are in the bank for offline comparison.
Please call R. Eichler for problems with branch 2, crate 4. Data from run ~~3~~ 5648 should ~~not~~ have correct ACC 2099 data.

5:43 $\int \mathcal{L}\,dt$ ~~for~~ 18.35 GeV Beam-energy so far: MJ 31 nb^{-1}, J: 30.5 nb^{-1}, T: 26 nb^{-1}, C: 22 nb^{-1}

6:05 Several time-outs in LG-ADC (Branch 2, crate 6). We call Minowa. Run stopped.
6:40 Problem is fixed by Minowa. Data-taking is continued. (exchanged the crate controller)
7:45 We ask PKR for new fill and new energy (18.36 GeV) at 8:00.
8:00 WATANABE & BAMFORD ON SHIFT
8:40 Show run 5653 after Bright with beam pipe current.
LG threshold 30 mV
09:15 Bartel called. He is going to ask around to decide if we should lower the energy.
09:30 JDAS error 56 SUB 405. wrong TOF length.
9:51 Show run 5654. Std hists printed. looked OK.
11:15 Beam dumped, refill at some energy. They think the problem is understood as a matter of fine tuning according to Bartel
11:30 Show break appears on screen. PKR says they are having trouble with position magnet.
12:15 They still do not know how kurz is kurz.
12:30 Estimated restart time is 14:00. Lower magnets to 4000 A & 103 A.
It's too a nice sunny sunday to sit in the control room just waiting. At least the TSO ~~terminal~~ terminal, which someone wrote "broken", appears to be working. (But job execution takes as the
14:00 PKR has started to inject. Bring up magnets to nominal settings.
15:10 Show run 5655. High background problem which PKR we trying to fix.
15:35 L.G. crate 2 overflows we replace. In checking fault we lose run sequence 5656.
This is a known problem with the power supply. Design is not too good, and the heat dissipation is inadequat. Nothing really wrong with the power supply itself. So when this happenes again, especially in the middle of night, just change power pack with the one sitting on the floor nearby (Wiesen by then), which should be cool enough to survive until shutdown.

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L\,dt$ RUN	$\int L\,dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

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9.11.80

16:00 Wenninger + Heinzelmann
17:10 beams lost. ID-trip. PETRA has waterleak
17:30 Magnet trip ≈ 1800 Magnet current restored.
18:40 PKR has computer problems
19:30 New fill ready. Nexemann PKR tries to solve the problem with the low lumi at 18.36 GeV.
Measure with this fill Lumi at 18.35 GeV (Run 5659) and 18.36 GeV (Run 5660)
⇒ lumi is high again. Problem disappeared!
≈20:00 wires 1424–1440 missing. V34 fuse broken. repaired from Run 5662 on
22:00 Magnet trip. Magnet cannot be switched on again. call K-group. Pilotthermointerlock lamp off.
They don't know what that means. They switch pumps off and on again ⇒ magnet current raises.
Fault remains unexplained.
22:15 ask for new filling.
22:30 PETRA has problems with transmitter

0:00 | 10.11.1980 Kobayashi and Drumm on shift
2:00 the faulty transmitter cannot be switched on again, maximum reachable energy is about 16.36 GeV/beam.
After discussions with PKR and Bartel and the other experiments we finally agree to the following decision:
We start the scan of the missing points: 16.300 GeV ⟶ upwards as far as possible in the remaining run-time, finally even if the faulty transmitter should work again.
This last point can still be discussed (18.366 GeV: 8 MH at 19.61 nb^{-1}!)

PKR takes the frequency as high as possible (since .663 as before at 18.3.. GeV)
PKR tries a fill from last weekend for 16.3 GeV. The filling at 16.364 GeV (~~but~~ the transmitter problem got serious) gave the following luminosities: $L \approx AL \approx 1.0 - 1.1 \cdot 10^{30}$, SL ≈ 10.–11.–$10^{28}$, I ≈ 4.5 – 4.7 mA, (radiative Bhabha rate ≈ 2.5 Hz, dead time ≈ 8%)
first measurement without data working ⟶
This filling (with the 18.36 GeV fill) was dumped for getting new beams with 16.36 GeV.
In the case that the 16.3 GeV fill is worse, ⇒ PKR takes the 18.3 GeV fill.
4:00 Finally stable beams at 16.300 GeV. We have high background, which gets acceptable after orbit correction.
4:10 We are running! Run 5663 started.
4:25 JD trip due to bad beam. Several times. Some events in Run 5663 without ID information.
4:50 ~~Be~~ Minos Crate 3 (and 13?) missing at begin of Run 5664.
5:00 26.36 GeV fill gave worse luminosity (SL ≈ $5 \cdot 10^{28}$). PKR moved towards 18.3 GeV fill, but stability problems. High background. JD trip.
Elapsed remember between both fills. Lumi better (SL ≈ $10 \cdot 10^{28}$)
After "Bankenfehler" very good beam conditions for us: background: 1.1, ~~what~~ rate ~~2 Hz~~ ≈ 2 Hz, dead time ≈ 8%
Beam lifetimes ≈ 11 h, currents 4.8/4.9 mA. $L \approx 1.2\ 10^{30}$, SL ≈ $10 \cdot 10^{28}$
8:45 good beams and data up to now. Data taking stop, beams dumped, magnet run down for 2 hour period off of power at workday mornings.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HOSTRONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG71 ≥1TR	T1 LG74

T1 LUMI.	⟨L⟩ x10³⁰	Skdt RUN	Skdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

14/11/80

8:00 Bell, O'Neill on shift
9:00 Break until 10:00
10:00 Magnets raised. Stuff still at 18 36 GeV
11:46 New fill. Run 5666 started
12:02 Beam lost. Run 5666 stopped.
13:06 Beams again. Run 5667 off and running (still "Injection")
13:10 I.D. Trip.
13:15 Injection sign still up. ΣBp is low ~2 but dead time is ~30%
13:16 Luminosity sign up.
13:53 Beams lost.
14:50 PKR have problems with a klystron (air in it). They say they could run at 16.9 GeV
15:00 Short break appears. Magnets run down.

16⁰⁰ HRBgeode & Petersa on shift.
21³⁰ PKR says we will not have beams tonight. In consequence, we have switched magnets off

12.11.80 15⁰⁰ – 19⁰⁰ ID-Pulserruns (5671 – 5673) klew
14.11.80 LG-ADC TEST RUNS (5674 – 5706) written on TAPES. M. Minowa

14.11.80 15:00 Luminosity-tests by PKR prepared:
(i) injection enabled independent of our EHT's
(ii) control of tagging-LG EHTs given to PKR
(iii) in tagging logic TΦ and latch-gate set to "true"
(iv) ADC gate taken out of tagging ADC-controller
This set-up should ~~be~~ remain until 23.11.80 MM

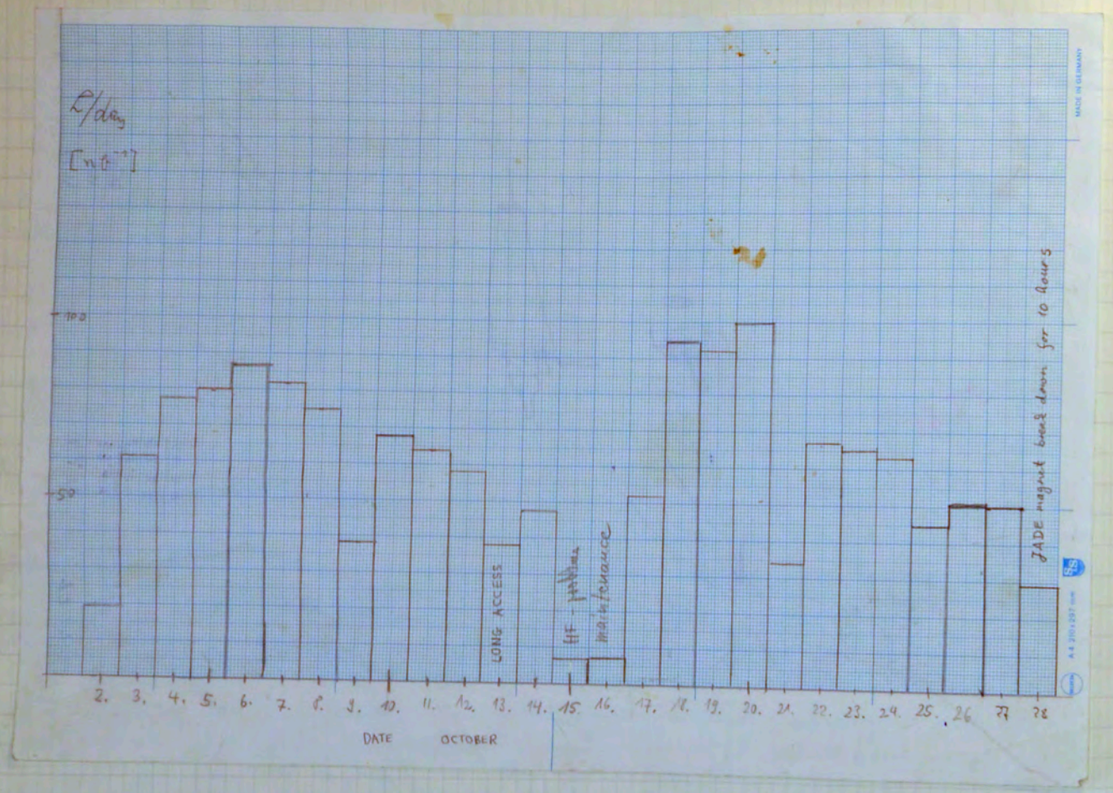
18.11.80 9 15 Temperature of air conditioner changed from 14°C to 19°C Rimbarg

3.2.81 9¹⁵ Cosmic runs with ID
Runs 6167 – 6171 siehe Seite 70

	Run 6172	11.21 – 11.38	U_0: 6070 / 8703 / 6420	U_p: 2352	tape F11108
		3397 evts	die ersten ~800 evts hatten Verstärkung II in 19.2		
	6173	11.38 – 12.12			tape F11108
②		7205 evts			
	6174	12.16 – 13.06	Σ = 21132		tape F22A04
		10530 evts			
	6175	13.11 – 13.56	U_0: 6094 / 8729 / 6446	U_p: 2408	tape F22A05
		9583 evts			
③	6176	13.58 – 14.18			tape F22A06
		4211 evts			
	6177	14.23 – 14.56	Σ = 20716		
		6922 evts			
	6178	14.59 – 15.46	U_0: 6118 / 8755 / 6472	U_p: 2465	tape F22A07
			10052 events		
④	6179	15.59 – 16.22	(NORD50 hung up)		tape F22A08
		6927 evts			
	6180	only 5 evts	(NORD50 hung)		
	6181	16.25 – 16.42	Σ = 20569		
		3590 evts			
	6182	17.17 – 17.29	Spannungen wie ③ Schwelle 80 – 120 V		tape F22A09
		10747 evts			
	6183	18.09 – 18.17	Hiproc gestorben		tape F22A10
		1668 evts			
	6184	18.19 – 18.42			

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HADRONIC x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG>1 ≥1 TR	T1 LG>4

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)





RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HADRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG 71 ≥1 TR	T1 LG74

T1 LUMI.	⟨L⟩ x10³⁰	Skdt RUN	Skdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

Thursday February 12th, 1981

15⁰⁰ Test shifts to measure luminosity with "mini-β-insertion"
E_B = 14 GeV e^+ 4.0 mA e^- 4.0 mA

20⁰⁰ problems to switch tagging counters on, -2 counter draw too much current
→ NO, Problems with Leccoy main trans. OK Now 23,03

21⁰⁰ problem with CAMAC read out
All tagging HT's ON

22⁰⁰ still the same filling e^- 2.5 mA e^+ 2.5 mA, tagging counters switched on

22³⁰ still read out problem, call Fickler, he comes in

the experiments: TASSO: still tuning counter, current in the outer μ-chambers is has 1 order of magnitude increased
MARK J: not able to take data due to high background,
CELLO: unable to tell anything

Friday, 13.2.81
0:30 Start data-taking (test-data, without ID and μ-chambers, without magnet)
4:25 Asked to PKR to start new filling. RUN 6185 ended. (M. Nozaki on shift alone!)
Luminosity calculated by Bhabha and LUMI are in good agreement.
TASSO and MARK J agreed to new filling but CELLO didn't answer the phone.
4:30 New filling start.
5:35 LED lamp on ~~LG Tagg~~ alarm controller does not stop flickering and can not start new run.
(no trigger at all) LG itself OK. RUN 6186 - 6188 are junk.
6:30 give up! I do not want to destroy JADE detector and only 30 min are left.
Today is Fri 13/02/81
~13:00 Suddenly we have Luminosity ~1 nb 4 GeV
Magnet at 7000 A. Run 6192 taken. ev rate ~ 0.5 Hz all LG triggers
Cello tries beam steering in their region.
Mark J complains of bad background conditions.
13.20 Beams lost

Checked BP integrator, it works and arrives at PKR.
If it low it means input really is low rate.

15.2.1981 7h Eichler on shift, A Wagner
PKR estimates ~12 till stable beams. JADE-magnet off. Pumps are off. Call "K" to have them fixed.
8¹⁰ High background lumitriggerrate 23 Hz, 4 GeV trigger 2-5 Hz (in bursts)
8¹⁵ JADE magnet finally on. Tasso cannot switch on chamber. Beam orbit is off.
8²⁵ Cello switches magnet on → beam lost.
8³⁰ PKR will try injection with all exp. magnets on. Test successful
11³⁰ Stable beams. Toward μ-counter trigger has rate ~100 KHz → disconnect
Lumi trigger rate 4 Hz → disconnect
LG'46 eV ~1-1.5 Hz. Switch on ID. Triggerrate increases to 4 Hz. Chamber is clean.
Luminosity from LG (Bhabharate): $1 \cdot 10^{30}$ cm²/sec, on TV-screen $5\text{-}7 \cdot 10^{29}$ (4 mA Petra current)
With triggerrate of 4.5 Hz is computerdeadtime ~40%.
12⁴⁰ start run. write on tape to get events where Miproc program dies.
13¹⁵ Luminosity Cello $2.5 \cdot 10^{30}$ cm²/sec Mark-J ~~3.3~~ $\cdot 10^{30}$ cm²/sec JADE: $1.5 \cdot 10^{30}$ cm²/sec
14:04 Mark-J will start beamtuning
14:30 Krehbiel finds wrong connection on trigger box for lumitrigger. This explains the high lumitriggerrate.
Hole in BP-Histogramm is explained by dead TDC of BP-counters.

15⁰⁰ H. Riesberg
Hugh McCann

RUN	DATE	START	STOP	I^+	I^-	MUON DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT HOSTRONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG71 ≥1TR	T1 LG74
6185	13.2.81	0:32	4:30	1.97	1.85		14220											
6192	13.2.81	1300		3.	3		1255	1369	327	4.5	321	1335						1339
6193	15.2.81	12:39	13:04	3.5	3.8		557	2082	144	47	97	3.6	1590	0	621	443	293	482
6194	"	13:04		3.3	3.5		488	2111	127	42	84	2.9	1662		453	532	385	406
6195	"	14:16	14:25	2.6	2.8		520	2126	135	33	102	2.7	1479		449	470	345	329
6196	"	15:06	15.40	2.2	2.4		1946	7839	506 ~~527~~	82	424	9.8	5448	0	1686	1830	1285	1431
6197	"	15.40	16.14	8.0	2.2	$15 \cdot 10^{-3}$	1995	7841	519	80	439	10.1	5541	0	1826	1957	1409	1477
6198	"	16.15	16.57	2.01	2.20		2205	7842	573	70	503	10.0	5577	0	1816	2129	1356	1554
6199	"	16.58	17.50	1.85	2.02		2516	7843	655	61	594	9.5	5480	0	1634	2108	1227	1439
6200	"	17.52	18.46	1.68	1.83		2814	7225	733	51	682	8.6	4966	0	1553	2101	1098	1383
6201	"	22.14	22.38	4.73	4.88		1416	7824	369	214	155	8.0	4512	0	1359	1309	933	889
6202	"	22.52	23.03	4.0	4.2		596	3056	155	52	103	4.5	1424	0	687	420	188	499
6203	"	23.03	23.11	4.0	4.1		453	2353	118	58	60	2.5	1447	0	530	438	290	306
6204	"	23.26	23.31	3.55	2.37		295	1384	77	29	47	1.2	976	0	318	282	144	162
6205	16.2.81	01:04	01:20	3.0	2.99		Nord hang-up		Run summary lost.									
6206	"	2.47	2.51	4.4	4.5		240	890	54.8	47.4	7.4	0.43	568	0	100	80	91	71
6207	"	2.54	3.02	4.2	4.2		406	1469	106	98	7.6	0.46	1056	0	142	151	93	76
6209	16/17/81	22:57	23:00	5.7	5.8		174	366	45.0	41.4	3.6	0.28	229	0	74	65	124	48
6210	"	23:02	23:06	5.2	5.4		196	570	51.2	45.3	5.9	0.45	336	0	89	97	208	90
6211	"	23:09	23:21	5.0	5.1		569	1643	148	124	23	1.59	1020	0	312	267	530	218
6212																		
6213																		
6216	13.2.81	1:03	1:09	3.2	3.3		176	770	45.7	17.4	28.3	0.87	488	0	178	169	197	149
6217																		
6218	"	2.08	2.10	3.7	3.7		111	602	29	8.8	20.1	0.6	317	0	130	143	106	127
6219																		
6220																		
6221		2.16	2.26	3.3	3.4		565	2776	146	73	73.7	3	1517	0	534	577	641	494
6222		2.33	2.44	3.1	3.1		654	3063	170	68	102	3.5	1841	0	663	687	704	626
6223																		
6224																		
6225																		
6226		2.57	3.13	2.7	2.7		926	3482	240	70.7	170	4.1	2235	0	835	852	759	687
6228		4.34	4.37	5.1	5.4		55	278	14.3	11.2	3.0	0.17	179	0	53	44	42	36
6230		5.14	5.19	4.4	4.7		172	615	44.7	28.8	11.0	0.54	383	0	151	130	115	86

BOGEY RUNS AND NO DATA DUE TO TROUBLE WITH IBM TAPE

RUN	T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L\,dt$ RUN	$\int L\,dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	COMMENTS
6185	472				IBM			37	15	13.995	test-data: no magnet, no TB, no μ-chambers
6192					IBM						test, no ID, magnet on
6193	0	0.79	0.44	0.44	FH181	0.5	0	15	1	14.994	Miproc dead last event
6194	0	0.71	0.34	0.78	FH059	0.5		8	0	-"-	Miproc dead in last event
6195	299	0.52	0.27	1.05	FH173	0.2	0	5	0	-"-	-"-
6196	716	0.39	0.76	1.81	IBM	~0.3	4	20	2	"	Miproc off
6197	593	0.33	0.66	2.47	IBM	~0.3	3	13	0	"	Scraper moved out during run
6198	476	0.30	0.65	3.12	IBM	0.3	4	15	2	"	Scraper moved out
6199	675	0.24	0.60	3.72	IBM	-0.3	5	22	0	"	Beamfahren + Scraper
6200	675	0.23	0.64	4.36 *)	IBM		7	12 (all)	0	"	Optimization for CELLO
6201	2205	0.54	0.76	0.76	IBM		1	30	1	13.994	
6202	1021	0.85	0.51	1.27	"	0.7	1	10	1	"	
6203	535	0.61	0.28	1.55	"		1	8	0	"	
6204	201	0.42	0.13	0.13	"		3	4	0	14.994	Beam loss
6205			ε		4	0				16.993	Hang on NORD
6206	210	0.13	0.03	0.03+ε			0	0	0	"	
6207	209	-0.03	-0.01				0	0	0	"	
6209	80	0.04	0.01		IBM		0	0	0	16.993	
6210	117	0.07	0.01		IBM		0	0	0	"	
6211	353	0.07	0.12		tape and IBM	-	0	0	0	"	TAPE = FH174
6212											
6213											
6216	113	0.31	0.05		FH 172	0.2	0	1	0	"	TAPE = FH172
6217											
6218	132	0.38	0.06		FH126	0.15	0	0	0	"	TAPE FH126
6219											
6220											
6221	628	0.18	0.1		FH137	0.12	0	2	0	"	TAPE = FH137
6222	550	0.32	0.21		"	0.12	0	4	0	"	TAPE = FH137
6223											
6224											
6225											
6226	563	0.24	0.04		IBM	209	0	3	1	"	Bhe "Trigger off" test-counter Dez beam
6228	111	0.14			"	0.25	0	1	0	"	Magnet 1½ on to test counters
6230	209	0.15			"	0.15	0	1	0	"	

*) see H. Wriedt's comment on page 83

JADE

Beamfahren ungeeignet

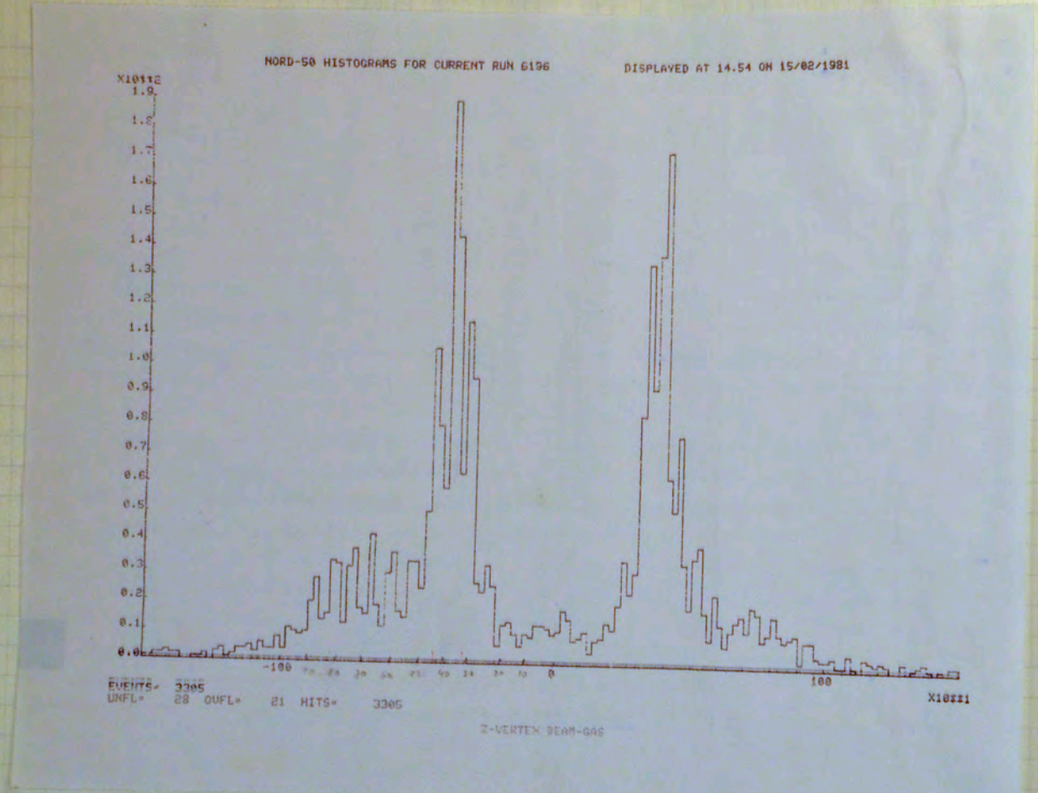
Beamfahren "full = 2.1 10.7 Mai field"

L Beamfahren ungeeignet ≈ 3.3×10^{30}

L Stabile integriert ≈ $2.5\ 10^{30}$

RUN	DATE	START	STOP	I^+	I^-	MARK II DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HOSTRONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG 71 ≥1 TR	T1 LG74

T1 LUMI.	<L> x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)



Theory of PKR (Kose): bad vacuum causes off momentum particles which ~~—~~ hit collimator.

15^{50} Adjustement of beam for TASSO

16^{30} Try to reduce background by scraper and Beulen at our Experiment.
Mr. Feist is in the PKR

Action	Backgroundrate 3 TOF / 10^7 T_0 acc
Scraper (which is located in the ring between JADE and the HF in the North straight section) is in: 22 mm	337 k
Scraper out 27.5 mm	~430 k
Beule (1) "gefahren" 4224 assymetrisch vertikal Beule*)	max 437k min 384k, 371k
Beule (2) "gefahren" 3224 assymetrisch, horizontal	max 465k min 281k not good for other experiments min 288k, 295k
Beule (3) "gefahren" 3224 symmetrisch	max 307k min 265k
Measurement of orbit (Ablagen) see next page	
scraper closed: 22 mm	233 k
Beule (2) changed back to original value	247 k → Scraper is important
Beule (2) changed to optimum	

*) symmetrische Ansteuerung: no change

17^{45} Move scraper out for optimization of beam for CELLO

18^{30} Comparing Energy-spectra of LUMI-events taken on friday and today shows huge background for today's spectra (≈3-4:1 background : signal), whereas friday's distributions looked reasonable.
Conclusion: Lumi-values from tagging-system for today are ~~—~~ unreliable. PW

One may use the Formula $\mathcal{L}_{on\text{-}line} = \frac{15.5 * \left(\frac{15}{E_b}\right)^2}{\text{Number of Bhabhas}} = \frac{\text{Number of Bhabhas}}{15.5 * \left(\frac{15}{E_b}\right)^2}$

18^{45} Mr. Kose (PKR) intended to measure the beam orbit position at $E_{beam} = 17$ GeV, but beams were lost during accelleration.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tφ REJECT x10⁶	Tφ ACCEPT x10⁶	T1 ACCEPT HADTRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG ≥1 ≥1 TR	T1 LG ≥4

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)



19.00 Good beams of 7mA and 14 GeV (each) were lost

22.00 Beams of 5mA at 14 GeV
The plan is now:
1.) Have a short Run of about 1 h at 14 GeV to compare Luminosity
2.) Measurement at 15 GeV with high currents. Is Luminosity as with new orbits?
3.) Measurement at 17 GeV

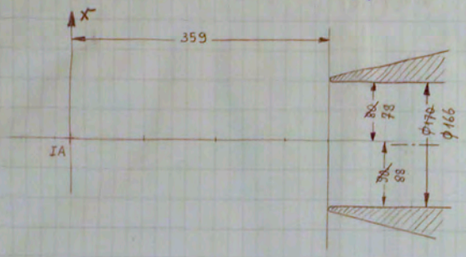


22.14 Start Run 6201 13,934 GeV
23,20 Beams accelerated to 14.994 GeV Run 6204
23.30 Acceleration to 17 GeV failed. Transmitter fault in the South.
23.40 PKR says that next filling will last at least 1 hour. They have to check the feed back system

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT HADTRONS $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 $\geq$2TOF LG71 $\geq$1TR	T1 LG74

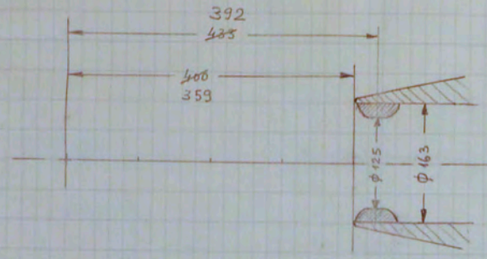
T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# HADRON	BEAM ENERGY (GeV)

Collimators in the beam pipe: From the drawings I found, I read the following shapes of the collimators. (For the new pipe it is not the final version): R



old

17.2.81
Measures corrected R



"The glowing lips of the collimators"

new
Mini Beta

16.2.81
0100. Many spikes in LG HITMAP BARREL I/II were due to wrongly set HV's. HV distributer #15 has been replaced.

Watanabe, Ball, Bamford on shift.

01.04 PKR announce stable beams. Energy reads 16.993 GeV. I^- 3.18, I^+ 2.35

Switch on. BP ~~xxxx~~ meter reads only ~0.2.
Everything comes on OK.
Start run 6205.
Take hardcopies of some LUMI events (10) look OK. Not much show

01.20 I.D. trip. Will not reset. Ring 3 - Cell 17 sparking, can not turn on. Call Riesberg
NORD hang-up. Restart NORD. Riesberg coming to deal with 17.3 problem.
Lost run summary.
Take $\frac{3\,TOF}{10^3\,T\phi}$ from visual scalers 446 k.
accepts.
Currents are 2mA in each beam

Hello request beam dump, but PKR are doing orbit corrections for TASSO.

Start run 6206, ID interlock removed. Data not written, to get Bhabha's for luminosity measurement. Beam lifetimes very poor.

01.59 Beams lost. Sendaravafall Stop run 6206

02.40 Beams stable 16.993 GeV I^+ 4.56 B.P. ~0.4, but BP counters 9 → 16 all missing in hit map
Start run 6206 I^- 4.59. ↳ actually due to TDC defect - see run 6195 histogs.
Riesberg gets ID on.

02.46 ID trip, but Riesberg magic touch resets it OK!
Stopped run 6206. Started run 6207
BP counter #16 reconnected to BP meter. Now OK. Set current ~0.5.

02.57 ID trip Stop run 6207. Deadtime for this run was 93%!

03.08 Riesberg advises that we should continue without jet chamber.
Start run 6208. Data not written, no jet chamber. $\frac{3\,TOF}{10^3\,T\phi}$ is ~ 1800 K. !

03.15 PKR trying to reduce background for us. We monitor $\frac{3\,TOF}{10^3\,T\phi}$ and B.P. Very little effect.
↳ shows very small current
~~HV appears to be OK~~

04.00 Mark J is happy with this beam,
Cello is OK but dirty. Tasso x 2 $1.5 \cdot 10^{30}$
JADE & TASSO very bad. PKR changes orbit. $4 \cdot 10^{30}$ ← Tasso but with 6.9 ?

Finally? found how to read and set BP HV. They were all set low. Set back to nominal values.
(Run (NAR) HV. RD reads HV and SE sets HV
This HV change occurred when Tokyo people (Minowa & Kobayashi) fixed the one of the HV distributors. Bits were reset for Tokyo LG but not BP, because these are controlled by different routines.

~~HV~~ under HV-system in What to know about JDAS.

04:20 PKR still reads low value of BP like 0.07 V. BP here is 1.3 V or so. The cable is connected to the patch board underneath and goes somewhere at least in our side.
NO!! something wrong
They are setting up the new orbit program.

Mark J says they also have severe background problem also, and can not turn on some chambers. Their luminosity monitor has some problems.

05:00 Cello is happy with this beam except for μ-chambers near quadrupoles, where they will put more shield. Our luminosity is ~0.75 ± 0.3 now.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	TΦ REJECT $\times 10^6$	TΦ ACCEPT $\times 10^6$	T1 ACCEPT $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG71 ≥1TR	T1 LG74

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

05:30 PKR have tried orbit corrections + beam bump corrections for Mark J and TASSO with no luck. Now concentrate on us.
Try varying vert beam bump
horiz " "
hymm " "
RF frequency.
all have very little effect.

Then lose beams, transmitter failure

06:02 Stable beams 16.98 GeV. BP ~ 1.6
I^+ 4.03
I^- 3.97. , 3TOF/10^7TΦ = 1.6M → 1.0M, $\mathcal{L}$ = 1.0 ± 0.25. 10^{-30} cm^2/sec.

PKR correcting orbit, but lose beam.

Have to stop now for energy saving!

Summarise to PKR:-
1) We have not been able to fully test the jet-chamber at 17 GeV beam energy.
2) The measurements we have made suggest that background is at 17 GeV is unacceptably high.

Magnet turned off.

20.2.81
17:20 Both TAGG-triggers (TAGG * LG , TAGG * 1track) switched off (in trigger-list). HV

20.2.1981 Anticipated program for the test shifts Sunday - Monday 22.-23.

start Sunday 7°°. (in shift is PKR Hr. Wachsmuth, coordinating experiment Mark J)

1) use M15 optics and go to 17 GeV
2) adjust the beam orbit to minimal displacements
3) try beam steering for each experiment to reduce background
4) if necessary switch over to M8 and replat things.
5) BP-calorimeter (in hardware room) is a factor 2 more sensitive

22.2.81 Heinzelmann, O'Neill, Kleue on shift

7°° PKR has problems with the Linac → no positrons
Studies with e^- would be possible, but we don't trigger on e^-
We phone Wachsmuth, he says we can run on Sync 2 or switch HH-alternator to ØdD
We can't switch on the magnet: 1) pumps are off, 2) remote controll box doesn't work
3) K-people are busy

7³⁰ stable e^--beam. Switch on BP-chm. current at the beginning ~10 V, after 1 min 0.8 V
We do a testrun with TOF, LG. Rate ~.5 Hz

9°° K-people arrive! Petra lost the beam (Sendeausfall)
9¹⁵ magnet on
10¹⁰ PKR has filled 1 bunch e^-; M8 optics. Beams lost after ~5-10 min.
Positrons cannot be expected before 14°°.
11⁵⁴ Beam lost after ~10 min.
13¹⁰ e^- beam 1.3 + 1.3 mA. Beampipe 0.4 V. switch on chambers
13²⁰ Sendeausfall. Beams lost.

16°° McCann, Ball, Nozaki II on shift
+ Bowdery, Eichler + ... etc.

RUN	DATE	START	STOP	I^+	I^-	MARK J DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT HADTRONS $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 $\geq$2 TOF LG71 $\geq$1 TR	T1 LG74	T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

16GeV

16[15] Stable - Cooling/e^- beam. But PKR say they've still to run the "final part" of the accelerating program — this is what loses the beam.
Anyway, BP on — gives reading ~0.5V. for $I = 2.01 + 1.95$
Colour TV is down - Hardware
IBM link is down. Events to be written to tape.

16:25 Beam lost.

17:40 Stable beam at last (17GeV). Still no positrons. JET chamber is ON. We're running on MANUAL.
All triggers 1×10^7 Tϕ accept 9.3×10^6 T1 accept 30 T2 accept 770000 2.83mA e^-
ID Trip. Herr Riesberg resets it.

17[?] Beam lost

ID Chamber - current are maximum at top and bottom of the detector
Ring 1: Segment 5: ~4.2μA
Segment 20: ~4.5μA
Average(Ring 1): ~3.5μA (BP rate: 2.4V)
→ The background in the chamber is unacceptably high.
Actually the ratio $\frac{\text{chamber current}}{\text{machine current}}$ is a factor 20(!) higher than in July 1980.
Roy

18:47 Allegedly stable beam 17GeV BP rate ~5V

18:50 Beam lost.

19:00 Stable electron beam 16.993 GeV. 5.91 mA. BP rate ~3.5V - but prone to large fluctuations.

19:10 BP rate now ~8V. Too high to try switching on I.D.

19:13 Beam lost again. Major surgery now in progress on the NORD.
MARK J says that PKR was adjusting orbit and TASSO's background. We were not informed however. MARK J has asked PKR to announce such actions in future.

19:55 16.993 GeV, 5.17mA electrons. BP ~3.5V. $\frac{\text{3TOF}}{10^7 \text{ Tones}}$ is ~600K!
We will wait for some time to see if this beam is stable before considering switching on jet chamber.

20:15 Beam lost.

20:45 16.993 GeV 6.22mA.

20:50 PADAC Crate Controller reported by Frese; A faulty IC caused wrong data bit to be set and this in turn caused the IBM-link and TV problems.
The voltage on the PADAC crate has been decreased from 5.3 to 5.0 Volts. D.C.

21:00 PKR predict positrons in about 2 hours time if they can successfully store electron beam for a prolonged period. Riesberg expected soon, so we will not try switching on I.D. for a few minutes.

21:12 Beam lost

21:35 Stable beam 16.993 GeV. 4.38 mA BP ~ 1V
21:40 Beam lost.
22:36 Positrons! Put back 43ns delay.
22:44 Stable e^+ and e^- I^- 5.91 mA BP ~ 3V.
I^+ 5.81 mA
Switch on everything!
23:30 Beam lost

0[00] Bell, Peters + Left

1:10 Beam lost.
2:00 New fill
2:09 Run 6218 started. Trouble with IBM link.
2:12 Run 6218 stopped. JOAS error 45, trouble with MINOC
2:13 Run 6219 started. 30% dead time
2:14 Run 6219 a bogey, run 6220 started.
2:15 Run 6220 stopped. Switched off the MINOC
2:11 Run 6221 started Beam current 1.5 80% dead time 5 Hz event rate
PKR is optimising at Mark J
JOAS error 44 tube no 703
2:26 Beam current fluctuations (probably due to optimisation at Mark J) Run 6221 stopped and ID switched off
2:32 Run 6222 started Beam current 1.1 40% dead time 5 Hz event rate
2:44 Run 6222 stopped as tape has run out
2:50 Run 6223 started. IBM link problem Constant 'WAITING FOR IBM LINK' 'IBM BUSY' then 'IBM DISC OVERFLOW'
2:56 Run 6223 stopped IBM was OK
3:00 Every run has error message "MONITOR -1 CHAN 19 HAS WRONG VOLT" Told to ignore.
Not mentioned Beam current 0.85 20% dead time 3.5 Hz event rate
3:14 'IBM DISC OVERFLOW', 'IBM OVER' stopped run 6226, started run 6227.
3:17 Run 6227 stopped, PKR say 'SWITCH OFF HIGH VOLTAGES'. Beam dropped.
4:31 New fill, BP of 2V. Start run 6228 Bad beam conditions dead time (corr.) = 88%.
I.D. tripped and run 6228 stopped
5:16 Run 6230 started
5:19 I.D. tripped Run 6230 stopped
5:34 B.P. = 16V Start run 6231
5:40 I.D. tripped Run 6231 stopped.

RUN	DATE	START	STOP	I^+	I^-	VAC. DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT +POSTPONE $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 $\geq$2TOF LG>1 $\geq$1TR	T1 LG>4
6231	23/2/81	5:34	5:37	4.2	4.4		109	358	28.2	7.5	20.7	0.36	209	0	95	62	76	62
6232	"	5:50	6:08	4.0	4.1		1001	4169	260	196	64	3.2	1671	0	640	548	627	536
6235	26/2/81	14:45	14:54	5.2	6.3		344	1425	89	45	45	1.5	1139	0	508	442	353	286
6245	27.2.81	23^{32}	23^{43}	2.4	2.3													
6246	28.2.81	8^{46}	9^{10}	2.96	2.27													
6247-49	rubbish (only run starts)																	
6250	28.2.81	22^{02}	22^{18}	4.52	4.54		789	3360	206	63.4	142	5.59	2604	0	1192	1196	549	602
6251	"	23^{16}		3.84	3.82		1366	5451	355	64.0	292	9.13	4051	0	1689	2012	837	1028
6253	1.3.81	0^{55}	1^{18}	25	25		1366	5331	355.6	62.6	293.0	9.49	4055	0	1630	1943	832	1040
6253	"	1^{19}	1^{47}	23	24		1677	6998	436.2	111.3	324.9	17.73	5287	0	2041	2175	1575	1432
6254 - 6260	test runs + rubbish																	
6261	1.3.81	8^{30}	9^{05}	3.2	3.5		1949	7233										
6262 - 6266	test runs + rubbish																	
6267	1.3.81	10^{57}	11^{14}	2.5	2.7		1001	2738										
6268	1.3.81	11^{41}	12^{03}	2.35	2.55	$1\cdot10^{-8}$	1637	4478										
6269	"	12^{03}	12^{51}	2.2	2.4		1226	3104										
6271 ↓ 6274	Test runs, many changes during runs etc..																	
6275	1/3/81	17:50	18:14	3.4	3.6		1417	5457	368	71.7	297	9.6	3952	0	1785	2091	563	959
6276	"	18.20	18.31	3.2	3.4		656	1833	171	75.5	95	3.3	1403		662	739	189	281
6277	"	18.31	18.42	3.2	3.3		633	2190	165	20.2	145	4.1	1662		748	886	224	337 ~~357~~
6278	rubbish: several time-outs in branch 2, crate 5																	
6279 - 6281	tests + junk																	
6282	1.3.81	18.53	19.22	3.0	3.0		1236	4023	322	50.3	272	5.7	3028		1457	1614	368	608

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	
88	0.14	0.02		18m	18	0	1	0	16.993	
1932	0.17	0.17		"	1.8	1	2	0	"	
0	0	0		IBM	1	0	0	0	13.993	
				Tape F11220	0.5					beam loss
158	—	—		Tape F11032	1.5	0	15	0	16.993	
209	—	—		F11034	1.2	0	14	1	"	
238	—	$\bar{x}$ 2.48		X	1.0	0	18	0	16.912	
284	—	—		Tape F11138	1.2	0	12	0	16.993	
	~1.15	~1.4		Tape F11123	1.0	0	17	0	"	
	~1.05	~0.5		IBM	0.7	0	6	0	"	collimator bit: fully out
	0.69	1.13		IBM	0.6	0	17	0	"	" 5mm in (partly)
	1.08	1.33		IBM	0.6	0	15	0	"	" "
547	1.51	2.14		IBM	0.9	0	15	2	"	
162	0.61	0.40		"	0.8	0	9	0	"	
157	0.76	0.48		"	0.8	0	4	0	"	
				"						
361	1.43	1.76		"	0.7	0	9	0	"	beam lost, 10 trip

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tϕ REJECT x10⁶	Tϕ ACCEPT x10⁶	T1 ACCEPT +POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3-TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG ≥1 ≥1 TR	T1 LG74

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

94

5:50 Started run 6232.
6:12 ID trip. Run 6232 paused, then stopped
6:45 Beam lost as the PKR tried to collimate the beam
0:55 Magnet turned down to 500 A.
~~7~~:00 Gone home

25/2/81
16:50 Magnet turned down to 10 A. Temp. access. More shielding installed at +z end.
19:30 Magnet back to 7500A.
At present PKR are concentrating on TASSO intersection.
10:00 No requests for us to switch on yet.
Try BP rate for fun. Off scale! Try ENDWALL E/W. muon chamber currents 3 chambers nearest beam in outer layers at both +z + −z ends have currents off scale (>10μA). Hopeless.

05⁴⁰ RICHARD HEDGECOCK CALLED FROM BED. MAGNET INTERLOCK NOT COMPLETE. FREIGABE FROM UKR (EXT 3389) WAS NOT ON. WHEN FREIGABE WAS GIVEN WE PROMPTLY HAD TEN (10) DIODE FUSES BLOW — PROBABLY DUE TO SURGE ON INCOMING SUPPLY — MORAL. MAKE SURE ISOLATOR IS OFF BEFORE ASKING FOR POWER, THEN SWITCH ON OUR ISOLATOR.
I HAVE CHANGED EIGHT FUSES AND HERR'N PILLAT & LASSEN WILL FINISH THE JOB WHEN THEY HAVE FOUND ~~NEW FUSES~~ MORE. I WILL CALL BACK AFTER BREAKFAST. CKH 07.50.

26/2/81
13:45 Magnet is on (6500A only to save power)
Beam on 5.2 mA, 16.993 GeV. BP-current 9 Volt. Try to optimise for Tasso
2 mA " 1 Volt
13:50 PKR asks for "Freigabe" to reinject.
14:30 Beam on 6.5/5.5 mA, 13.993 GeV. BP-current 0.8 Volts
Start run. Triggerrate 4-5 Hz. Try Miproc event rejection. 2-vertex cut at 450 mm: 14% reject
2-vertex cut at 320 mm: 56% reject
Note: 2-vertex rejection is only applied to T2-accept events, i.e. only to 75% of the events.
15:20 Beam lost

95

19.55 D. Cords phoned to say that the Camac error messages that would appear on the ZDAS control terminal will not work correctly. Since there is no urgency he will correct to morrow. HEH

23:00 Switched on the Beam pipe counters. One of them (16) has very high noise. Because of it, Beam pipe current ~~goes~~ surges over the scale (100). We put the cable off.

27.2.81
0100 Beams ≥ 1 ma. PKR request LG on for lumi measurement. – cannot take run as beam currents too small to trigger on
0117 Beams lost

650 Its all over – turn magnet down and go home.

7⁰⁰ access to experiment to 1) install thick collimators in the old position
2) to put more lead shielding between mini-β quad and the inter μ-chamber to shield against synchrotron radiation

12³⁰ work completed

A copy of the system disc has been made together with monthly source copies to tape (HEH)

14:30 "Short Break" still continues.
1550 Injection start. Magnet is still OFF.

20⁰⁰ magnet still off 17 GeV e^- 3.3 mA e^+ 4.05 mA Beampipe counters 2V maximum
20¹⁵ Beam lost
21⁰⁰ e^- = 4.6 mA, e^+ = 4.9 mA E_0 = 17 GeV Beampipe counter 2.8 V maximum
PKR makes beam adjustments, Vakuum in shield tod $\times 10^{-7}$ around one interaction region

trying to run without magnetic field and without mini detector Coords to
continue JOAI-errors 44 suberror 505, 504, 401 TAIK1, all event
have illegal BP Bonds the BP-ADC is hanging around
Magnet ramped up to 6500 A

23³⁰ Vermut die Kammer einwandfrei aufgeheizt da der Anodenstrom nicht Sprünge machte (auch der Beam-pipe current machte diese Sprünge nicht) vermuten, dass dann durch das viel schlechtere Vakuum verursacht wird und verlege den Test.
Anfänge des Anodenstroms ≈ 1 μA bei e^- = 2.5 mA, e^+ = 2.5 mA ~~not~~ too bad!
(Heuer = Expert? was present)

RUN	DATE	START	STOP	I^+	I^-	Magn. DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT +POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG>1 ≥1 TR	T1 LG>4

T1 LUMI.	<L> x10³⁰	Skdt RUN	Skdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

Conclusion don't switch chambers on without "expert"!

midnight - Colour TV altered to cure bug causing divide by zero. Should be OK! HEN

28 Feb 1981

7:00 HV off new injection, 17 GeV
7:30 HV beampipe on E+, E- ca 4x4 mA, beampipe current 7.3 V
3:00 3x3 mA 0.95 V
3:05 0.3 x 0.7 lost → beampipe current 9.5 V, soon went back to 0.95 V
3:35 beam dump, HV off
5:00 new fill, E+ = 3.7, E- = 3.4, 17 GeV, beampipe current 1.0 V
5:45 PKR "fährt Berlin" in JADE region, beampipe current fluctuates 1.0 - 1.3 V
6:10 3.0 x 3.3 mA, beampipe current 0.65 V (3.7 x 3.4 mA)
6:30 HV off, new fill
7:05 HV on, E+ = 3.6 mA, E- = 2.8 mA, 17 GeV, beampipe current 0.7 V

8:00 R. Barlow on shift, Riesberg on call from 24:00 on MI3 has been used
8:25 detector with ID switched on, stable beams I^+ 3.1, I^- ~2.4

8:33 test run (not written) Inner Detector is quiet.
8:43 Run 6246 started → Tape F11 220
Dead time ~ 15%. No Bhabha, no LUMI events
9:10 Beam lost, dead time and currents on RUN SUM not correct, as ID-trip was not ~~not~~ noticed immediately
9:30 W. Bartel finds out: All events have illegal BP bank → no N50 analysis

12:00 found zone cables connected wrongly in Lumi electronics.
13:00 PKR has computer problems. Magnet current reduced to ~600 amps. PKR informed
When they get it back, they hope to take 2 more luminosity runs with conditions identical except for moving our collimators. We should take as many measurements as we can during these 2 runs, so that they can tell whether beyre moving the collimators in the right direction.

NEW COLOUR TV Scheme

Event Counts in top left-hand corner.

TRIG .... number of triggers sent by box (Events)
N10 .... number of RECORDS accepted by Nord10 after MIPROC may have rejected. If no rejection, N10 can be larger than TRIG by a few percent
N50 number of RECORDS accepted by Nord50. If no rejection, this should equal N10. Will be zero if no Nord50 in use.
IBM Count of RECORDS received by IBM. Should be close to N50 unless some link trouble.

Below green line. - EVENTS/SECOND

The total and instantaneous rates through the TRIGger, N10 & N50 are displayed every 30 seconds. Also the Trigger ~~co~~ 'un-corrected' by dead time is shown under TCOR in GREEN.

ONLINE REJECTION
The total and instantaneous (over 5 mins) rejection factors are displayed for the MIPROC and the Nord50. These numbers are subject to a certain amount of jitter so that if there is NO rejection, some non-zero messages may appear!

Howard Miller

17:05 magnet on (6500 A)
17:15 Cable connecting crate controllers and Lam-grader in Crate 204 found to be disconnected → put back into place AW (was connected to LAM-grader, but not to Crate Controller).

17:37 ~~The microproc problems are due to a cable hanging loose in crate with BP TDCs~~ the microprocessor

RUN	DATE	START	STOP	I^+	I^-	MARK DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ RESET x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT +POSITRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG>1 ≥1 TR	T1 LG74

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	RESET EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

20^{50} got stable beam, $E_b = 16.993$ GeV $I_- = 5.55^{mA}_{5.4}$, $I_+ = 5.47^{mA}_{5.3}$, BP current ~ 6 V / 2 V

21^{00}

21^{30} luminosity trigger scaled down by factor 3 now
Optic MI 8

22^{02} Test run 6250 on tape F11092 $I^+ = 4.4$, $I^- = 4.4$, BP = 1.5, ID-chamber current (Ring 1) 1.3

2

23.16 Test run 6251 on tape F11094 $I^+ \simeq 3.8$, $I^- = 3.8$, BP = 1.2

Program for the night starting at 23^{15}

① Do some beam gymnastics with the rest of the filling (optics studies)
JADE chamber out

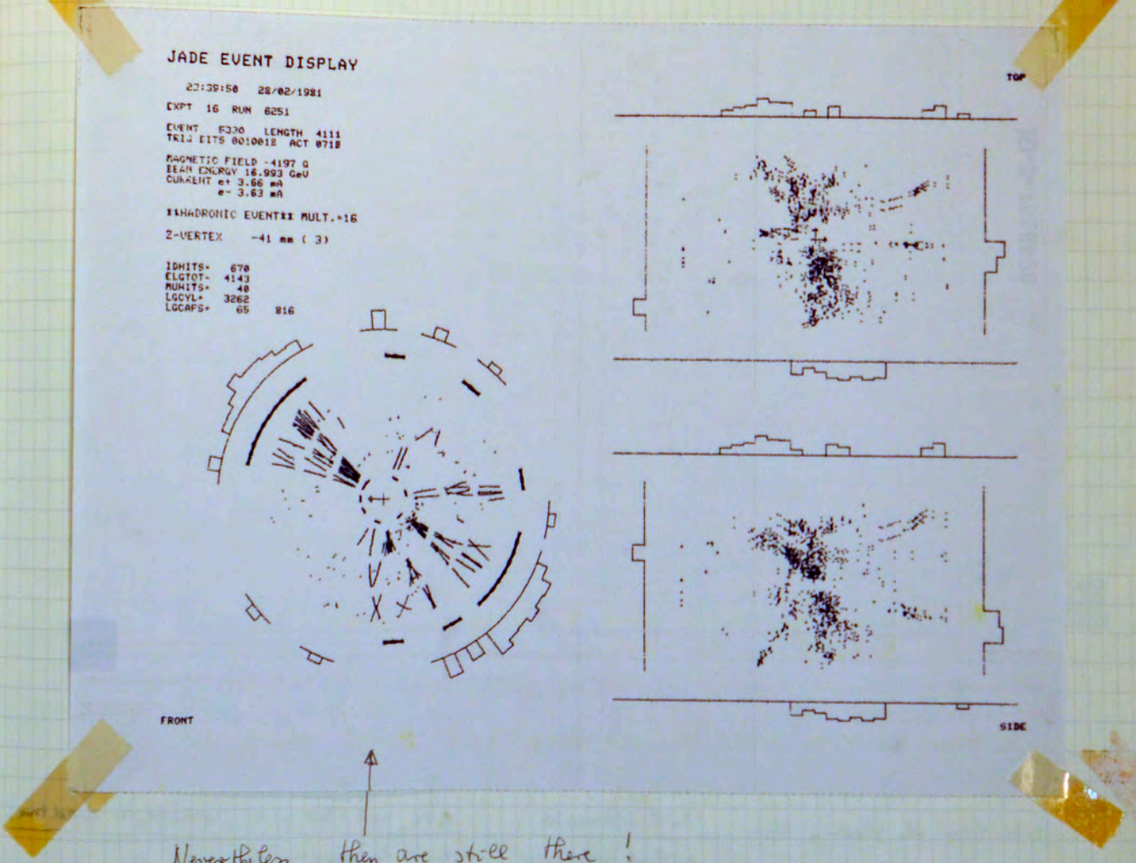
② Before the next filling close the collimators by 3 mm
Investigate background - and trigger rates with the new setting using MI8 optics

③ When the background investigations with the collimators are finished start optics program as proposed by the PETRA-group. The detailed program is in the PKR (written by Degele).

If there are questions about the program phone
U. Barth 57 41 88

only if beams are stable and beam wire voltage ≤ 2 V switch chamber on
if the PKR ask for luminosity, take a run (if backgrounds are to high) without jet-chamber and calculate luminosity from the Bhabha-rate

$$\int L dt \simeq \frac{N_{Bhabha} \left(\frac{E}{15}\right)^2}{15.5 \left(\frac{E}{15}\right)^2}$$



Nevertheless they are still there !

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT +POSITRONIUM x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG>1 ≥1 TR	T1 LG>4

T1 LUMI.	⟨L⟩ x10³⁰	$\int L\,dt$ RUN	$\int L\,dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

NORD-50 HISTOGRAMS FOR OLD RUN 6211 SAVED AT 23.21 ON 22/02/1981

X10**11

ohne Kollimator

1643 evts

84.2 % deadtime

$e^+ = 5.0$ mA

$e^- = 5.1$ mA

569 sec

$\frac{500}{0.16 \cdot 569 \cdot 5.0 \cdot 5.1} = 1.1$

≙ 500 evts in 569 sec

EVENTS= 697
UNFL= 5 OVFL= 2 HITS= 697

X10**1

Z-VERTEX BEAM-GAS

Rate from the glowing tips $\frac{\text{mit Kollimator}}{\text{without Kollimator}} = \frac{0.16 \text{ events/sec mA (corrected for deadtime)}}{1.1 \text{ events/sec mA}}$ "

NORD-50 HISTOGRAMS FOR CURRENT RUN 6250 DISPLAYED AT 22.22 ON 28/02/1981

X10**11

mit Kollimator

deadtime 38.8 % (1 Kommaransatz)

e^- 4.4 mA

e^+ 4.4 mA

1637 evts

in 789 sec

$\frac{400}{0.7 \cdot 789 \cdot 4.4 \cdot 4.4} = 0.16$

EVENTS= 1637
UNFL= 19 OVFL= 22 HITS= 1637

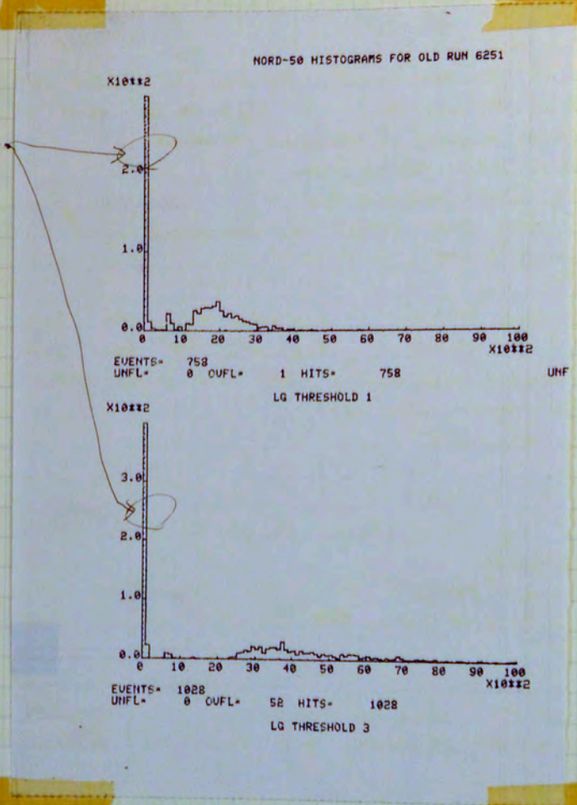
X10**1

Z-VERTEX BEAM-GAS

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJCT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT +POSITRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG>1 ≥1 TR	T1 LG>4

T1 LUMI.	⟨L⟩ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

It is strongly suspected that these peaks are correlated with no FAST CLEAR into LG ADC. Maybe Krehbiel's box ?? We have checked that linear sum works ok!



1.3.81

0^{00} Warning on shift

0^{45} phoned PKR for status report: they have just finished orbit corrections by adjustment of sextupoles

0^{50} switched on HV and ID $E_B = 16.98 - 16.99$ GeV $I^- = 2.60$, $I^+ = 2.55$
chamber is quiet (max current 1.4 μA/cell)

0^{55} start kotrun 6253 data not written

1^{20} start run 6253 data onto tape
→ wrong date (29/2) on run summary !

1^{30} $\frac{3\,TOF}{10^7\,T\Phi\,acc}$ = 1100 Hz

JDAS errors 44/303 time out in tagging ADC crate
" 44/205 time out in LG ADC crate

1^{45} checked standard histograms, beams more or less OK.

1^{47} run 6253 stopped (tape full)

1^{49} ID trip, beams lost
trigger rate was 4.2 sec⁻¹, deadtime 25.5%
rate from the glowing lips was despite the collimator 0.40 events / sec·mA

3^{00} PKR enters tunnel to close our collimators further by 5 mm

5^{50} new fill ready M18 optics,
BP rate ~8V

6^{05} BP rate still 5V, ~~BAR~~ with 2×5.3 mA, PKR does not know how to improve the performance of the machine
Background is bad at all experiments

~~6^{50}~~ BP rate 4V slowly decreasing

7^{25} BP rate 2.5V fluctuating up to 3.0V $\frac{3\,TOF}{10^7\,T\Phi\,acc}$ = 5100 Hz currents 2×4.2 mA

8^{00} BP rate now below 2.0V, still fluctuating currents 2×3.8 mA $\frac{3\,TOF}{10^7\,T\Phi\,acc}$ = 1500 Hz

8^{05} ID switched on

8^{00} Drumm on shift

8^{15} Data taking stops after 8 events ~~trying~~ (for ... sec) (no counts V) when writing to IBM.

8^{45} ID trip (smoke current) high BP-current during beam failure (not announced to us). After 5 min: background OK. 2 on.
BP rate: 1.0V steady, counts: e^+ 5.28 ~V e^-: 3.59 mV
(corrected by dead-time) trigger rate ≈ 5.0-5.5 Hz, dead time ≈ 15% - 20%
E_b = 16.993 GeV, ID-chamber current ≈ 1.1 μA (Ring 1)
Run 6261: $\int L$ = 1.15·10³⁰ (corrected for dead time) rate at collimator 6: ≈ 0.2 events per mA (corrected for dead time)

9^{00} ID trip (smoke current): as above. PKR steers beam. I leave ID off until beam-steering is finished.

10^{00} Time confusion - The Nord (hence Colour TV) has the correct date. The CAMAC clock (hence each event, runsummary & soon) does not know about leap years!

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tϕ REJCT x10⁶	Tϕ ACCEPT x10⁶	T1 ACCEPT HOSTRONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3-TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG>1 ≥1 TR	T1 LG74

T1 LUMI.	<L> x10³⁰	$\int$Ldt RUN	$\int$Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

9[15] Talked to Bartel and PKR: PKR is now optimising the optics for the new collimator setting (5 mm in). This is Point 3 of program at page 98. We will not take data (~~only ID on~~ ID off) until PKR has finished and conditions are stable again.
In the moment: this fill with the new collimator setting (not yet beam optimized) was worst ~~ever~~ comes in later for dialing the link to IBM ~~informed~~ (I phoned to him).

10[45] Vacuum $5 \cdot 10^{-9}$ / 10^{-8}

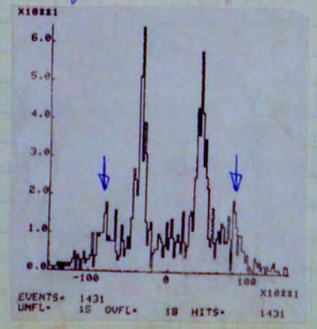
10[45] Talked to PKR: There were 3 pumps off over night (unknown time) in our region → bad vacuum → high BP??
They can move the collimators 5 now. We will have test runs at different collimator settings with this short filling for a first try ($I \sim 2.7$ mA). PKR stops beam steering. We switch on ID.

At begin of new run we have the same problem with tape writing as with writing to IBM.
Narodka, Mills: Stopping of ZSEND cured both writing problems! We write to IBM 5 now.

11[00] Start of ~~test~~ run 6267: collimators out as far as possible.
I^+: 2.50 I^-: 2.74 E_b: 16.993 GeV BP: 0.65 V
trigger rate: 3.0 Hz (corrected) dead-time: 9.3 % ID-chamber current: 0.8 μA (Ring 1)

~~11[20] collimators 5 mm further in: ... 43~~

11[15] Narodka, Mills: Lumi-Scalers repaired. The ϕ computer gives again the Lumi on the screen. They look reasonable.
11[40] collimators are now in by 5 mm (partly)
I^+: 2.35 I^-: 2.55 E_b: 16.993 GeV BP: 0.6 V
trigger rate: 3.0 Hz (corrected) dead-time: ~8 % ID current: 0.75 μA (Ring 1)
12[30] stopped for dump.
Remarks: a) ID very proper (clean) (Lumi events only few hits, Beam-gas no "wool")
b) moving ~~on~~ collimators inwards → additional bumps at $z = \pm 80$ mm ??



NORD-50 HISTOGRAMS FOR CURRENT RUN 6269

Runs 6268 + 6269 with coll. 5 mm in (partly)

1.3.81

13:50. Problem of Pedestal Data Taking: Somebody forgot to set task to ϕ! now it works. 4.T.

15[35] Filling ready BP = 2.2 V ; 10 min. later: 2.0 V
PKR first wants to do beam optics. We switch off again (as the other experiments too).

16.00 Bell on shift, Ward as well

MI 8, Orbit corrected, Scraper wires are at position 26
Collimators in our intersection all the way out.

16.993 GeV. 3.92 mA − 3.67 mA + BP ~ 1.0. Currents in endwall layer 5 muon chambers are at least a factor 10 lower than on 22/2/81
5 chambers measure the beam on both + and − x sides at both + and − z ends are ≤ 1 μA. It is very quiet. AB.

17:48 LUMI HI ACCIDENTALS is now working again (for unknown reasons, nothing changed). Sorry, at first we LUMI LO ACCIDENTALS, see p. 115 please, HW 7.3.81
17.50 LUMI-trigger scaled down by factor 5 again (was different from 28.2.81, 21.30 onwards)
Start run 6275
18.30 Run 6276 stopped. Several time-outs in CAMAC branches 2 and 3.
Start Run 6277
18.59 ID trip
19:22 −.− „Beam lost"
20:05 PKR tries the optics. Having found Beam, injection will be started. ∫Ldt 10⁻³⁶
0.00 Krehbiel on shift. 0.7 mA on request PKR says we can try HV on (16 GeV, ca 2 × 5 min); they are doing corrections. BP background 70 volts. So HV off again.
2.40. Screen says Switch on the HV. BP current 70 mA. So go ahead.
Start Test Run. First Attempt: Error in LG Ped. Run. 2nd Att. Run Quite Million. Pushed Button. Then ok. Rates had calmed down. Stop and look at histograms
4.00 ~~Run~~ 3.45 − 4.00 Tried to start runs see Page 107
→ JDAS ERROR 44 − 602 Task 7
Run 6294 JDAS ERROR 44 − 602 − 7 comes more often
4.34 Screen says: Switch off the HV! This done. It was on decision of PETRA crew. Rostock.
5.32 JDAS Error 57 − 00 Task 7

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT +POSITRONIUM x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG ≥1 TR	T1 LG74
6283		Failed: Run LG. Ped. Run																
6284	6285																	
6286	23.81	2 58	3.40	3.00	2.58		24 92	7797	648	63,6	585	72	5657	—	2478	3170	722	7221
6294	23.81	3.58	4 33	2.75	2.34		2065	4995	537	59,6	477	7	3742		1462	2139	558	834
									New filling									
6295	dito	dito	Short	Run of 6 min. only stopped because Background went up.									4350		2017	2073	876	969
6296	23.81	5.32	5.54	5.2	5.6		1273	5902	331	119	272	8,97						
6311	3.3.81	15^{59}	16^{19}	—	—			7874										
6312	"	16^{22}	16^{46}	—	—			7876										
6313	"	16^{49}	17^{23}	—	—			4431										
6314	"	19^{32}	19^{50}					1713										
6315	"	20^{03}	20^{28}					7866										
6316	"	20^{29}	20^{55}					7871										
6317	"	20^{56}	21^{22}					8058										
6318	"	21^{24}	21^{49}					8063										
6319	"	22^{07}	22^{31}					8059										
6320	"	22^{32}	22^{57}					8057										
6321	"	22^{58}	23^{22}					8058										
6322	"	23^{23}	23^{47}					7867										
6323		23^{48}	0^{12}					7867										
6324	4.3.81	0^{15}	0^{33}					1747										
6325		0^{36}	0^{38}					120										
6326		0^{38}	1^{01}					2400										
6327		1^{01}	1^{18}					1643										
6328		1^{18}	1^{26}					1759										
6332	5.3.81	1^{32}	2^{02}	2.5	3.2		1809	4229	470	38	433	9.2	2993	0	1478	1269	425	752
6333	5.3	17^{21}	17^{50}	5.1	5.2		1215	3572	316	53	263	7,3	2791	0	1270	771	343	718
6334	"	18^{01}	18^{04}	4.8	4.9		174	553	45	5	40	1,0	380	0	195	146	72	100
6335	"	18^{07}	19^{19}	4.4	4.4		712	1896	185	28	157	3.8	1253	0	626	548	178	340
6336	"	19^{21}	19^{25}	4.3	4.2		167	426	43	4	39	0.9	293		165	159	37	77
6337	"	18^{26}	19^{17}	3.6	3.3		3007	6765	783	58	725	13.2	4530		2193	1995	715	1329
6338	"	20^{24}	21^{16}	2.8	2.4		3100	5813	806	51	755	9.3	3410	0	1970	1780	511	965
6339	"	23^{44}	23^{51}	5.7	5.8		1901	7793	494	91	413	15.3	5094	0	2771	1723	1035	1408

T1 LUMI.	<L> x10³⁰	Skdt RUN	Skdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	
										Instr. deadtime schwankt without obvious cause (Correlation with Bunch Lifetime on screen)
920	1,75	2.86	2.86	IBM	0.6	0	52	—	15.993	Thresh LG was still set to 60 mV. Took Runs 6282-93 all parts only. Finally called CORDS, Roland (DAS) 2DAS9. Washy
439	0.76	1.58	4,44	IBM	0.6	0	26	2	15.993	Run stopped. Screen says "Switch off"
586	7.30	1.65	6,09	IBM "	Damaged	0	30	2	15.993	Started when BP was < 2. Stopped again when barky went up. At first deadtime 50% . after 3000 Events Loss less Thr. to 70 mV Stop because of ID trip. Beam Gone.
				FH 197 + IBM						Cosmic running Magnet 7500A
				IBM only						" "
				IBM						Chamber pulser / program TZERO / program aborts after pulsing Left side
				IBM						Cosmic running Magnet 7500A
				"						" "
				"						" "
				"						" " Σ = 52039 evts, 165 min
				IBM						Cosmic Run Magnet off
				"						" "
				"						" "
				"						" "
				"						" " Σ = 39908 evts, 120 min
				IBM						pulser program TZERO / again aborts after Left pulsing
				"						" PULSER / Pedestal
				"						" PULSER / Gain
				"						" TZERO / Left
				"						" TZERO / right
382	0.32	0.57		IBM		0	15	0		
645	1.03	1.25		"		0	34	1	15.494	but error in branch 2 ! bad run !
98	0.95	0.17		"		0	7	0		" with MIRAGE
302	0,75	0.53	9.70	"		0	21	0		" with MIRAGE
69	0.65	0.11	0,81	"		0	4	0		" with MIRAGE
906	0.58	1.75	2.56	"		0	48	0		
438	0.26	0.82	3.30	"		0	25	0		Run dumped
1293	1.14	2.17	5.55	"		0	50	4		new fill 2

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	T0 REJECT $\times 10^6$	T0 ACCEPT $\times 10^6$	T1 ACCEPT ANTICOINC $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 $\geq$2 TOF LG $\geq$1 $\geq$1 TR	T1 LG74

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	Shdt RUN	Shdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

2.3.81. 5.45. There seem to be possibilities for false alarms in the ID.
Anode current trip. Attempt to reset alarm brought additional alarm ⇒ spark.
After a call to Kleinselmann I found out that one has to press start first, and then reset alarm
after at the supervisor box. But it was in vain. During runup of ID, there was a genuine
beam loss. All beams and bunches lost, another alarm trip.
PETRA Power Supply failure. At 7⁰⁰ Screen says "Short break." It will take some time to fire
JADE Magnet rundown if to save energy.

8⁰⁰ R. Barbon on shift. + H. Driewer.
short break goes on

13³⁰ PETRA start injecting

14²⁵ PKR says that there will be probably no filling ready before 16⁰⁰. They are training the injection.

14⁵⁰ Drumm ends his shift.

16⁰⁰ Böl + Totsuka on shift
PKR tries orbit correction for injection. Injection will start in an hour.

16⁴⁰ Colour television A Run Summary programs altered to take account of new Luminosity calculations. formula now is

$$IL = E_{av}^2 \times (\text{Counts}) \times 3.0 \times 10^{-3}$$ H.E.M

19:40 PKR says that a correction magnet in the DESY to PETRA injection line is broken. They will try to fill without this magnet but say it will be difficult to do.

20:20 Magnet tripped. current is 1500A.
21:40 Overload alarm on one of the System Crate
Power pack is replaced. but after restarting the computer many errors like
after restarting ZDAS ERROR 37 = TOX ERROR / ADDRESS: 7010: LEVEL (DEC.): 12
ERROR 37: TOX ERROR / ADDRE Eichler was called.
now it works. Totsuka
22:10 Beam filled at ~6mA per beam but was lost during acceleration.
22:50 Magnet raised to 7500A.
23:00 Beam filled at ~8mA per beam but most of the e^+ beam was lost during acceleration at 16 GeV.

23:12 PKR intensed of new on line lumi constants of 3 ϕ (was 5.4).
23:14 PKR have trouble with a power supply but will try to inject to 16 GeV.
23:50 PKR says they will repair the correction coil. It will take ~one hour.
" Magnet run down to 4000 A.

3.3.1981

0⁰⁰ Drumm on shift BP: ~0.7 V, $I_{0\,\text{count}}$ small
1¹⁵ Trig beam ready: 14 GeV magnet back to 7500A
1³⁰ Run not started (I^+ = 3.87 mA I^- = 4.30 mA) because of LG pedestal runs; called Minowa (for relay up over the Tele group) who will come.
2²⁰ JDAS ERROR 44 suberror 206 (Time out in Lead Glass CAMAC CRATE #2.)
Processor replaced. - OK by Minowa / Drumm injet replacing fuse at a V34.
2³⁰ beams dumped. We did not take data at this filling.
2⁴⁰ all V34 thresholds set to 100 mV; V34 no 9.3 = fuse replaced.
4¹⁰ Magnet trip
4⁵⁰ Magnet → 7500A → tripped again at after a few seconds at 1800 A.
5⁰⁰ new filling ready we raise magnet to 4400 A for a few minutes, then before going slowly higher
5¹⁰ beams lost, magnet to 6000 A
DITTMANN
5⁴⁰ stable beams, 5⁴² unstable beams, 5⁴² stable beams.
5⁴² beams lost
6⁴⁰ see 5⁴⁰ no reason indicated
Nothing works: Magnet trip at 6000 A without touching anything call K
⇒ therefore no JET ch.
⇒ LG does not works: many blanks with 22 GeV (see histogram)

↑ fixed by pushing Augbus cable in the back Watanabe

Crate 2 – 683 pedestal (count from 3) is ~730 ADC
Crate 1 – 233 dead for MINOWA

5 × 4.8 mA, BP ~ 1.0
Trigger: LUMI + LG > 4 GeV rate 2 Hz ⇒ too much
no Bhabha peak in LUMI energy plots

7.00 Access to tunnel, forget this night
8.00 Matarate and Zhang on shift ~ no beam
10.00 Cosmics trigger set-up, for start of run book under folder "TOF Counts" page 2.

18⁰⁵ Magnet trips during previous runs were probably caused by TRIMER OVER VOLTS. Kraft PILLAT & HERZBERGER have made some minor adjustments but this does not make certain that the fault may not recur. If it trips, try to call me. CRH.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HOSTRING x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG ?1 ≥1 TR	T1 LG?4

T1 LUMI.	<L> x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

110 3.3.81

14^{30} Magnet 4000 → 7500 A

New voltage setting for the Inner Detector:
(Output voltage of the Fluke power supplies)

U_{D1}	6094 V
U_{D2}	8729 V
U_{D3}	6446 V
U_P	2408 V

This is to reduce slightly the gas gain to match the pulse height of the new VV30 pre-amplifiers better to the dynamic range. The drift field remains unchanged.

15^{54} Start of first Cosmic Ray Run (# 6311) with magnetic field. All cells are on.

Events 1 to ~ 5600 have FIELD 36 on Color TV (also on data?)
then FIELD normal (≈ -4843 6)

16^{00} Riesberg on Cosmic Ray Run shift.

We see often MUON CRATE MISSING : 6, 7, 8, 10, 13 ...
Mr. A. Ball proposes to answer at the run start the dialog question
TYPE 7 FOR COSMIC TRIGGER, Ø OTHERWISE :
by Ø. Otherwise the gate for the muon chamber pulses is 27 x 6,4 μs long
This helps. Small timings are lost.

17^{05} Magnet trip. The green lamp Rücklauf < 35°C is off for some time → matters only for pump
Mr. R. Hedgecock looks for the trouble. He finds a dry joint in one of the regulator cards and marginal transistors.
New colour TV program prepared but not yet loaded. (HER) loaded now 4/3/81

19^{20} Pulser run TZERO (first part only) Run # 6314

19^{50} Magnet is again at 7500 A.
We continue to take Cosmic Ray Events.

20^{20} "PETRA wird eingeadaltet"

20^{25} Muon crate 11 missing, cannot be reset. Expert: please see Error messages at start of Run 6316

21^{35} We are at event ≈ #3500 in Run 6318. T2 cable of 9.4 was out till now.

3.3.81 111

21^{50} Magnet switched off

22^{05} Start data taking: Cosmic Ray without magnetic field. (Run # 6319)

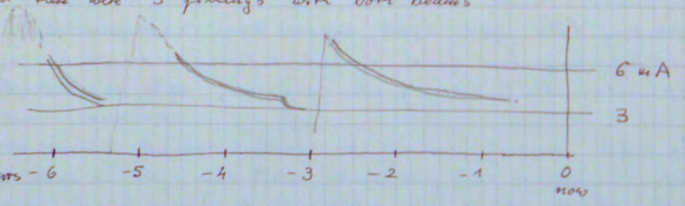
4.3.81 0^{15} End of cosmic runs w/o magnetic field. all HV systems off
Start Testpulser runs

1^{36} Testpulser runs finished.
→ nok: trigger still on cosmics
PKR informed, that JADE sleeps until tomorrow morning.
Machine status: 10 mA e^- stored at 7 GeV at 1^{41}. AW.

8^{00} P. Steffen and H. Riesberg on shift.

Changes done to PETRA during the temporary access time of yesterday:
1.) Horizontal collimators re-installed at Mark J, Tasso and Cello (ours are already in since 27.2.)
2.) Ring-collimators removed from the TASSO beam pipe

Last night there were 3 fillings with both beams



Vacuum is still bad in the machine. We read: Links 3.3×10^{-3} (lin scale), 1.5×10^{-3} (log scale)
Rechts 6×10^{-3} " , 5×10^{-3} "
(our vacuum was not broken)

8^{15} Magnet on → 4500 A
8^{30} → 6500 A
8^{54} Magnet down on request of PKR
9^{30} - 10^{30} temporary access. Beate Naroska changes the trigger back to beam conditions
11^{00} start injection, our magnet stays off
11^{40} "Short Break"
13^{00} Start of injection
15^{00} $I^+ = 6.96$, $I^- = 7.00$ at injection energy 6.986 reached. Injection is now tuned.
W. Bartel calls: There will be another access of 1 ½ to 2 hours to investigate a fault of the Tasso magnet. There is an "Erdschluß", may be a burnt cable, after the artificial "Erdschluß" of this morning (Mr. Söding)

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT +OSTRONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG71 ≥1TR	T1 LG74

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

16·5

16:00 Takeda, Bamford on shifts.
17:30 Start injection with our magnet off (PKR request).
20:00 Magnet powered up, request from PKR.
22:00 Barbel phones to say the maximum energy for tonight will be 16.5 GeV due to a problem with the klystrons. We also find it is possible to inject with our magnet on and Tasso off?
22:55 Barbel phones from PKR and asks us to turn on your lab beam pipe counters – we say the bkg in the background is too high so we switch off. We say turning on the beam pipe counters again, the readings shoot off the scale but by pulling counter no. 16 out the reading looks OK.
23:35 Beam ~~0~~ optimisation for JADE.
5.3.81. 24:00 GODDARD + KOBAYASHI
0:53 chamber HV on. (B.P. = 0.7 D ~~3~~ – without #16 cable)
Bartel at PKR says that now beamsteering in one region effects significantly the background in another. The experiments are all coupled together in this respect.
Try to start taking data, get JOAS error 44, suberror 208. Cords on phone suggests clocking for loose contact between CAMgrader ocrate crontroller in BP crate. Find CAM grader completely disconnected. Reconnect run starts OK.
0130 Muon crate 11 missing, cannot be ~~reset~~ found.
0200 Beams dumped.
~~0500~~ 0300 Petra has problems with the synchrotron estimate about 1hr to fix. magnet current lowered
0700 still no beams.

8:00 B. Naroska, Y. Zhang, A. Wagner
Found histogramming percentage on 1%, changed to 50%. All previous histograms are quite empty because of that.
Nevertheless found some missing channels in T2 input. Indeed one cable was pulled out in the hadcal.
11³⁰ no beames until now.
no beams for next 2 hours: 1h for machine accen, 2h for TASSO accen.
14⁰⁰ injection starts
15.10 No positrons from Linac, so Petra accelerates electrons to determine new files(?) or parameters.
They don't know when Linac will be repaired.

conclusion: No lumi during our shift.

16:00 Petersen, Bamford on shifts.
16:23 ~~magnet on~~ ! (Request by PKR)
17.15 Start RUN (1/20) 6333
17.45 I.D. trip but run did not stop.
18.30 bis RUN 6337 – DL8 1.1 not connected AW
19.35 RUN 6337 stopped and inner detector turned off while PKR optimises beam for ecess, M.J.
$\int L dt$ from blobbis = 3.75 ; on run sheet = 1.75 !

Using $\int L dt \propto N_{bhabha} \left(\frac{E}{15}\right)^2$ / 15·5

20.00 PKR optimise beam for us.
23.15 Luminosity run, beam too noisy to switch I.D. on please PKR.
23.23 Start run 6339

23.40 Due to bug in Colour TV, the Luminosity & Specific luminosity numbers are zero except for 30 seconds in every 5 minutes! (HGH)

6/3/81
00:00 Barbel / Nagahiro (T) on shift.
00:05 ID trip. Reset OK.
00:33 Run 6340 stopped. Run 6341 started
00:59 Mark I phone. They, and Hello, have very bad conditions. PKR say orbit is bad. There are beam spikes (we have observed these too on beam scope). We have BP = 1.0. D.T. ~ 10%. We agree to let them try orbit corrections, providing they announce it.
01:11 Orbit correction starting. Stop run 6341. Turn off I.D. Watch BP current.
01:23 Beam lost
02:16 15 GeV ~7mA/beam. Apparently still doing orbit corrections. Turn on BP. current ~ 1.5 → 2.0 fluctuating, then ... beam lost!

03:23 Finally get stable beams. 16.493 GeV. I^- 8mA BP = 2.0.
I^+ 7.2mA.
Problem ~~with~~ with one of HG power supplies during turn-on. Nagahiro investigating.
03:32 Now OK. Start run 6342. TOOR ~ 10Hz. Dead time ~50%.
03:37 ID trip. reset OK.
03:44 ID trip again. reset OK.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT +POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG>1 ≥1 TR	T1 LG>4
6340	06/03/81	05/03 23:52	0:33	5.0	5.0		2152	7700	600	92.8	467	14.3	5189	0	2807	1908	947	1422
6341	"	00 34	01 12	4.5	4.5		2258	6868	588	604	527	13.5	4552	0	2350	1818	799	1264
6342	"	3:32	4:23				1188	5410	309	157	152	9.2	3418	0	2342	970	493	753
6343	"	6:19	6:41	7.1	7.7		722	3454	188	79	108	6.0	2441	0	1465	804	409	485
6344	"	7:13	7:43	5.9	6.3		1804	7716	470	105	364	14.2	5484	0	3198	1888	878	1239
6345	"	7:44	8:02	5.6	6.0		1043	3368	271	95.3	176	6.2	2434	0	1442	863	355	534
6346	"	8:11	8.16	5.4	5.7		302	1069	78.6	10,2	64.3	2.0	795	0	421	303	128	173
6347	"	8:51	9:08	6.7	8.7		1019	5209	265	88.8	176	9.3	3448	0	1967	1137	655	881
6348	"	9:16	9.45	5.7	7.4	25.7	1767	7668	459.9	118	341.8	15.2	5355	0	3197	1856	860	1245
6349	"	9:46	10.17	5.2	6.7	18.4	1893	7820	487	89.6	397.4	16.5	5469	0	3045	2004	897	1309
6350	"	10. 17	10, 48	4.7	5.8	19.4	1813	7816	471.7	91.5	380,2	16.7	5461	0	3047	1991	928	1193
6351	"	10.49	11.25	3.5	3.9	13.7	2163	6789	563.1	77.2	485.9	13.7	4874	0	2643	1932	729	1159
6352	"	11.29	11.33	3.5	3.9	20.5	49	123	12.7	2.6	10.2	0.17	103	0	73	38	7	15
6353	"	17 37	~~7 24~~	~~224~~ 260	7.60	48.	549	2686	143	68	70	4.1	1719	0	1014	542	379	265
6354	"	18 41	6.3	6.2 6.3	6.3	17	975	3830	254	42	212	7.0	2697	0	1549	1012	430	624
6355	"	19 16	~	5.4	5.4		~	~	~	~	~	~	~	~	~	~	~	~
6356	"	19 22	20 08	5.4	5.4	12.7	2588	7762	673.3	85.5	587.8	14.4	5524	0	3104	2040	880	1350
6357	"	20 09	21 10	4.0	4.1	7.5	3611	7812	939.	70.3	869.2	16.9	5228	0	3436	1063	989	1642
6358	"	21 11	21 57	3.6	3.7	6.2	~~2724~~	5178	~~708.4~~ 666.	44.0	664.4	10.9	3560	0	2080	1084	632	1100
6359	"	21 57	22 12	3.5	3.6	7.4	895	2095	233.0	17.3	215.7	3.5	1619	0	610	7015	178	319
6360	"	22 16	22 17	3.4	3.6	4.3	40	78	10.4	0.4	9.9	0.16	36	0	6	44	12	15
6361	"	22 20	28 16	3.1	3.2	4.2	3209	4138	835.3	35.1	800.2	11.5	2548	0	263	2000	605	1079
6362	"	23 23		3.0	3.15	5.4	590	1109	153.7	8.3	145.3	1.8	802	0	419	283	95	197
6364	7/3/81	0.50	0.57	4.2	4.6	48.9	409	1157	106	52	54.4	1.9	819	0	392	158	312	226
6365	"	1.01	1.24	3.9	4.3	13	1345	5094	350	45	305	9	3017	0	1641	983	570	882
6366	"	3.11	3.14	7.0	6.9	63.9	25	138	6.7	4.3	2.4	0.2	78	0	82	16	10	16
6367	"	3.15	3.17	7.0	6.9	38.9	46	253	12	4.6	7.3	0.5	142	0	90	29	37	41
6368	"	3.18	3.43	6.4	6.3	31.4	1503	7831	392	123	269	16.7	4714	0	2694	1205	1086	1218
6369	"	3.44	4.21	5.8	5.6	14.8	2170	7348	564	84	480	24.4	3294	0	901	1904	1404	1713
6370	"	4.25	5.20	5.0	4.8	10.6	3022	7854	736	83	703	27.5	3873	0	475	2574	1313	1851
6371	"	5.23	6.43	4.2	3.9	9%	3175	6463	826	74	782	22.3	3276	0	417	2342	961	1652
6372	"	6:44	6:57	4.1	3.8	6.6	816	1490	212	14	198	5.0	827	0	97	599	230	370
6373	"	7.00	7.10	4.0	3.7	16.0	810	1900	211	34	177	4.4	1313	0	640	510	230	317
6374	"	7.19	7.34	3.8	3.5	13.8	923	2236	240	33	207	5.0	1872	0	824	621	228	360
6375	"	7.37	8.11	3.6	3.3	8.7	1332	4929	519	~~45~~	469	11.8	3464	0	1847	1327	484	824

T1 LUMI.	<L> x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)
1088	0.91	1.95	7.50	IBM	1.2	5 %	65	5	16.494
1046	0.88	1.98	9.48	IBM	1.0	6%	59	1	"
1238	1.08	1.29	10.77	"	1.6	1	25	1	16.422
527	1.12	0.81	11.58	IBM	1.8	2%	20	0	16.494
992	1.02	1.85	13.43	"	1.4	4 %	52	2	"
398	0.70	0.73	14.16	"	1.2	5 %	29	1	"
119	0.78	0.24	14.40	"	1.2	5%	8	0	16.494
878	1.25	1.28	15.68	"	1.7	3%	40	0	"
1067	1.10	1.94	17.62	"	1.6	3%	48	1	"
1043	1.02	1.92	19.54	"	1.4	3%	57	1	"
1161	0.70	1.27	20.81	"	1.2	3%	35	2	"
754	0.59	1.27	22.08	"	1.1	6%	44	1	"
5	0.22	0.01	22.09	"	1.1	5%	0	0	"
602	.99	.54	22.63	IBM	1.8	1%	16	1	"
509	1.0	.98	23.61	"	1.5	4%	38	0	"
				"	1.1				
888	0.75	1.94	25.55	"	1.1	6%	44	1	16.493
542	0.57	2.07	27.62	"	0.9	4%	60	2	"
519	0.44	1.21	28.83	"	0.8	5%	36	3	"
157	0.40	0.36	29.19	"	0.7	12%	6	0	"
7	0.22	0.01	29.2	"	0.7	21%	0	0	"
469	0.85	1.41	30.61	"	0.6	19%	32	5	"
66	0.27	0.16	30.47	"	0.5	15%	8	4	"
112	0.42	0.17	30.64	IBM/ TAPE	1.5	8%	5	0	16.493
1195	1.1	1.48	32.12	IBM	1.2	6%	27	0	"
21	0.52	0.01	32.13	IBM/TAPE	2.0	3%	0	0	"
61	1.12	0.05	32.18	"	2.0	3%	2	0	"
1899	1.13	1.71	33.89	IBM	2.6	3%	46	0	"
2341	1.19	2.58	36.47	"	1.8	6%	87	4	"
2161	0.91	2.74	39.21	"	1.5	9%	88	5	"
1491	0.62	1.97	41.18	"	1.0	11%	61	4	"
294	0.52	0.42	41.70	IBM	0.8	14%	16	0	4
270	0.49	0.40	42.10	"	0.7	9%	7	0	"
304	0.45	0.42	42.52	"	0.7	9%	8	0	"
644	0.46	0.91	43.43	"	0.7	9%	33	0	"

run stopped to change scale } for run 6355
chamber ran off as well }
wrong trigger scalers up to here ↑
from here coll. ±3 again (see p 113)
no 3TOF x 3-track trigger
collin. tracks in coll. trigg.
T2 cond 11/1/11, 10/11/10, 11/1/11
beames lost
MIPROC ON
Beam dumped
MIPROC ON
MIPROC ON
Miproc on for last 4000 events (only 2-vertex calc)
Miproc on (only 2-vertex calc, no T2-check)
Miproc on 2-vertex + T2-check
— " — — " —
Timing problem Miproc/Nord solved ??? No!
Miproc on
Miproc on

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT +POSTPONE $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 $\geq$2TOF LG>1 $\geq$1TR	T1 LG>4

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	Skdt RUN	Skdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

03·53 ID trip again. looking at ID anode current histogram, it seems ~ ~~double~~ factor 1·6 higher than during run 6339.
Petra currents ~6·7 mA. Chamber current ~ 19mA, giving 'Risiberg R' ~ 0·3. At the limit?
Reset OK.

04:07 PKR suddenly call to say they are doing orbit corrections for us. ID trip. Leave ID ~~off~~.
Pause run. PKR now moved attention to CELLO.

04:22 Beam lost

04:30 After 'magnet fluctuation' warning, final DVM reads 7420 A not 7500. I fiddle with the cables + it slowly + jerkily climbs back to 7500. ??

04:48 KURZE UNTERBRECHUNG

04·56 'Septum synchr. defect' expert I how to fix. Magnet current ⟶ 4000 A.

05:18 Injecting again. Magnet ⟶ 7500 A.

06:06 16493 Gev 87 I^- BP ~ 2·0 + fluctuating
79 I^+

06:17 BP stable ~18. PKR envisage no orbit corrections for ~ ½ hour. Switch on. Start run 6343.

06:30 ID trip. Get error 7 on trying to reset. Call Wagner. Stop run 6343
Meanwhile, hear sparking from +z, +x station of μ-system H.T. Breakdown in master box. Have to turn off.
Also — colour T.V. suddenly gone blank. Try re-starting JDAS. Does nothing. TV still blank.
Suddenly re-appears for ~10s, then goes blank again.

7.13 Running again. ID trouble was spurious alarm (AW)

8:00 ID trip (anode current) + P Warming; Y. Zhang, A Wagner on shift

8:02 Stop Run 6345. Eichler came and working on color TV.
+z, +x station of μ-system fixed and working. −z, −x station faulty (−z, −x endwall, −z, −x roof quarter)
↳ turned off. AB.

8:11 new run

8:16 beams lost with "fire works" in I.D.

8:51 beams again

9:09 ID trip (anode current): Reason for frequent anode current alarm was found – limit was too low (15 μA)

11:09 ADC's 4,5+14 in the tagging lead glass shall have a reduced rate in run 6351.

11:35 partial beam loss. Decide to refill.

12.15 no electrons for the time being. ← Colour TV is broken. replaced by spare TV which is only half broken (no blue)

12.52 New colour TV program loaded – Hope its OK! (HEM)

6/3/81

14[25] Magnet current lowered to 4000 A

15[58] PETRA is starting injection →
magnet current raised up to 7500 A

16[00] Kawalata, Lord

16[10] new filling, CELLO needs 10-15 min to switch on their magnet.

16[40] beams lost, then doing orbit corrections

17[10] new filling

17[40] ID switched on
3TOF×3TR/T1 rate is zero, scaler defekt ⇒ run summary mix-up

17[50] beams lost; ID tripped with giant sparking

18[30] new filling; wait before switching on ID

18[41] ID on, it still works. „Wir

Important: 1) PKR has strict request from all experiments, to do nothing with the beams without telling the experiments first. In the case of beam steering always switch ID off.
2) For safety reasons, the „kollimator Nordwest Luven" is moved as close to the beam as possible, in order to catch the beam partly, in case of beam loss. After a new filling always check with PKR, that kollimator is moved in, before switching ID on.
AW

18[57] Stop run, ID off beam optimization for CELLO.

19[22] continue after scaler change

~~21[00] Somebody must have switched the scalers after 22 Febr.~~ corrected.

22 00 Discovered that collinearity was still on ± 1 since cosmic run
Runs 6332 – 6338 affected!

22[30] From run 6361 on 2TOF$_{coll}$ trigger with 2 collinear tracks (± 3 cells)

7.3.81

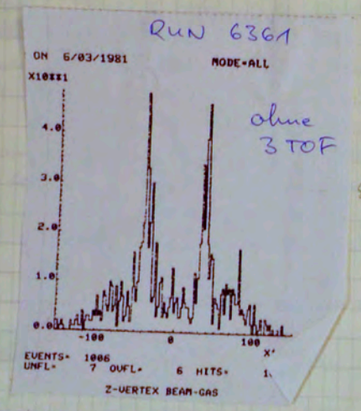
0:00 EICHLER, BAMFORD.

0:45 Stop run 6364. Error ~~message~~ output to IBM and mag tape to also suppress. Multiple JDAS errors so run stopped.

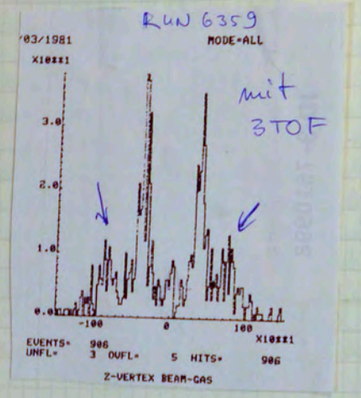
1:01 Run 6365 started.

RUN	DATE	START	STOP	I^+	I^-	MARK J DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tφ REJECT x10⁶	Tφ ACCEPT x10⁶	T1 ACCEPT HADRONIC x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4

T1 LUMI.	<L> x10³⁰	Skdt RUN	Skdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)



Spikes 27%



Spikes 26%

Conclusion:
No big difference in rate from "glowing lips".
So we put bad 3TOF × 3TRACK trigger for next run.

1:30 Beam dumped by request from CELLO & Mark J both have high background, we are OK!

3:00 ~~Start run 6365~~. On phoning PKR we find we are having 5 min beam sharing for Mark J, no word from PKR previously. ID stays off!

3:10 Start run 6366 MIPROC ON

3:15 Start run 6367 MIPROC ON

3:17 Start run 6368

3:44 Start run 6369 Triggerrate was high in last run (5.2 HZ). Mainly due to 3TOF·3TR Dicconnect 3TR·3TOF trigger for this run, Triggerrate drops to 3.5-4 HZ. IBM operator complains that 2 dump jobs are running!? Don't know what to answer PKR complains, that they have no luminata from us.

4:30 ID trip now ok. Start run 6370.

5:22 8000 events with Miproc (z-vertex), Miproc seems to work if triggerrate is low start new run

5:30 Magnet trip. ID-alarm. It smells burnt in electronics room. Can not localise Reset magnet.

these are spurious alarms, source not yet found

5:40 Reset ID. Several times spark (1R1) or anode current alarm during raising of HVon chamber

5:45 Subjective feeling that hall is rather warm. Open door. Measure temperature on balcony. (27°C) Call "Kontrolltechniker."

6:05 Magnet trip. Kontrolltechniker puts on ventilation of hall

6:12 Continue data taking. Call "K"-people for an inspection of magnet. Nothing abnormal found.

6:38 Read BP HV on counter 1. should be 1.6 was 1.832. (kV)

One side of BP-counters broken. Will replace it in next filling.

7:00 Run 6373 3track-trigger is back in since triggerrate is relatively low (2.5 HZ)

8:00 Yotsuka, Wacht

8:11 Beam lost, ID trip
Miproc off; observation in Run summary of run 6375: #(Tφ accept) + #(Tφ reject) ≠ #(Tφ all)

8:20 ADC 2249A for BP. station #16 replaced.

8:45 Magnet trip.

9:00 Beam ready. still trouble with Magnet.
LUMI ACCIDENTALS (spikes) changed from low to high thresholds

10:00 Magnet still down, K are repairing.

↓ — 〃 —

11:40 Beam lost.

12:00 No progress on magnet.

12:15 Magnet is OK.

~12:30 Beams ready

12:39 Start new run

13:12 ID trip

13:13 Re-install TAGG-triggers to study what will happen ...

13:30 LG-threshold adjusted.

13.35. CONCERNING POWER SUPPLY (MAGNET) FAULT. TRIPPING OUT ON TRIMMER OVERVOLTAGE. EVENTUALLY CHARGED SOME TRANSISTORS IN THE CONTROL CIRUIT AND SYSTEM THEN OPERATED NORMALLY. (AS IT DID ON PREVIOUS OCCASION) ALL WE CAN HOPE IS THAT IT HAS EFFECTED A CURE. CALL ME IF IT FAILS AGAIN. CH HEDGECOCK.

15:00 From run 6340 to 6379. we have
1300 bhabhas and 48 on-line-multihadrons assuming $\sigma_{bb} = 15.6\,(\frac{15}{E})^2$ nb.
$\sigma_{had\ online} = 0.47 \pm 0.7$ nb. ... too high (exp. ≈ 0.32 nb) by factor 1.5 !!
reason too many backgrounds? or bad calibration of σ_{bb}? Y. Totsuka.
(make unlikely)
anyway luminosity is ~~high~~! but. for example run 4602 (E=16.59) had $\mathcal{L} = 2.9 \times 10^{30}$.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME %	TIME (SEC)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT +POSTPONE $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3 TR.	T2 COLLIN	T2 $\geq$2 TOF LG>1 $\geq$1 TR	T1 LG74
6377	7.3.81	12:37	13:15	6.8	7.24		2070	7801	538	79	459	17.6	4932	0	2847	1631	838	1377
6378	"	13:15	13:49	6.2	6.5		2003	7806	521	82	439	15.9	5398	0	2482	1433	838	1224
6379	"	13:54	14:31	5.2	5.5		2215	7834	576	72	504	15.7	5361	0	2341	1576	950	1331
6380	"	14:32	15:13	4.8	5.0		2433	7830	632	70	562	15.3	5411	0	2306	1752	928	1354
6381	"	15:13	15:30	4.6	4.8		982	2885	255	26	228	5.7	2035	0	861	687	327	478
6382	"	16:58	17:30	7.5	7.5	54.8	1902	7754	495	284	211	12.3	5658	0	2548	949	1228	1139
6383	"	17:30	17:33	7.5	7.5	50.3 47.6	154	720	40.1	20	19.9	1.1	503	0	248	73	120	100
6384	"	17:37	18:12	6.7	6.7	51.1	2045	7813	531	271	260	13.0	5643	0	2477	1074	1345	1257
6385	"	18:14	18:49	6.2	6.2	17.6 14.0	2063	7853	537	94.6	443	19.5	4906	0	521	1809	1711	1741
6386	"	18:49	19:28	5.7	5.6	13.5 10.2	2315	7861	603	81.5	521	19.9	4951	0	516	1973	1651	1807
6387	"	19:29	19:40	5.6	5.5	11.2 8.4	664	1972	173	19.3	153	5.3	1203	4	123	520	366	496
6388	"	19:40	19:50	5.4	5.4	15.7	564	1963	144	22.1	122	4.0	1424	0	597	426	264	360
6389	"	19:50	20:04	5.3	5.2	26.4	682	2030	178	46.8	130.8	4.2	1480	0	657	416	290	348
6390	"	20:06	20:17	5.2	5.1	22.0	651	1955	170	37.2	132.3	4.0	1411	0	611	404	260	353
6391	"	20:18	20:27	5.1	5.0	14.9	520	2085	135	20.1	115.0	3.3	1635	0	767	425	245	277
6392	"	20:27	20:37	5.0	4.9	14.0	548	2067	143	20.0	123	3.4	1617	0	769	446	239	296
6393	"	20:51	20:47	4.9	4.9	14.2	523	2044	138	19.5 18.4	119	3.2	1664	0	814	412	227	274
6394	"	20:47	20:58	4.8	4.7	10.6	678	2015	176	18.6	158	4.1	1463	0	642	470	253	356
6395	"	20:49	21:46	4.4	4.3	9.4	2784	7819	724	68.2	656	15.7	5561	0	2470	1821	925	1428
6396	"	21:46	22:39	4.0	3.8	8.0	3130	7828	814	65.3	749	15.4	5483	0	2289	1995	898	1485
6397	"	22:39	23:35	3.6	3.5	7.1	3346	7517	870	62.1	808	14.2	5309	0	2163	2045	808	1428
6398	8.3.81	00:12	00:26	6.1	6.4	44.0	392	1475	102	45	57	3.1	922	0	85	208	233	242
6401	4	00:35	00:50	5.8	5.9	21.6	866	3966	225	49	176	8.6	2499	0	203	661	669	711
6402	4	00:50	01:23	5.3	5.4	18.8	1775	7848	461	87	375	18.0	5084	0	378	1339	1161	1310
6403	4	01:24	01:58	4.9	5.0	16.7	2066	7856	537	96	448	18.2	5146	0	368	1531	1158	1375
6404	"	01:59	02:37	4.5	4.6	12.3	2262	7863	588	72	516	18.6	5077	0	387	1654	1078	1435
6405	4	02:37	03:21	4.1	4.2	10.7	2534	7843	659	71	588	19.7	5762	0	433	4727 1052	1052	1436
6406	4	03:22	04:10	3.8	3.8	9.6	2891	7853	753	72	680	20.2	5784	0	442	1999	1010	1500
6407	4	04:11	04:54	3.5	3.5	10.5	2489	6880	648	68	579	17.0	4650	0	369	1671	830	1204
6408	4	06:31	07:02	7.0	6.7	34.8	1723	7853	448	156	292	19.0	3905	0	430	1347	2267	1825
6409	4	07:02	07:35	6.4	6.0	17.4	1962	7858	570	89	421	21.4	3660	0	404	1695	1985	1874
6410	4	7:36	8:09	5.9	5.4	19.2	1842	7844	479	92	387	18.2	4917	0	397	1413	1906	1381
6411	"	8:10	8:43	5.4	4.9	14.8	1988	7859	518	76.5	441	18.0	4892	0	387	1561	1970	1493
6412	"	8:44	9:23	4.9	4.5	11.7	2370	7862	616	72	544	19.2	4923	0	405	1737	1984	1507
6413	"	9:24	9:27	4.9	4.4	10.0	169	505	44	4.4	39.6	1.3	316	0	2	122	66	101
6414	"	9:27	9:52	4.6	4.2	12.2	1462	5324	380	46	334	10.4	3786	0	1415	1005	545	823

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	
433	1.38	2.88	46.31	IBM		6%	85	2	16.484	$\langle L \rangle_{Endcap} = 3.2 \cdot 10^{30}$ — 6.63
1055	1.10	2.20	48.51	"	1.3	6%	58	4	"	TAGG - triggers ok - installed 4.53
996	1.02	2.27	50.78	"	1.1	6%	65	1	"	5.07
926	0.87	2.11	52.89	"	1.0	7%	72	3	"	5.62
317	0.93	0.71	53.60	"		8%	23	1	"	1.80
746	0.61	1.16	54.76	"	2.1	3%	42	2	16.494	3.28
64	0.66	0.10	54.86	"	1.9	2%	2	0	"	Need error, run stopped
687	0.58	1.19	56.05	"	1.8	3%	42	2	16.494	3.28
939	0.79	1.65	57.68	"	1.7	6%	46	0	16.494	without 3 track 3.59
871	0.67	1.55	59.23	"	1.5	7%	54	0	"	4.22
212	0.61	0.41	59.64	"	1.4	7%	14	0	"	1.09
147	0.50	0.28	59.92	"	1.3	6%	13	0	"	with 3 track 1.01
169	0.45	0.31	60.23	"	1.2	6%	5	0	"	
153	0.48	0.29	60.52	"	1.2	7%	9	0	"	
140	0.49	0.26	60.78	"	1.1	6%	7	0	"	Test with several T2 threshold setting see p. 162
129	0.48	0.27	61.05	"	1.1	7%	1	0	"	
123	0.46	0.25	61.30	"	1.1	7%	7	0	"	
151	0.49	0.33	61.68	"	1.0	8%	8	0	"	
712	0.55	1.54	63.17	"	0.9	8%	60	1	"	4.68
722	0.55	1.72	64.89	"	0.8	10%	60	0	"	4.68
676	0.49	1.64	66.53	"	0.8	11%	57	2	"	4.45
226	0.81 0.32	0.32	66.85	"	1.5	3%	89	0	"	without 3 track 0.70
610	0.96	0.83	67.68	TAPE	1.4	4	29	2	"	on FII 145 2.26
1164	1.21	2.15	69.83	IBM	1.3	5	50	2	16.494	3.90
1131	0.74 1.52	1.52	71.35	"	1.2	6	42	0	16.492	3.28
1056	0.65	1.47	72.82	"	1.1	7	47	3	"	3.67
972	0.55	1.39	84.21	"	1.4	7	46	0	"	3.59
903	0.45	1.31	75.52	"	0.9	8	30	2	"	2.34
807	0.42	1.05	76.57	"	"	8	33	1	"	2.58
1769	1.00	1.72	78.29	"	2.2	3	57	0	"	TAGG*1TRK of. 4.45
1956	1.31	2.57	80.86	"	1.8	5	60	3	"	" 4.68
1994	1.05	1.93	82.79	"	1.5	5	56	0	"	TAGG*1TRK in
1146	0.94	1.86	84.65	"	1.3	5	67	1	"	
1135	0.82	1.93	86.58	"	1.2	7	55	2	"	
73	0.71	0.12	86.70	"	1.0	10	2	0	"	
575	0.73	1.07	87.77	"	1.0	6	30	1	"	E-tench trig in beams dist

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT HADRONS $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3 TR.	T2 COLLIN	T2 $\geq$2TOF LG$>$1 $\geq$1 TR	T1 LG$>$4

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

15:29 Beam lost, ID-trip

15:30 one ADC of BP was again replaced. (station # 17)

16:00 Boudry, Elsen

17.30 Nord - hang up + ID trip (page fault for non-demand, page 137) ← YIBM
restart computer.

18:10 IBM error check 3 (bad event)

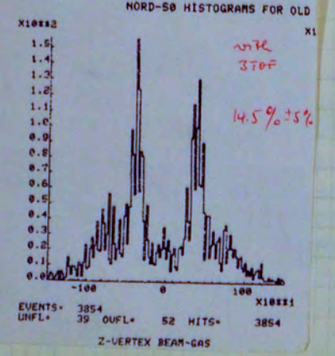
18:13 start run 6385 without 3-track trigger

18:35 without this trigger dead time drops from 50% to 25%, so we leave it out.
Though the 3 track cable is out some events have the bit set and
run summary shows a nonzero rate!??
⇒ Some events fulfill both conditions: $2\,TOF_{coll}$ and 3 TOF. Those events
are ~~entered~~ counted twice.

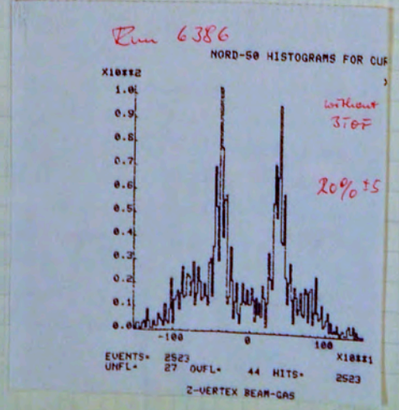
19:40 3-Track-Trigger back in for Run 6388

note: There is now a on-line monitoring of the Jetchamber currents.
The present limit of the highest current permitted is 5μA/cell.
If this current is exceeded a red warning appears on the colour TV.
Action: - In case of occasional warning: no action
- If the rate of warning exceeds 1/10 sec, switch ID off, call
PKR and complain about unstable beam conditions
AW

Run 6384

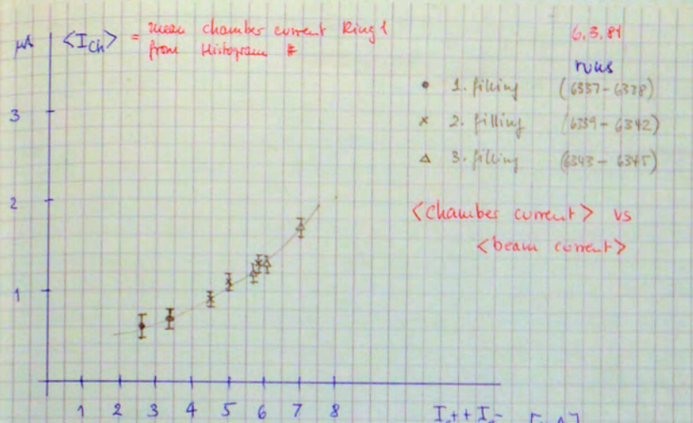


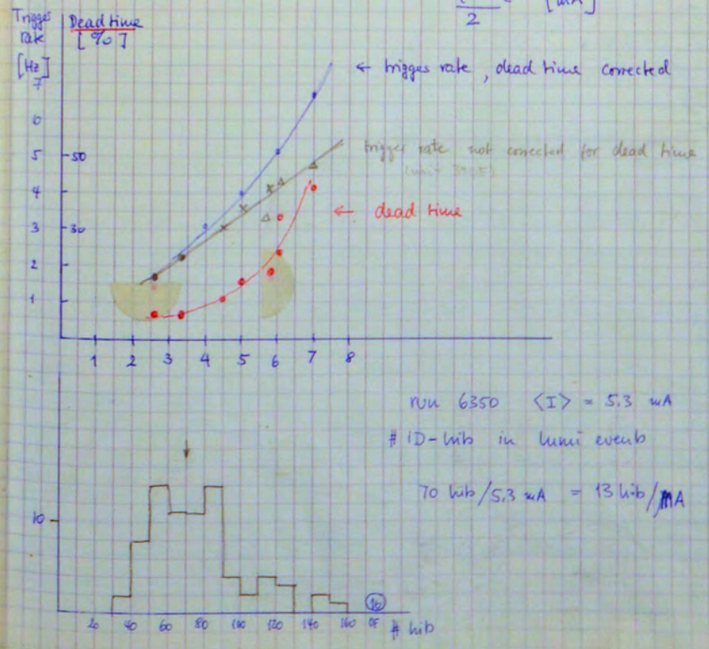
Run 6386



Contribution of spikes in beam-gas events.
(not normalised to histograms p. 118)

Some reference curves on trigger rates, chamber current as function of beam currents





RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT +POSITRONS $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 $\geq$2TOF LGγ1 $\geq$1TR	T1 LG74

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	Skdt RUN	Skdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

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PETRA TV exaggerates – probably only 6 hours!

23.28 This fill has lasted 7 hours and still gives good luminosity. The value on the TV is 0.5×10^{30} but is probably about 1.5×10^{30}. DT ~ 7%. We delay beam dumping.
(μ filter −z −x station still switched off.)

23:35 Beam dump. During last fill Cello's luminosity changed from 24 to $16 \cdot 10^{30}$ over >6 h. Our luminosity is also very stable. (decrease in current is compensated by rise in life-time). Mark J's care for a new fill is that they saw a factor of 6 decrease in luminosity over the previous filling.

8.3.81.

00:00 Matsumura Watanabe on shift

00:12 Run 6398 started. BP#16 gave overflow in BP voltage. Took it out

00:28 ID trip. 4 min. later again.

00:25 Stop 6398. Message "IBM DISC overflow" appears.
P. Dittmann is here

00:35 Start 6401 on TAPE FT11145 (6399 and 6400 aborted trying to connect to IBM)

00:50 On-line job died on 5722 (line limit). In this case stop run, ask IBM operators to kill the JADE on-line job 'JADE0' and restart it again.

To → Dieter Cords, Henning Wriedt

(DI) N50DAR a) enthält BP + TOF HIPROC format
b) LUMI energy histograms : GOOD EVENTS only above high threshold

01:20 dead time ~20%, TAGG*/TRK is twice the rate as the others. Will take it out from the next run.
Woke H. Wriedt up. He suggests to leave it in unless the dead time is more than 25%.
To switch off the TAGG*/TRK trigger, go to the trigger box and follow TAGG 5 ~~E6~~ cables (twisted pair of green-white ~~and green-gray~~) to the cards. Flip an additional switch on the four fold coincidence to the same direction where ~~these~~ this cables ~~goes~~.] do not follow this steps any longer, please. (for TAGG*LG ← this causes no problem. see next on p. 128 HW

To J1-4

06:31 New fill ready. BP = 2.4 V. Start run 6408 (as ~~the~~ a Jet ch. expert is here)
take out TAGG*/TRK, because the dead time was 25%. Now it is ~40%

08°° Tohidas Olsson

9:30 Beams quiet, DT ~ 11% : We put 3-fault trig in again: No change as we can see

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9:40 Mark J calls: They claim that they have a case for refilling. They average over 24 hours to include down time used when instant luminosity drops below their average, they wanna refill. Cello wants to stay on with this fill for another 2 hours, meaning a loss of 5 nb⁻¹ for Mark J. A compromise will be negotiated.

9:58 Beams lost. ID tripped.

10:35 NF ready, then general breakdown. Similar on fall at PETRA, our magnet has tripped, gives an alarm that is not acceptable. Group K will have a look soon.

11:30 Magnet repaired, hardware error in subcircuit, probably caused by "Netzausfall". Petra had a short run without us, But lost beams again. Now refilling

12:30 NF ready, start without 3 fault trigger Good fill ⇒ 12:40 ID alarm

13:20 IBM DISC OVERFLOW. IBM-EXP also down.
Data onto MT here after.

13:30 ID tripped

14:30 Magnet trip K-people here again

15:50 Magnet "repaired". Last trip due to overheating in badly isolated place. This is now "patched up" and an additional fan installed for cooling. Should be OK!? Beams meanwhile lost. IBM problems solved, disks unloaded. LHO: 5 Dumptapes produced in last 22 hours ~ 900 min CPU time. We need the Rutherford relief soon! – THE FAN IS FITTED TO COOL THE POLARITY CHANGE OVER BUS-BAR SYSTEM. – CRHEDEMAN

16:00 Goddard + Krehbiel

17:30 injection finished – 9 ma. per beam! Now they try to accelerate. Oops! What a shame ... beam
try again with 8.3 ma. 16.5 GeV achieved with 7.9 ma per beam
B.P ~ 2.5
checked with PKR – collimators were not put in! Now will now drive them in.
Collimators are in but still BP – 2.5. Phone PKR they try moving collimators further in, but it makes no difference. $L = \frac{75\ N_{BB}}{\text{sec}}$ (after ave)

18:37 We are again complaining about very high background rate (>3 V at 7.2/7.2 mA and not stable) chamber still off. PKR plays with Q-values – only slightly – and our background immediately drops to below 2V. Background for other experiments does not go up on PKR monitor. Moral: Insist on low background in BP counters
AW.

18.45 In order to reduce trigger rate to 3 Hz we took out the tag triggers, 3 TOF · 3 trk as already out, increased LG threshold to level of 60 mV.
Now we have ~ 3 Hz.
Lumi ≈ $34 \cdot 10^{30}$ /(cm² sec) → shown by Tag syst $1 \cdot 10^{30}$ /(cm² sec)

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT PHOTONS $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 $\geq$2TOF LG>1 $\geq$1TR	T1 LG>1
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Run	Date	Start	STOP	I^+	I^-	Dead Time %	Time (sec)	Nord events ACCEPT	All Trigger $\times 10^6$	Tϕ Rejct $\times 10^6$	Tϕ accpt $\times 10^6$	T1 Accept Photons $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR	T2 Collin	T2 $\geq$2 Tof $\geq$1 LG>1 $\geq$1 tr	T1 LG>1
6415	8.3.81	12:35	13:06	7.1	7.0	26.9	1730	7842	450	121	329	16.3	4584	0	380	1276	1461	1516
6416	~~13.06~~	13~~16~~	13:19	6.9	6.7	17.4	754	3131	196	34	162	7.0	1808	0	179	574	574	648
6417	"	13:20	14:01	6.2	6.1	13.1	2235	7856	581	96	504	18.9	4596	0	418	1682	1361	1697
6418	"	14.04	14:39	5.7	5.5	10.7	1848	5788	481	51.5	429	14.5	3774	0	309	1397	886	1961
											New filling							
6419	8.3.81	18.39	19.25	At End 6.5	6.5	11.8	2745	7835	714	84,1	630	23.24	4243	0	618	2365	1862	2112
6420	8.3.81	19.45	19.53	6.49	6.50	9.8	1617	4012	420	41	379	12.7	2151	0	290	1321	825	1157
6421	"	19.56	20.59	6.08	6.08	8.1	3532	7063	918	74	845	23	4152	0	495	2718	1767	2154
6422	"	21.00	21.59	4.6	4.6	7.6	3543	7119	921	70	851	21	4680	0	437	2584	1172	1859
6423	"	22.00	23.07	4.2	4.2	7.5	4012	7002	1043	78	965	21	4708	0	396	2670	1150	2013
6424	"	23^{07}	00^{04}	3.8	3.8	5.7	3373	5205	878	50	826	15	3631	0	341	2180	807	1509
6425	9.3.81	1.33	2.15	6.3	6.0	13.0	2435	7842	634	82	551	21	4580	0	413	1339	1563	2074
6426	"	2.15	2.52	3.7	4.5	18.7	1996	7777	549	97	422	15	5549	0	2528	1490	1150	1476
6427	"	2.52	3.02	3.6	4.4	20.9	548	2150	142	30	113	4.4	1638	0	630	377	495	420
6428	"	5.28	6.48	5.7	2.8	9.4	3815	7812	933	93	900	21	5259	0	430	2547	1145	1555
6429	"	6.48	7.20	5.4	2.6	7.6	1940	4165	505	39	467	9.3	3360	0	1421	1172	487	729
6430	"	8.27	9.00	6.9	6.9	22.9	1949	7566	508	116	392	15.9	5530	0	2778	1428	983	1258
6431	"	9.01	9.19	6.6	6.6	21.0	1045	2814	272	29.8	242	9.0	1707	0	166	856	507	750
6432	"	9.22	9.48	6.2	6.2	20.3	1357	3365	352	36.1	316	10.8	2008	0	215	1078	610	891
6433	"	9.48	9.57	6.1	6.1	13.6	480	1080	125	17.0	108	3.4	645	0	77	367	190	286
6434	"	10.01	10.05	5.9	5.9	12.3	781	459	47	5.8	41	1.3	240	0	39	148	81	123
6435	"	10.08	10.40	5.5	5.5	9.2	1820	3873	474	43.6	430	12.3	2363	0	257	1312	687	1119
6436	"	10.43	11.01	5.3	5.3	8.2	1076	2088	280	23	257	6.6	1340	0	150	813	329	584
6437	"	11:02	11:36	4.9	4.9	6.9	1938	3517	505	35.0	470	11.1	2296	0	241	1599	624	966
6438	"		only	1	event													
6439	"	11:44	11:46	4.7	4.7	6.7	132	258	34.5	2.3	32.2	0.7	750	0	75	709	38	66
6440	"	11.57	13:17	4.1	4.0	5.6%	4735	7850	1233	69.4	1163	22.1	4640	0	463	3146	986	1960
6441	"	13.18	14.20	3.7	3.6	5.5	3697	5319	963	527	911	14	3190	0	264	2292	593	1382
6442	"	19:39	19:57	7.2	6.4	44.2	314	1528	81	36.0	45.0	2.8	1121	0	93	227	192	170
6444	"	20:13	20:27	6.7	5.9	13.4	846	4758	225	142	82.3	8.0	3635	0	792	438	426	362
6445	"	20:32	20:44	6.4	5.6	5.3	705	3941	183	92	91.1	8.9	2940	0	144	437	376	392
6446	"	20:46	21:21	5.9	5.2	15.1	2108	7850	548	82.7	465	27.7	3949	0	450	2086	1689	1787
6447	"	21.23	22:05	5.4	4.7	12.3	2507	7856	651	80.3	571	29.2	3985	0	457	2464	1548	1851
6448	"	22:05	22:55	4.9	4.3	10.2	3003	7847	781	79.9	701	29.7	4135	0	480	2737	1425	1923
6449	"	22:56	23:54	4.5	3.8	8.5	3479	7849	904	76.5	828	28.3	4374	0	505	2989	1408	1863

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

T1 Lumi.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ Run	$\int L dt$ total	IBM/ Tape	Beam pipe aumt	Rej. ev. Fraction %	# Bhabha	# M-hadron	Beam Energy (GeV)	
1421	1.40	2.42	90.19	IBM	1.9	4	62	0	16.493	
559	1.35	1.02	91.21	IBM		5	34	1	"	← DISC FULL
1299	1.18	2.63	93.84	Fill46	1.3	6	84	1	"	
900	1.01	1.87	95,71	Fill80	1.1	8	49	2	"	
149	.95	2.61	98.32	IBM	1.9	8 %	77	4	"	
724	.77	1.25	99.57	IBM	1.8	"	38	0	"	Coods stops runs. He loads new IBM-JOB
1547	0.97	3.41	102.98	IBM	1.7	12%	107	3	"	
1279	0.81	~~2.85~~ 2.85	103.79	IBM	1.0	11	98	3		~~2 Tof trigger~~ TAGG·1TR in
1137	0.63	2.54	106.33	IBM	0.8	13	67	2		
765	0.51	1.73	108.06	IBM	—	14	54	2		
1044	1.18	2.88	110.94	IBM	1.4	7	104	3	16.493	without 3 trads
633	1.47	2,93	113.87	"	1.3	6	53	0	"	with 3 trads
109	0.51	0.28	114.15	"	1.1	5	9	0	"	—"—
783	0.60	2.28	116.43	"	1.7	12	64	0	"	without 3 trads
352	0.54	1.04	117.47	"	0.8	10	20	2	"	with 3 trads
928	1.40	2.73	120.20	"	2.0	6	78	3	"	without 3 HKs
529	1.53	1.60	121.80	"	1.5	10	45	0	"	
617	1.36	1.84	123.64	"	1.3	9	54	4	"	
190	1.19	0.57	124.21	"	1.2	8	29	0	"	
79	~~1.23~~	0.22	124.43	"	1.7	9	4	0	"	$\int L dt$ zum LUMI Runjust (6334–6434) = 295 nb^{-1} (s.S. 146)
668	~~3.81~~	6.94	~~126.47~~	-	1.1	10	89	1	"	$\int L dt$ aus Bhabhas s.S. 98 below
357	2.69	2.89	299.39	"	1.0	12	37	0	"	$\int L dt$ = #Bhabha × 7.8×10^{-2} für 16.49 GeV
593	1.93	3.74	303.63	"	0.9	13	48	2	"	#Bhabhas (6334–6434) = 3720 ⇒ $\int L dt$ = 290.05
					0.9					
47	1.77	0.23	303.86	"	0.9	14	3	1	"	
1122	~~1.82~~ 1.82	~~8.58~~ 3.15	~~312.44~~ 306.78	IBM	0.8	15%	~~111~~ 39	6	"	
677	1.29	4.76	317.20	IBM	-	18%	61	3	16.493	
184	1.24	0,39	317.59	"	1.7	3	5	0	16.494	
599	0.72	0.62	318.21	"	2.2	2	8	0	"	
460	1.76	1.24	319.45	"	1.7	2	16	0	"	
1763	2.40	5.07	324.52	"	1.8	6	65	7	"	TAGG × 2tr triggs out
1569	2.46	6.16	330.68	"	1.5	8	79	4	"	
1406	1.79	5.38	336.06	"	1.3	9	69	1	"	
1245	1.82	6.32	342.38	"	1.1	11	51	1	"	

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT +BKGRND x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG74

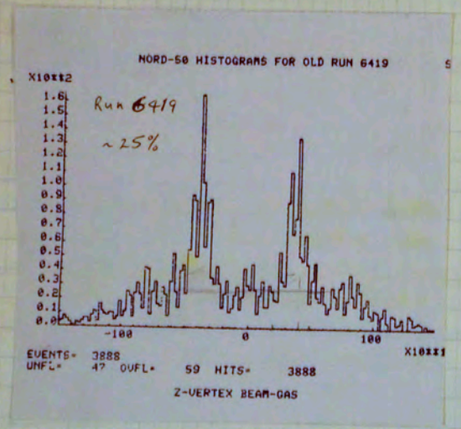
T1 LUMI.	<L> x10³⁰	Skdt RUN	Skdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

8 - 9 March 1981

20.50 ID. trip

21.00 Start run 6422. ~~TAG + Track~~ ~~3TOF 3TR~~ trigger switched in.

$L = 2.4 \times 10^{30}$



March 9 1981 (Monday)

00.00 Wriedt + O'Neill on the graveyard

00.03 Stop Run 6424 to dump beams.

00.54 New fill. BPs 8 in the meter. Call PKR. Collimator Nord. West Inner is in.

ΣBP not due to one hit counter.

01.06 still have 4v on the table volt meter (ΣRP). PKR playing with Q values. Doesn't seem to be doing much good.

01.11 Now have 2v but PKR says other expts are still high. They will inform us when they are through fiddling.

1.20 ID trips when pushing the green button to switch it on - immediately. No Ar vapp. Light #11 on in Alcove 8

01.34 Finally going with Run 6425.

01.37 5.0 hz. Wriedt playing around.

1.50 Lower thresholds for tagging lead-glass increased: will lower TAGG- and LUMI-trigger-rates.

⇒ In case the TAGG + 1 track-trigger rate gets high do not switch the trigger off but contact me, please!

T. Wriedt See note on p. 131 as well, please!

2.42 ID-trip, beams partially lost

3.00 All 3 experiments taped on a new fill

5.25 New fill ready

5.28 Superbuncher is down: no new fill will be possible by 8.00 (at least)

5.30 ID trip

5.35 another ID-trip (although Kollimator UW inner is in); we ~~switch~~ leave chamber switched off

5.40 unstable beams, one e⁻-bunch nearly lost

5.45 beams are stable again, we continue; listening to a conversation between MARK J and PKR (via the loud-speaker) we learn that the superbuncher will be ok within the next 10 min.

7.20 Beams dumped for new fill

8.00 Pearce/Wallenbeck

8.17 New fill ready. Switch on HV. Beam pipe current 1.6 V. Try to turn on inner detector and it trips immediately

8.30 beam pipe current ~ 2.0 V, chamber currents high
phoned to PKR, change in Q-Value gives a remarkable improvement, beam pipe current 1.5 V

9.00 At the end of run 6430: [3TRK · 3TOF] trigger taken out again.

9.56 RUN 6431 stopped to test MIPROC (Eichler)

9.23 RUN 6432 started without MIPROC (since event ~2500 with MIPROC)

9.47 RUN 6432 stopped (MIPROC dead)

9.56 RUN 6433 stopped (MIPROC dead)

10.07 RUN 6434 ——— " ———

10.40 RUN 6435 stopped ID-trip

11.40 RUN 6437 stopped

11.40 RUN 6438 terminated due to power failure, VAX now loaded

11.55 RUN 6439 paused because of IBM Error 53, when IBM returned MIPROC dead, RUN stopped

12.00 Muon system -x,-z station H.T. problems finally fixed. (-x,-z sidewall quadrant, -x-z roof quadrant)
However, -x station (-x sidewall) down since ~09:00 8/3/81 run 6412. H.T. fault. (chambers 22→95 gap in bitmap) Estimate ~ ½ day to repair. AB.

Software meeting ~~& hardware decision~~ :-

3 TRACK · 3TOF Trigger is not to be used until further notice (approx. Thursday)

Use luminosity calculated from # Bhabhas

$$Skdt = \frac{N_{Bhabha} \cdot \left(\frac{E_B}{15}\right)^2}{15.5}$$

Do not use the displayed value

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT HADRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4

T1 LUMI.	<L> x10³⁰	Skdt RUN	Skdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

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14^{05} Celle requesting beam dump and re-fill.
14^{06} PKR dump beams and start injecting.
16^{00} Still trying to inject and store beams. D. Hitmann & Nozaki I on shift.
16.10 -x station muon chambers (-x sidewall) now working again. AB.
" Transmitter problem
19.00 RF problems instant is unknown
19.39 New filling is ready. Start measuring. BP = 1.7 V.
19.45 PKR did not tell us that they fiddle with the beams. We switch off JETC since BP 3 – 5 V.
19.56 Stop the run.
20.10 After beam steering things are worse than before. We start with BP = 2.2 V. ⇒ 70% D.T.
PKR does not want to steer 'back'. Call Coordinator.
20.44 Dead time is so high as 50% and ~~[illegible]~~ Tagging trigger is switched off.
this helps. But TAGG trigger still 50% of total rate: TAGG × 2tr disconnected.
21.21 Now dead time is reduced to 15%.

(was nirgends zu erreichen)
(cable removed from output TAGG 5) on front of T1 crate.
see page 128 bottom

ask for beam adjustment don't insist on Q-value, sometimes bumps are better! PKR should know

March 10. 1981
0.00 Steffen & Kawabata on shift.
0.15 Stop 6450 (Run) to dump beams.
1.10 New filling,
1.25 Beam pipe current is still high ~ 2.3 V. We request PKR to adjust Q value again
1.30 Beam pipe current ~ 1.8 V and stable. Start Run 6451.
1.39 Stop Run 6451 because of increasing JETC currents. phoned PKR to adjust Q.
1.44 Start Run 6452
6.58 beam lost

AT 11.00 the primary cooling pumps will be switched for ~ 7h

8.00 KOGATASKI, BAMFORD on SHIFT
Nothing happening Temp. access until 22 hr.
Magnet OFF.

NOTE: DURING THE PERIOD THAT THE MAGNET WAS OFF, A WATER LEAK WAS NOTICED ON THE MAGNET COOLING SYSTEM. (Z –) END. NO SERIOUS SPRAY WAS VISIBLE AND SO NO WORK WAS CARRIED OUT TO RECTIFY THIS PROBLEM.

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17.10 TAGG × 2tracks re-installed
In case the TAGG×2tracks trigger is taken out — what should not be done without having tried to contact R. Orito or P. Bell — it should be tried to re-install it as soon as possible, at least at the beginning of the next fill.
E.g. the standard histograms of runs 6453 & 6455 show a normal energy-distribution for the LUMI-events from which we expect a reasonable TAGG-trigger rate. (From run 6451 on the trigger-rate would have been ok again)
Again: Treat the TAGG-triggers more carefully, please! R. Orito

Bartel, Matsumura, Zhang on shift

23.00 Restart Petra with injection
Tasso magnet still off, some fuses in the power supply went. However the magnet seems ok. The power supply will be repaired tomorrow.

We cannot switch on our magnet because of problems with the water pumps. Group K is working on it since 22.00.
23.58 new fill ready (only for Celle and Mark J)

11.3.81
0.00 Heuer, Warming on shift
7.7 × 7.7 mA beampipe vak 2 V
0.30 K-people at the limit of their wisdom. Now they have called an expert. Will take ½ hour.
⇒ Run 6457 send to IBM is ID-pulser-Run
1.00 K-expert solved the problem: he found a faulty manometer which was part of the magnet control logic
1.08 Run started, dead time ~ 17% at 2 × 6.5 mA
1.20 Check Std.-Histograms: everything looks normal, trigger TOF × 2track (trigger bit) is quite high, but we can live with it for the moment
2.30 beams lost without ID-trip
"Short break" ⇒ ID-Pulser-Runs, magnet current lowered
4.00 Start Run
4.07 Magnet trip: pumps tripped → K-people come and fix it (reset and switch on again)
4.27 Start new run
6.00 New fill ready

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SEC)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tϕ REJECT x10⁶	Tϕ ACCEPT x10⁶	T1 ACCEPT +POS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG74
132																		
6450	9.3.81	23^{55}	0^{14}	4.3	3.7	7.4	4179	2336	306.7	22.5	284.1	8.3	1923	0	138	928	401	601
6451	10.3.81	1^{32}	4^{34}	7.2	7.4	10.6	520	1350	135.3	14.4	120.8	4.6	746	0	113	499	254	336
6452	"	1^{44}	2^{38}	6.4	6.5	9.6	3198	7852	832.0	79.8	752.2	25.6	4387	0	659	3043	1371	~~2673~~
6453	"	2^{43}	3^{46}	5.5	5.6	7.5	3772	7859	987.7	73.5	908.2	24.4	4223	0	483	3031	1223	209
6454	"	3^{46}	5^{03}	4.7	4.8	6.0	4573	7852	1190.4	~~1116.5~~ 70.9	1119.5	23.8	4296	0	490	3291	1025	208
6455	"	5^{04}	6^{31}	4.1	4.1	4.9	5224	7851	1359.9	66.6	1293.3	27.4	4460	—	466	3628	962	197
6456	"	6^{32}	6^{58}			4.3	1510	2004	392.9	16.8	375.7	5.3	1230	0	119	971	265	485
6457	11.3.81	0^{30}	0^{55}	ID-pulse Run 2475 evts to IBM														
6458	"	1^{09}	1^{47}	6.5	6.5	14.2	2181	7819	567.6	80.8	486.8	20.6	5238	0	455	1843	1265	1373
6459		1^{48}	2^{28}	6.1	5.9	11.7	2259	7007	587.3	69.0	494.1	19.1	4673	0	420	1743	1203	1300
6460	"	3^{00}	3^{18}	ID-pulse Run 2195 evts to IBM, all evts > Cosmo evts														
6461	"	3^{20}	3^{40}	ID-pulse Run 2165 evts to IBM, all evts > Cosmo evts														
6462	"	4^{03}	4^{07}	7.4	7.5	22.3	180	~~783~~ ~~1017~~	~~46.8~~ ~~36~~	~~20.4~~ ~~17~~	~~36.3~~ ~~27~~	~~1.9~~ ~~520~~	526	0	64	150	131	120
6463	"	4^{26}	5^{00}	7.0	7.1	15.2	2027	7838	527.1	80.0	447.1	21.3	5006	0	413	1714	1270	1144
6464	"	5^{01}	5^{13}	6.5	6.6	13.4	689	2347	179.3	24.1	149.8	6.9	1522	0	141	551	418	411
6465	"	6^{00}	6^{40}	8.0	8.2	13.4	2363	7841	615.6	82.8	532.8	22.8	4803	0	551	2048	1389	1748
6466	"	6^{40}	7^{31}	7.3	7.5	11.3	2682	7840	698.7	78.7	620.0	22.9	4780	0	529	2269	1446	1841
6467	"	7^{31}	7^{40}	6.6	6.7	9.9	526	1356	131.8	13.1	118.8	4.0	823	0	98	445	233	324
6468	"	7^{40}	8^{34}	5.7	5.9	9.4	3197	7843	8327	78.3	754.4	22.2	4699	0	479	2537	1252	1875
6469	"	8^{22}	9^{02}	5.4	5.5	7.9	1485	3420	386.6	30.5	355.6	8.8	1966	0	195	1142	546	835
6470	"	13^{32}	13^{42}	6.8	7.1	64.8	589	2268	153.4	99.4	54.1	4.4	1611	0	98	291	367	306
6471	"	13^{45}	14^{07}	6.4	6.7	44.4	1320	5605	343.5	152.3 ~~31.8~~	194.2	11.9	3876	0	253	827	868	807
6472	"	14^{10}	14^{35}	6.3	6.6	39.3	910	1443	80.7	~~49.~~	49.0	2.9	980	0	74	223	240	232
6473	"	14^{20}	14^{35}	6.0	6.3	30.2	898	3941	233.7	70.5	163.2	9.00	2622	0	169	666	610	652
6474	"	14^{22}	15^{12}	5.5	5.8	18.9	1852	7873	482.3	91.1	391.2	19.0	5158	0	385	1463	1146	1392
6475	"	15^{12}	15^{14}	5.5	5.8	16.8	136	494	35.4	5.9	28.5	1.3	333	0	34	104	81	89
6476	"	15^{15}	15^{22}	5.3	5.6	16.0	684	2688	178.2	28.6	149.6	6.4	1770	0	143	583	408	499
6477	"	15^{29}	15^{31}	5.3	5.5	14	80	305	20.8	2.9	17.9	0.7	205	0	16	76	40	51
6478	"	21^{03}	21^{39}	6.5	6.9	17.4	2070	7385	538.6	93.6	445.0	18.5	4763	0	450	1729	1151	1375
6479	"	21^{42}	22^{05}	6.1	6.4	12.2	1338	4266	346.1	42.4	305.7	11.3	2616	0	211	1151	624	883
6485	"	22^{26}	22^{39}	5.7	6.0	10.6	793	2164	188.1	19.9	168.1	5.68	1318	0	130	598	310	454
6486	"	22^{39}	$23:29$	5.1	5.3	9.2	~~2929~~	7229	761.4	69.9	69.2	2.1	4641	0	424	2279	999	1624
6487	"	23:30	0 29	4.5	4.7	7.5	3546	7851	922.8	69.6	853.1	20.3	4697	0	395	2479	1076	1655
6488	12.3.81	0:30	1:43	3.9	4.1	6.1	4243	7850	1103	67	1036	19.8	4850	0	402	2820	1097	1661
6489	"	1.44	3.08	3.4	3.6	5.0	5010	7856	1303	65.4	1238	19.3	4910	0	450	3189	825	1781
6490	"	3.09	4.02	3.1	3.3	4.5	3198	4508	832	37.0	795	10.8	2953	0	231	1988	420	975

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	
	(from Bhabhas)	(from Bhabhas)								133
340	1.79	2.11	344.49	IBM	1.0	12	27	1	16.494	
243	3.0	1.56	346.05	"	1.9	11	20	2	16.493	
1266	2.76	8.81	354.86	"	1.9	11	~~20~~ 113	2	"	
1418	2.67	10.06	364.92	"	1.4	13	129	3	"	
1342	2.32	10.61	375.53	"	1.2	15	136	2	"	
1191	1.58	8.27	383.80	"	0.95	17	116	5	"	
269	1.55	2.34	386.14	"	0.80	19	30	0	"	Beams lost TAGH × 2to. trigger out
										ID-Pulse
1047	~~2.36~~ 2.04	~~5.14~~ 2.06	391.28	IBM	1.6	7	66	2	"	
873	1.73	3.90	395.18	"	1.4	8	80	1	"	beam lost
				"						} ID-Pulse
				"						
124	5.6	1.01	396.19	IBM	1.8	4	13	0	"	magnet trip (pump failure)
1233	3.54	7.17	403.36	"	1.7	6	92	1	"	
364	3.17	2.18	405.54	"	1.5	7	29	0	"	beams lost
1125	3.14	7.41	412.95	"	1.9	7	95	3	"	
1073	2.38	6.40	419.35	"	1.6	8	82	2	"	
173	1.70	0.86	420.21	"	1.5	9	11	0	"	stopped to turn on MIPROC
1184	~~3.12~~ 2.76	8.81	429.02	"	1.4	10	113	2	"	MIPROC was ON
533	~~2.11~~ 2.31	2.43	432.45	"	1.4	11	44	4	"	beam lost — PKR main power supply problem
288	1.85	1. 0.9	~~433.54~~	"	2.0	3	14	0	"	high background
760	2.95	3.90	437.44	"	1.8	3	50	1	"	YIBM page fault
179	4.03	1.25	438.69	"	1.6	3	16	0	"	— " —
509	26	2.34	441.03	"	1.6	4	30	1	"	stopped due to MIPROC error. MIPROC switched off
1071	2.95	5.46	446.49	"	1.3	5	70	2	"	
71	4.59	0.62	447.11	"	1.3	4	8	0	"	
339	2.85	1.95	449.06	"	1.3	6	25	0	"	run with MIPROC on
40	6.82 ?	0.55	449.61	"	1.3	9	7	0	"	beams dumped after short run
1386	~~3.3~~ ~~1.70~~	~~7.64~~ ~~3.93~~	457.25 453.54	"	1.6	6	98	1	"	stopped due to MIPROC error — MIPROC switched off.
840	~~1.78~~ 1.62	~~3.38~~ 3.18	~~462.63~~ ~~455.72~~	"	1.4	8	69	2	"	stopped due to IBM error 54
418	~~1.66~~ 1.62	~~1.93~~ 1.90	465.83	FM143	1.3	8	41	0	"	CMD-24 empty
1389	4.02	11.78	477.61	IBM	1.1	10	151	4	"	
7317	2.71	9.59	487.20	"	0.9	11	123	3	"	
1161	2.20	9.36	496.56	"	0.9	14	128	1	"	
1008	0,63	8,19	~~499.71~~ 504,75	"	0,8	17	105	3	"	
507	0,49	3,48	~~504,87~~ 508,18	"	0,65	18	44	1	"	

MP on
MP on
MP on
MP on
MP on

end of fill!

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT HADRONIC $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 $\geq$2 TOF LG>1 $\geq$1 TR	T1 LG>4

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

8[00] Bowdery and Nozaki II on shift.

9[05] Beam Lost.

9[55] Run RI-HB to set L-G HV bits.

13[25] HV on.

13[30] Collimator is in. B.P = 2 volts so started a new run.

13[40] Dead time ~ 70%. asked PKR to change Q-value. voltage = 16

14:50 No 'magic' change was observed in JETC currents. However the BP counters eventually showed reasonable currents and the JETC currents flattened. Dead time fell to about 20%

Frequent short "IBM Busy" messages seen.

14:58 Beams will be dumped for TASSO at 15.30.

15[10] The water leak that was observed yesterday appears to have stopped, probably because the pipes have warmed up and expanded sufficiently to stem the flow. When the magnet is off for long periods, can the shift check below the magnet to see if the same problem is there and seek advice accordingly. CRH.

15[32] Beam dumped. – restart expected at 16[30].

Luminosity measurements from the number of Bhabhas seem to indicate luminosities between 2.5 and 3.5 $\times 10^{30}$ cm^{-2} s^{-1} after corrections for dead time and ignoring very short runs.

16.00. Ian Duerdoth. Harry O'Neil, Zhang

16[30] Run-Summary changed (only order of output lines)
- Trigger to inject

18[00] - Troubles with PIA & LINK2 – expected restart 23[00]. Turn down magnet, at request of PKR

18 45 Magnet down to 90A.

20:20 PKR calls. Will be back up sooner than expected. Run magnet back up.
→ 5000 A, 5 min pause → 7501 A.

~ 21.00 Kollimator No is in.

21:03 Finally going with Run 6478. Σ BP on desk was < 2V right away, no problem. But now dead time ~ 30%. Had trouble with "Junky" power supply on balcony. Ran up to 9999 V! Now have MSG MUCNT-MFR CH 19 HV ~ 0.016 should be 2.7. Pause run. Go to local, try to run up again. Doesn't work. Call B. Naroska. She'll come. It's not too important at the moment.

21.22 20 min into fill we now have only 13% dead time, but a murderous 4.1 Hz rate. How can dead time be so low when rate is so terrible?

21.30 Since the magnet had been off I looked around the pit for water. Didn't see any, but I'm not sure I know exactly where to check.

21.35 Check LG thresholds. "x" is 60 mV, which is off scale for the table. However extrapolating from 50mV and 55mV the thresholds are OK.

21.38 Make standard histograms.

21.39 Plessy Miproc flips completely out. TDAS ERRORS #45 swamp the system. Run 6478 almost done. Stop. Kill miproc. Start Run 6479.

21.44 Muon crate #8 missing! Duerdoth goes to look. How can you sleep on a shift like this?

2205 IBM ERROR 54. Call IBM. Something wrong. They're looking. Stop. Run 6479. Remake standard histogram. They look plausible. New spinning wire in muon hits/trig.

22[20] Start Run 6485 to Tape.

22[39] Start Run 6486 to IBM.

0[00] Allan, Peter on shift.

2[30] Fill still going on, Peter cannot refill due to synchrotron pattern, repair beam underways.

4[00] Magnet water cooling in transfer line repaired, refill tried, seems to work OK!

4[50] Fill ready. Very High BP rate, discover that counter 16 is responsible for all rate. Disconnect, start run.

6[00] Error msgs from NORD. Afterwards no more possible to look at histograms or reset or anything, always the standard reply: TOO QUICK, I WILL WAIT UP TO 20 seconds. After end of run we reload TDAS, things work OK again.

8[00] McCann & Totsuka

8[05] LG Threshold adjusted (40mV).

8[11] Beams lost. ID tripped.

9[30] Have beams again. BP currents fluctuating between 4 and 8 V (Hardware room). It had been low at first (~3 in hardware room).

9 40 ID Alarm system malfunction → now OK. problem on HV comparators.

9[55] BP is now 2.3 V (~2 V) although Beam lifetime is pretty short.

959 Try to switch on ID, but trips again.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tϕ REJECT x10⁶	Tϕ ACCEPT x10⁶	T1 ACCEPT +OSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4
136																		
Run 6499	Date	Start	Stop	I^+	I^-	Dead Time	Time (secs)	Nord events accept	All triggers x10⁶	Tϕ reject x10⁶	Tϕ accept x10⁶	T1 accept +postpone x10⁶	T2 accept	T3 accept	T2 3TOF 3TR	T2 Collin	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4
6491	12.3.81	4:46	4:56	6.8	7.5	42%	516	3098	148	62	86	6.6	2775	0	172	444	396	406
6492	"	5:00	5:26	6.4	6.9	36%	1523	7851	396	144	252	19.7	5435	0	396	1175	986	1144
6493	"	5:26	5:57	6.0	6.5	27%	1502	7858	391	107	284	19.7	5378	0	371	1334	991	1235
6494	"	5:57	6:25	5.5	6.0	21.5%	1665	7848	433	93	340	21.8	5343		371	1410	419	1259
6495	"	6:25	7:03	5.0	5.5	18.0	2332	7855	581	105	476	27.2	5209	0	420	1776	999	1394
6496	"	7:01	7:46	4.1	5.0	11.1	2456	7833	639	74	565	22.3	5125	0	433	1992	835	1427
6497	"	7:46	8:11	4.3	4.7	10.8	1487	4528	387	41.8	345	12.4	2947	0	261	1142	552	859
6498	"	11.20	11.24	7.51	7.84	89	145	511	38	34	4.2	0.4	376	0	15	23	58	28
6499	-																	
6500	13.3.81	22.18	22.25	7.82	7.91	90.3	344	1228	89.5	36	53	3.3	780	—	77	250	330	268
6501	"	22.25	22.58	7.69	7.96	25.2	1904	7600	495	124	370	27.3	4552	—	452	1637	1176	1871
6502	"	22.58	23.32	7.00	6.72	17.2	2019	7573	526	90.5	434	22.3	4515	—	425	1767	1837	1878
6503	"	23.32	0.12	6.34	6.07	13.5	2263	7858	589	79.3	509.9	22.3	4430	—	393	1961	1718	1932
6504	14.3.81	0.12	0.57	5.1	4.9	11.4	2621	7859	682	778	604	22.2	4466	—	422	2178	1654	1950
6505	"	0.57	1.48	4.6	4.4	9.5	3057	7848	795	75.2	720	22.1	4487	—	418	2334	1557	1974
6506	"	1.48	2:01	4.4	4.2	8.1	690	1648	179	14.5	165	4.5	914	—	77	545	286	416
6507	2.02	2.02	2:34	4.1	3.9	7.6	1694	3724	441	33.4	407	10.2	2167	—	229	1231	698	918
6508	"	3:12	3:42	7.1	7.0	20.5	1666	6827	433	88.9	344	18.1	3916	—	415	1574	1005	1659
6509	"	3:44	4:14	6.5	6.4	15.5	1805	6690	470	72.8	397	18.6	3802	—	344	1664	1555	1700
6510	"	4:16	4:50	5.9	5.8	16.6	2041	6423	525	87	438	17.7	3687	—	352	1752	1461	1612
6511	"	4:51	5:36	5.3	5.2	11.8	2697	7860	697	82	615	21.0	4425	—	456	2249	1678	1997
6512	"	5:39	6:30	4.7	4.6	10.7	3165	7854	823	88	735	20.6	4414	—	400	2383	1597	1993
6513	"	6:30	7:20	4.2	4.1	7.5	2962	6427	770	58.1	712	16.3	3627	—	319	2175	1151	1640
6514	"	7:22	7:32	4.1	4.0	6.4	613	1192	159	10.1	149	3.0	667	—	66	411	196	304
6515	"	7.30	7:57	3.9	3.8	6.2	408	741	105	1.3	99	1.8	441	—	39	298	111	168
6516	"	8.37	9.15	6.4	5.7	12.5	2414	7841	628	78.2	550	21.9	4413	—	441	2024	1656	2029
6517	"	9.20	9.33	5.7	5.0	11	675	2065	176	18.6	157	5.5	1119	—	118	555	429	549
6518	"	9.34	10.25	5.0	4.3	12	2994	7853	779	90.3	689	21.4	4430	—	447	2331	1538	2075
6519	"	10.27	11.07	4.6	4.0	8.5	2355	5625	613	52	561	15.3	3234	—	276	1849	1046	1438
6520	"	11.10	11.40	4.5	3.9	7.3	1772	3676	448	32.6	416	10	2131	—	216	1250	661	962
6521	"	12.48	13.21	6.4	5.9	19%	1988	7851	517	96	420	22	4602	—	439	1868	1774	1855
6522	"	13.22	14.00	5.8	5.3	13%	2310	7851	601	80	521	22	4585	—	446	2054	1806	1984
6523	"	14.03	14.57	5.2	4.7	14%	2815	7852	732	106	626	22	4493	—	430	2251	1637	2001
6524	"	14.56	15.54	4.5	4.1	9.4	3168	7861	824	77.8	747	21.3	4514	—	431	2545	1477	2049

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	
Lumi	x10³⁰	Run	508,18	Tape	mpe	Reject event fraction %	Bhabha	Multi hadron	Beam energy (GeV)	
430	3.72	1.11	510.29 503.55	EBM	2.	39%	27	0	16499	
1191	2.46	3.74	514.03 507.42	"	1.9	39%	48	1	"	
1088	2.60	3.90	517.93 511.07	"	1.6	43%	50	1	"	
1059	2.86	4.76	522.69 515.75	"	1.5	43%	61	0	"	
1072	1.13	526	528,45	"	1,35	7%	70	0	"	
1119	2.35	5.77	533,92	"	1,35	7%	74	4	"	
610	1.68	2.49	546,41	"	-	8%	46	4	"	Beams lost
38	0.33	0.06	546.41	"	1.9	0%	0	0	16493	high background. run stopped.
										RUN SUMMARY LOST. BEAM LOST AT START OF RUN.
64	4.1	1.3	547.71	IBM	2.2	4%	18	1	16.993	RUN STOPPED
1285	5.3	10.1	557.81	"	1.8	5%	129	1	"	
1312	4.4	8.9	566.71	"	1.7	5	114	3	"	
1384	5.1	11.5	578.21	"	1.6	6%	149	4	"	
1315	3.7	9.67	587.88	"	1.3	8%	124	4	"	
1293	3.6	11.2	599.08	"	1.2	9%	143	6	"	
276	1.47	1.01	600.09	"	1.0	12%	13	1	"	Run stopped to fix IBM (3DAS) error
587	3.17	5.38	605.47	"	0.9	11%	69	4	"	Run stopped for new fill.
1100	5.75	9.59	615.06	"	1.8	5%	123	1	"	Run stopped to fix IBM (3DAS) error.
1081	4.71	8.5	623.56	"	1.6	6%	109	1	"	Run stopped again to fix IBM-3033 error.
1320	3.66	7.4	630.96	"	1.5	7%	95	3	"	DITTO
1321	4.46	11.93	642.89	"	1.3	8%	153	3	"	
1335	3.92	11.77	654.66	"	1.1	10%	151	3	"	
1088	3.19	9.44	655.10	"	1.0	13	121	4	"	Run stopped for modification to MIPROC
208	3.44	2.11	659.21	"	0.8	13	27	0	"	Run stopped for new fill
123	1.9	0.78	657.99	"	0.8	15	10	1	"	This run is in same fill as previous one (see p. 140)
1271	3.8	9.20	667.19	IBM	1.4	17	118	4	"	
342	4.6	3.12	670.31	"	1.2	7	40	2	"	
1240	3.2	9.52	679.83	"	1.2	9	122 40	25	"	
849	3.4	7.0	686.83	"	1.1	10	102	2	"	stopped due to error 45 (see page 140) loaded MIPROC again and continued.
546	2.6	5.4	692.23	"	1.0	12	58	2	"	
1250	4.6	9.20	701.43	"	1.7	6	118 148	0	"	
1213	4.9	11.5	712.93	"	1.6		147	7	"	
1241	2.9	8.27	721.20	"	1.4	38	106	2	"	
1171	3.2	9.98	731.18	"	1.2	10	128	5	"	

MP on
-"-
-"-
-"-

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT +OSTRONG $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 $\geq$2 TOF LG 71 $\geq$1 TR	T1 LG74

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

10" Beams lost.
10 45 Trouble with LINAC 2. Break.
11 00 Injection.
11 20 B.P. current high — run 6498 stopped. 2D HV turned off. asked PKR to improve the beam condition.
e⁻ beam lifetime ~ 3.5 h.
11 45 Beams are still unstable.
12 05 BP ~ 1.8 V PKR say beams are now stable.
ID trips off with anode current alarm immediately on run-up.
When this is reset, get Magnet trip, even befor running up ID.
Beams lost.
PKR say beam was lost due to DESY power supply problem
— they think it's pretty serious.
12 45 K reset water pumps. Magnet left at 3000 Amps.

16:00 WENNINGER, BAMFORD ON SHIFT
16:10 Should be power up Petra magnets?
16:20 Phone PKR, they are still having problems with magnets power supply.
20:20 Beam planned + PKR: NO BEAM BEFORE FRIDAY 13/3/81 ~11 hrs.
WE SWITCH OFF MAGNET + INFORM K-(TAENET) [illegible] /INFORM NIGHT-SHIFT/INFORM HEDGECOCK.
21:00 The sifs makes an exit.

13/3/81
8.00 Felst, Heinzelman, Zhang on shift
14.00 injection
14.20 magnet current to 5000 A
14:50 Lower thresholds for tagging lead-glass again increased. (See notes on pages 128 & 131 please!) (Before run 6500)
16 00 KOBAYASHI & HEDGECOCK
16 30 MAGNET RUN UP TO 7500 A (IN ANTICIPATION)
18 30 " " DOWN " 4000 A.
19 45 " " UP " 7500 A & PETRA ANNOUNCED (WE COULD) SWITCH ON
OUR HT. —— BEAM PIPE CURRENT TOO HIGH SO ASKED PKR TO IMPROVE.
14 57 BEAMS WERE LOST DURING THIS MANOEUVRE. (SCHADENFREUDE)
RAN MAGNET DOWN TO 4000A THEN BACK TO 7500A WHEN IT WAS FOUND
THAT BEAMS HAD ONLY DROPPED BY 50% — ATTEMPTED TO SWITCH ON HT.
THEN WE REALLY DID LOSE BEAMS

almost one hour elapsed. — The colour TV decided to throw in it's hand (picture disappeared with clicking in rear) so we put the borrowed one back in. it's place.

21 55 PKR asks us to switch on HT. — Background too high!
After ~ 20 MINS Beam pipe stabilised at around 2.2.
22 25 We started Run 6500 when we had IBM ONLINE JOB ERROR CHECK 6 several times + IBM BUSY stated new run and had more of the same errors. Called IBM and D. COLDS. We pass on with message continuing at regular intervals?
14/3/81
0:00 TAKEDA, BELL ON SHIFT
0:12 Run 6503 ends, 6504 started.
0:56 Run 6504 ends, 6505 started
1:48 Run 6505 ends, 6506 started
2:04 IBM link fault. Phoned IBM they said they have no problems. Therefore we stopped run 6506 and started 6507. Now o.k.
2:33 Run 6507 ended as PKR are going to refill.
3:03 New fill, HT switched on, beam pipe current of ~~2.1~~ 2.1 V, then dropped to 2 V. Asked PKR if ultimator is in. They say it is automatically in. So switched on de jet chamber
3:10 Scan run 6508, beam pipe now 1.8.
3:20 "IBM ON-LINE JOB ERROR CHECK 6" appeared so many times together with "IBM BUSY". After some error messages, there appeared "STOP RUN?, YES OR <NO>:" without any alarm signal.
3:42 Same error as at 2:04. Stopped run and started new run, nr 6509. This IBM error caused after many (and frequent) "IBM ON-LINE JOB ERROR CHECK 6" messages appeared.
4:14 As above, stopped run 6509, started run 6510.
4:50 Same error again, stopped run 6510, started run 6511
6:30 Hiproc now worked for 90000 events without dying !!! These people should always be on shift! I AGREE!
7:18 We proposed new filling at 7:30. All agreed.
7:20 Run 6513 terminated. Make change to Hipro~~g~~ program (more diagnostics). Reload Hipro program. Try before new filling
7:22 Start Run 6514
7 30 Stop run for new filling

RUN	DATE	START	STOP	I^+	I^-	MARK II DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT +BOSTANG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG>1 ≥1 TR	T1 LG>4

T1 LUMI.	$\langle L \rangle$ x10³⁰	Skdt RUN	Skdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

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14/3/81

7:30 Miproc survived now 100000 triggers. Soon time for champaign! (Champagne?)
7:43 PKR still have not dropped this fill. They say there is a slight problem with the synchrotron and it will take about 15 minutes to repair
7:46 PKR now say we must keep this fill as the synchrotron has a defective RF
7:48 HV switched on, run 6515 started
7:56 PKR say "SWITCH OFF HV". Run 6515 stopped, beam is dumped.

8.00 Heinzelmann & Loos on shift
8.10 IBM parity error problem*): I could not reach Hochwelle last night; he has been called and will come in as soon as possible
Beam-Pipe-Counter-Microprocessor: switched on from run 6516 onwards; produces # compressed beam-pipe-bank format with bank descriptor 2.
new format: address (1..24), TDC, ADC1, ADC2 in consecutive I*2 words

8.50 New filling; although the currents are only 6.5 and 5.7 mA we decide to measure and have a new filling later.
10.30 Status of IBM parity errors: after several checks Hochwelle switched back to the configuration we had yesterday morning; this reduced the rate of parity errors considerably. So the error seems to be in the memory of the TMS-computer of F58.
11.10 I managed to kill the Miproc-16 by pressing F2 (PAUSE/CONTINUE) very quickly in succession. After that I started-up the MIPROC again. All looks normal
11.40 Injection
12.20 New filling; background very high, PKR says d-values are critical
12.45 BP < 1.7. Switch on chamber. Start run 6521 Deadtime ~ 20%

16:00 Totsuka and Nozaki II on shift.

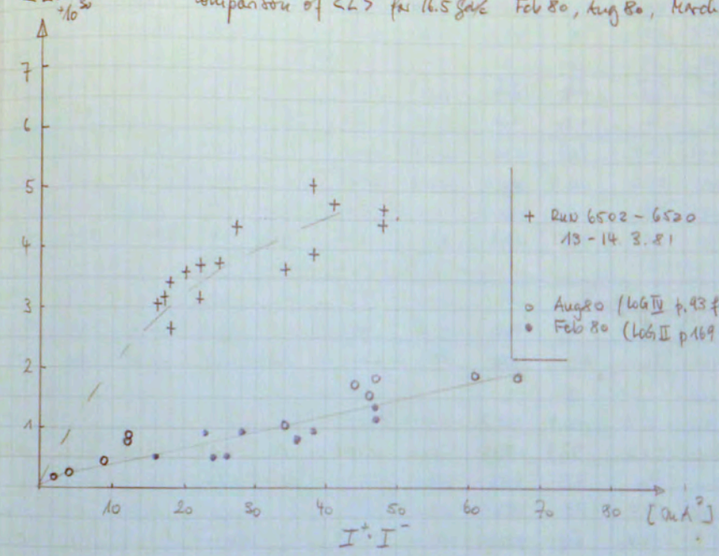
*) I increased the number of repeated IBM-transfers in case of error from 2 to 5: therefore parity error appears less on the command terminal

D.C

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14.3.81

Comparison of $\langle L \rangle$ for 16.5 GeV Feb 80, Aug 80, March 81 (no deadtime corrections)



→ conclusion $\langle L \rangle$ higher by a factor 3-4 with minip.

15.30 LINAC II problems. We keep old filling.

17.35 New filling
17.40 Beams ready ID alarm right after pressing HV it says "Repeat trip" Repeat is OK!
18.50 No triggers and Background increased. So switched off ID. RUN 6528 stopped.
asked to improve beam conditions
19.00 Stable beams
19.03 error 00045 sub error 1 Task 1.
19.06 LG threshold adjusted to 60 mV
19.10 Beams unstable run 6529 stopped PKR optimizes
19.15 New filling
18.20. Beam ready but very high background. ~8 V ask PKR to improve the conditions. (The collimator is in)
21.45 B.P. current suddenly increased. Switched off ID. P.K.R is now doing something.
21.53 B.P ~ 1.3 and stable start new run.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT +POSTPONE $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 $\geq$2TOF LG71 $\geq$1TR	T1 LG74
142 RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME [Sec]	NORD EVENTS ACCEPT.	ALL TRIGGER $\times 10^6$	To REJECT $\times 10^6$	To ACCEPT $\times 10^6$	T1 ACCEPT +POSTPONED $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR	T2 COLLIN	T2 $\geq$2TOF LG71 $\geq$1TR	T1 LG74
6525	14/03/91	15 55	16 07	4.4	4.0	7.4	705	1485	183	14	170	4.3	838	0	89	458	286	415
6526	"	17 41	18 12	6.9	6.2	20.7	1909	7885	497	103	394	21.6	4541	0	435	1686	1866	1938
6527	"	18 14	18 48	6.3	5.7	18.8	2002	7852	521	98	423	21.4	4686	0	452	1801	1862	1873
6528	"	18 48	18 50	6.3	5.6	69.4	73	308	19	13	6	0.5	230	0	8	40	91	38
6529	"	19 01	19 11	5.9	4.9	~~28.1~~	577	~~2249~~	~~150~~	~~32~~	~~119~~	6.7	1410	0	119	455	564	528
6530	"	19 14	19 15	5.9	4.9	92.4	15	52	4	3.7	0.3	0.02	42	0	0	1	9	3
6531	"	20 27	21 02	6.3	6.3	17.8	1975	7871	513	91.3	422	22.8	4608	0	429	1827	1703	1863
6532	"	21 02	21 37	5.8	5.8	16.8	2084	7885	542	90.9	451	22.8	4588	0	425	1935	1554	1924
6533	"	21 38	21 45	5.7	5.7	21.6	370	1472	96.0	20.7	75.3	4.0	897	0	71	313	302	338
6534	"	21 52	22 11	5.3	5.3	14.9	1008	3078	262	39	223	8.7	1822	0	164	824	636	725
6535	"	22 19	22 21					0										
6536	"	23 21	23 24	5.7	5.2	8.7	156	385	40	3	37	1.2	193	0	24	115	50	108
6537	"	23 25	15/4/91 00:32	4.7	4.3	8.2	3518	7873	915	75	840	23.8	4463	0	457	2777	1115	1890
6538	15/04/91	01:31	02:28	5.7	5.2	1159%	2844	7857	740	85	655	22.3	4252	0	457	2290	1246	1893
6539	"	02:28	02:29		too short to fill in 115													
6540	"	02:38	02:53	5.0	4.7	6.5	876	2082	227	20.8	207	6.0	1203	0	104	677	359	475
6541	"	02:59	03:35	4.7	4.3	6.5	2199	4301	522	37.4	535	12.0	2404	0	229	1606	602	1090
6542	"	05:00	05:50	5.6	5.5	12.8	2935	7841	764	98	666	22.6	4478	0	627	2582	1224	1809
6543	"	05:51	06:48	4.9	4.8	8.1	3441	7857	895	73	823	22.0	4462	0	529	2814	1140	1845
6544	"	06:49	07:58	4.3	4.2	6.4	4166	7859	1084	69	1015	21.6	4307	0	450	2943	1012	2031
6545	"	07:59	07:59	4.3	4.2			44	Too short to fill in :									
6546	"	10:20	10:35	5.6	4.8	55.7%	83	521	21.6	12.1	9.6	0.8	262	0	18	62	53	61
6547	"	10:37	11:06	5.3	4.5	22%	1713	7848	446	99	347	22	4362	0	408	1735	1162	1467
6548	"	11:07	11:22	5.1	4.3	23%	896	1780	233	533	180	6.5	1109	0	106	635	321	450
6549	"	13:14	14:02	6.2	5.3	11%	2848	7847	740	79	662	26	4438	0	482	2489	1304	1991
6550	"	14:02	15:07	7.2	7.1	10%	421	1153	110	11	98	3.7	679	0	70	387	209	273
6551	"	15:26	16:08	6.3	5.3	8.6%	2523	7835	656	87	569	31	4654	0	498	2391	1490	1927
6552		16:09	16:32	5.9	5.5	6.4%	1384	3597	360	37	323	13.8	2004	0	214	1179	568	938
6553 ↓ 6561	no data																	
6562	"	16:48	17:05	5.7	5.3	10.6%	1000	2099										
6564	"	17:06	17:30															
6565	"	17:36	18:20	4.8	4.4	11.9%	2582	4674	671	96.5	575	16.5	2635	0	270	1698	693	1227
6566	16.03.91	0:00	0:18	7.5	6.8	13.0	1070	3334	278	36.3	242	10.4	1883	0	246	966	625	783

T1 LUMI.	<L> $\times 10^{30}$	$\int$Ldt RUN	$\int$Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

T1 LUMI	<L> $\times 10^{30}$	$\int$Ldt RUN	$\int$Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY	
215	2.66	1.87	733.05	IBM	1.0	11	24	0	16.494	
1234	4.66	8.89	741.94	"	1.8	5	114	4	16.494	
1160	3.70	7.41	749.35	"	1.6	5	95	2	"	
21	1.1±11	0.08	749.43	"	1.6	2	1	0	"	
278	3.92	2.26	751.69	"	1.7	~~245~~	29	2	"	stopped due to high B.G.
2	0	0	751.69	"	1.7	0	0	0	"	— " —
1240	4.82	9.52	761.21	"	2.1	5	122	0	"	stopped due to high B.G.
1200	3.63	7.57	768.78	"	1.6	6	87	4	"	
200	4.43	1.64	770.42	"	1.4	5	21	1	"	
456	3.17	3.20	773.62	"	1.3	7	41	2	"	stopped due to misfire beam (high B.G.) — " —
										LG Power Failure.
72	6.00	0.94	774.56	"	1.2	10	12	1	16.493	stopped due to error 45 subcode 21.
1378	~~3.31~~ 4.17	~~11.63~~ 16.87	~~786.19~~ 791.06	"	1.2	11	149	3	"	beams dumped
1552	~~+1.93~~	~~+5.24~~	~~+5.04~~	"	1.6	9	152	5	"	
				"	0.9		1	0	"	Hung
355	3.30	2.89	800.95	"	0.8	10	37	1	"	stopped due to Miproc error.
756	3.34	7.34	808.29	"	0.6	13	94	2	"	beams dumped.
1427	4.04	11.86	820.15	"	2.0	10	152	4	"	
1432	4.04	13.90	834.05	"	1.3	12	178	5	"	
1398	3.15	13.11	847.16	"	1.0	14	168	7	"	
			0.03	"	0.8					
169	5.02	0.42	847.61	~~1550~~ "	1.1-1.50	28%	5	0	"	Atrocious.
1882	2.6	4.45	852.06	"	1.6	5%	57	4	"	
203	1.4	1.25	853.31		1.2	11%	16	0	"	
1303	3.9	11.91	864.32	"	1.8	9%	141	1	"	
186	2.8	1.17	865.49	"	1.5	10%	15	0	"	beams lost
1133	4.08	~~10.8~~ ~~542~~	~~864.51~~ 875.79	"	1.5	8%	132	8	"	
588	2.82	3.90	879.69	"	1.4	9%	50	1	"	RUN STOPPED DUE TO IBM LINK PROBLEMS. 6553 – 6561 INCLUSIVE HAD NO EVENTS – JDAS WAITING FOR IBM LINK. 6562 WRITTEN TO TAPE TV SCREEN NOS. $\int$Ldt and <L> = 2 * TV NOS. 6563 – NO EVENTS, 6564 – NO RUN SUMMARY.
			882.09							
	2.6	2.4	~~F22860~~	F22860	1.1					
				F22860	1.1					
754	2.87	7.41	889.50	IBM	1.0	12%	95	5	"	
611	4.16	4.45	893.95	"	2.0	8	57	0	"	

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT HOSTPONE $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 $\geq$2TOF LG71 $\geq$1TR	T1 LG74

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	Skdt RUN	Skdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

23:40 Power failure of LG PS #6. due to rain spill?
PS replaced.
Ventilators were ~~turned~~ turned off since we suspect rain comes in through ventilator hole.
23:30 LG Power ready.
Terminal #9 does not work now!. Turned it off and then on. It started to work. ﾌｼｷﾞﾆﾅﾙﾖ!
23:25 Run 6537 started.

15/3/81 Wakabayashi, Ball on shift
00:00.
00:08 Unstable beam conditions again. Switch off ID. Pause run. BP ~ 9.0. HG + TAG off. Inform PKR.
00:12 OK again. Switch on and restart.
00:30 Run 6537 ended.
Look at histograms. OK, but notice mercury-cut on tektronix doesn't work (always!). Just re-draws old histogram.
01:31 New fill ready. Start run 6538
02:03 Unstable beam conditions. ID off. Pause run. Inform PKR. HG + tag. off.
02:12 OK again.
02:28 Run 6538 ended. Start run ~~6538~~ 6539. Immediately get bad beam conditions again. ID off. Pause till PKR.
02:35 OK again. Have to stop run. Start run 6540.
02:53 Pause Bad beam again. BP off scale. ID off. Ring PKR.
02:55 OK again. Try to restart Run 6540, but ~~nimbus~~ dead. Follow standard prescription to restart.
Start run ~~3~~ 6541 (by the same cause as the one in p140)
~~04:33~~
03:33 end run 6541 dump beams.
04:35 New fill ready, but BP ~ 3.5 → 4.0 — too high. Call PKR — they will try to adjust beams
TASSO, MARK J both OK, but say luminosity is low.
04:50 Ring PKR again. Nothing they can do. Suggest perhaps it's a vacuum problem — they say not.
Also they claim not to have a reading of our BP current?? I always thought they did.
04:58 BP ~2.0 now. Decide to switch on. Start run 6542. Dead time ~ 15%.
05:11 Brief pause due to bad beam conditions.
06:00 Tasso and Mark J are happy with this fill and would like to keep it another hour or so.

08:00 O'Neill + Heinzelmann
12:30 Heinzelmann says I should write one of my famous, long log-book stories about what happened this morning. How can I? Nothing happened this morning. There was a very dirty fill from about 8 to about 11.

For a long while we could not switch on at all. We had reason to doubt our Σbp measurement since it barely responded to anything PKR did. This doubt turned out to be a red herring. Σ bp did eventually go down to a reasonable level when PKR fiddled with the right knobs. The other experiments achieved acceptable background much more easily. No explanation.

We eventually got running, but with 7 hz and 55% dead time. Mark J's luminosity was low and they also wanted to try a new fill. TASSO and CELLO agreed. During the last fill we saw funny pulsed background. Σbp would go up to ~5 from 1.6. PKR says some quad is floating or something, but they have no idea how to get at the problem†. I begin to imagine a floating quad.

13.14 After a long struggle to inject, PETRA finally delivers a decent fill. Have going with run 6549. Σbp 1.5 3.2 hz 11% dead time. Reasonable!

13.25 LG thresholds right for x=60 mv. I make x=65 mv. Leave. Change at run change.

† To continue the story of the previous fill, Heinzelmann, while switching on, showing wanton and reckless disregard for the welfare and interests of the JADE experiment, as well as a total indifference to the further progress of high energy physics, left the "juby" forward muon counter power supply on the balcony on local. We thought this would mean that this supply did not go off when we switched off again and thus that it was on during injection for the current fill. G. H. reached Herrn Krehbiel by phone. The latter said that the would have been no "Frigate" had the supply really been on. Apparently it gets run down when we switch off, even if it's on local.

Anyway we did much confused fiddling around, switching the supply on and off and between local and remote. Ch 19 is now stuck on 9999 v. There's some way to reset this. Beate showed me, but I forget and Heinzelmann can't find the documentation.

(1) SELECT LOCAL (2) THEN SELECT REQUIRED CHANNEL (3) PRESS RESTORE BUTTON (4) BACK TO REMOTE.

† no. Misreading. Thresholds ok.

14.03 Thresholds (LG) ok at start of run 6550. x=60.
Standard histograms for last run (6549) ok.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tϕ REJCT x10⁶	Tϕ ACCEPT x10⁶	T1 ACCEPT HADRONIC x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG74

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

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16:00 Mc Cann, Wiedemann

Feed-μ counter #8 next to its nominal HV-value of 2.7 kV

16:32 Tape link problems. Run 6562 written to tape.

17:05 Due to the way in which 6562 was started, no run summary or histograms are being accumulated. So start a new run. Only have nos. from TV screen to enter for 6562. For $\langle L \rangle$ and $\int L dt$, entered 2* TV screen nos.

17:30 Many JDAS ERROR 51 SUBERROR 165 TASK 2 — could mean bad tape. JDAS asked for STOP RUN? so said 'YES', whereupon JDAS crashed!! Therefor have no run summary for 6564

A:45 Buehler (IBM-link) Read-down (error 54, suberror 10000), was cured by IBM-operator within a minute

18:10 Phoned TASSO + MARK J and everyone is happy to dump the beams at 18:20.

18:30 "Hot freak", later "trouble with feedback" on the TV-screen

20:45 Having done some calculations the value for the normalization-constant for the luminosity measured by the tagging-system is determined to be $7 * 10^{27}$ (and not $3 * 10^{27}$ as the value in the computer is set to for the time being.) For the present run-period this value was set to $5.4 * 10^{27}$ (value for the old tagging-system) until 2.3.81, 16:40, and $3 * 10^{27}$ resp. (2.3.81, 16:40 — 16.3.81, 8:55).

For comparison the luminosities from the tagging system and from the on-line large-angle Bhabhas for run 6565 - 6565 compared: They agree within 1.5% (what is much too good taking into account the uncertainties). PKR has been informed about the new normalization constant. With the new constant we have collected about 9/4 nb^{-1} (compared to 883.5 nb^{-1} calculated from the Bhabhas).

21:55 Still no beams

23:50 Beams ready, but still high background

0:00 On the air again! Run 6566 started.

15.03.81.

0.00 Nozaki I + II on shift

0.18 Stop the run because Bull wants to fix the muon crate 18.

0.21 start run 6567.

0.30 Hole in wire hit map found. (cell 4.3 w=865-880, 16 wires in Ring 3) Since Run 6552 this cell has been dead.

D'ONT FORGET TO CHECK HISTOGRAMS.

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1:05 Drumm came, working on ID.

1:30 TV screen (displaying machine current etc.) PKR said to phone IBM room. But nobody who can speak English there.

1:40 ID fixed. Dead cell back again. TV back after several hits on it. but displayed values are non-sense. → These were gone in V34!

3:30 Requested new filling

3:20 New filling ready. B.P. ~1.4.

3:40 LG threshold = 55 mV

4:20 Still no monitor TV. Beam current is not updated.

5:10 LG threshold set to 50 mV.

5:20 ID trip.

6:05 asked for PKR for new filling

6:20 LINAC has some troubles. So we keep this filling.

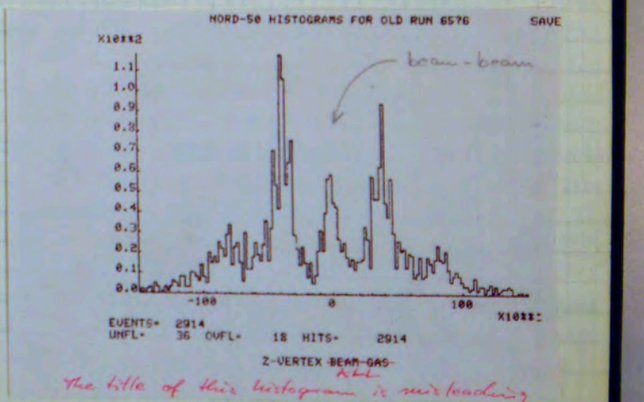
6:30 Beam dumped. for new filling

7:10 New filling is ready. BP counts ~10 volt Only beam pipe counter No 16 gives very high signal. We took it off. Then BP ~1.2V Chamber current 1 μA.

Buehler / Pearce

Inherit run 6575 at 16.473 GeV.
Beam gas Z-vertex distribution has a large peak at zero - we see no evidence for this on displaying events however. Is there a histogramming fault?
Change factor for luminosity calculation in vdm-TV program and rerun according to page 146

The beam-beam peak coming up in the z-vertex distribution is genuine, and most probably due to untagged two-photon events. It's only there, if low background and high lumi
Conclusion: Things have improved greatly. The background drops faster than the luminosity.



The title of this histogram is misleading!

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SEC)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	TØ REJECT $\times 10^6$	TØ ACCEPT $\times 10^6$	T1 ACCEPT +POSTPONE $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 $\geq$2TOF LG>1 $\geq$1TR	T1 LG>4
6567	16/3/81	0:22	1:12	6.7	5.9	10.7	2971	7845	773	82.8	690	25.9	4614	0	565	2562	1415	1883
6568	"	1:12	2:16	6.5	5.7	8.4	3586	7840	933	78.6	855	25.1	4719	0	568	3062	1259	1949
6569	"	2:17	2:33	6.5	5.7	7.3	968	1913	252	18.3	234	6.0	1165	0	113	758	324	496
6570	"	3:22	4:14	6.5	5.7	8.9	3097	7853	806	71.9	734	22.5	3980	0	417	2552	1031	1912
6571	"	4:14	5:14	—	—	7.5	3602	7857	937	70.2	867	20.9	3883	0	394	2653	963	2010
6572	"	5:15	6:27	-	-	5.9	4186	7850	1090	64.3	1025	19.0	4017	0	403	2822	954	1929
6573	"	6:28	6:30	—	—	5.1	131	217	34.2	1.7	32.5	0.5	119	0	11	85	28	46
6574	"	7:14	7:58	6.3	6.5	11.8	2622	7856	683	80.4	602	22.2	4025	0	432	2254	1323	1997
6575	16/3/81	8:02	8:53	5.5	5.6	9.6%	3035	7896	791	76	715	21.6	4011	0	425	2463	1152	1993
6576	16/3/81	8:57	10,05	5.4	5.6	7.3%	3669	7873	956	70	886	20.8	4098	0	410	2699	1085	1977
6577	"	10:06	10:48	4.2	4.2	5.9%	2534	4395	660	39	621	11.6	2395	0	225	1687	580	1115
6578	"	13:24	14:01	2.6	2.7	5.5%	1972	2945	514	28	485	8.7	1956	0	170	1304	434	679
6579	17.3.81	3:36	4.18	5.4	5.2	15.3%	2441	7845	635	96.8	538	29	4870	0	510	2681	1593	1767
6581	"	4.22	4.48	5.4	5.16	11.9%	1444	4125	376	46.6	331	16	2521	0	258	1215	765	955
6582	"	7.20	7.41	1.99	2.55	9.3%	509	859	132	12.3	120	2.9	615	0	58	358	127	179
6584	17/3/81	9.07	9.43	6.2	6.2	20.5	1171	3987	305	62.3	242	13.9	2592	0	246	947	1030	902
6586	"	17.24	18.04	5.3	5.6	13.9%	1873	4853	487	60.0	427.	19.3	3157	0	352	1636	955	1088
6587	"	19.14	19.16	5.6	5.9	10.6%	103	263	26.7	2.7	24.0	.9	168	0	18	90	45	63
6588	"	19.21	19.53	5.6	5.8	9.5	1838	4322	47.8	45.6	433	16.4	2605	0	292	1508	651	1015
6589																		
6590	"	19.54	20.57	4.8	4.8	8.5	3715	7853	966	81.9	885	31.0	4825	0	458	2895	1203	1849
6591	"	21.00	21.57	4.3	4.4	7.8	3416	5888	889	68.8	819	26.2	4231	0	406	2606	1064	1547
6592	"	21.59	22.19	4.1	4.2	7.1	1773	2850	462	32.8	429	12.5	2066	0	210	1299	484	782
6593	"	23.33	0:40	5.89	5.47	9.7	3291	7516	856	83.1	773	24.7	4735	0	482	2575	1288	1738
6594	18/3/81	0.41	1:32	5.21	4.75	8.3	2799	5936	729	60.7	668	21.1	3806	0	641	2051	990	1352
6595	"	1:32	1:41	4.8	4.3	9.2	404	1091	105	9.6	95.5	2.6	791	0	339	305	146	166
6596	"	1:41	1:56	4.6	4.2	7.4	813	1619	211	15.7	196	5.3	1053	0	103	567	272	367
6597	"	5.50	6:43	5.6	5.34	7.8	3104	6444	808	62.9	745	20.5	3597	0	354	2290	960	1500
6598	"	9.29	9:32	5.8	4.66	25.7	175	641	45	11	29	2.3	440	Ø	42	113	113	147
6599		Pulser run				I	D											
6600		Pulser run				I	D											
6601		"				"												

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	
1213	3.47	10.30	904.25	IBM	1.8	10 %	132	3	16.494	
1006	2.50	8.97	913.22	"	1.6	13	115	6	"	
228	1.85	1.79	915.01	"	1.3	15	23	1	"	
1833	5.24	16.23	931.24	"	1.4	10	208	3	"	I⁺ & I⁻ are not updated due to computer trouble.
1843	4.96	17.86	949.10	"	1.2	12	229	6	"	
1774	4.23	17.71	966.81	"	0.9	14	227	3	"	
46	1.79	0.23	967.04	"	0.8	15	3	1	"	Beam dumped
1680	6.60	17.32	984.36	"	1.4	8	222	6	"	
1739		17.32	1001.68	IBM	1.2	10%	221	8	16.493	
1652	5.14	18.85	1020.53	"	0.8	12%	193	5	"	
825	~~2.39~~	6.61	1026.14	"	0.6	15%	87	4	"	Beam dumped for new filling, new energy
285	1.00	1.99	1.99	"	0.8	19%	24	1	16.993	New Energy
1078	3.62	8.83	10.82	"	2.0	7%	105	2	16.993	
569	4.32	6.24	17.06	"	1.8	8%	49	2	"	[N.B no run 6580 see log book.] Beam lost
48	0.78	0.40	17.46	"	1.0	17%	1	1	"	
408	3.22	3.77	21.23	"	2.0	6%	44	1	16.993	Beam lost.
744	3.01	5.63	1031.77	IBM	1.6	8%	57	2	~~16.493~~	New Energy
35	2.75	.28	1032.05	"	1.5	10%	4	0	16.493	
643	2.90	5.34	26.57	"	1.6	12	68	2	16.993	same filling, new energy
				"	/				"	stopped just after started due to MIPROC error.
1092	2.52	9.37	35.94	"	1.4	12	97	4	"	
758	1.87	6.40	42.34	"	1.3	13	86	1	"	
346	1.69	7.90	45.34	"		14	19	1	"	beams dumped
931	2.43	8.01	53.35	"	1.6	11	86	7	"	stopped due to MIPROC error
651	2.02	5.66	59.01	"	1.5	12	64	1	"	" "
86	1.82	0.73	59.74	"	1.2	10	8	0	"	" "
168	1.82	1.48	61.22	"	1.2	12	9	0	"	beams dumped
1236	3.64	11.29	72.51	"	1.4	13	133	5	"	beams dumped
39	1.22	0.21	72.72	"	2.1	4~~8~~7	2	0	"	beam lost
				Page 4	F22 A06					
				Page 4	F11 144 (file on overwrite)					

RUN	DATE	START	STOP	I^+	I^-	MARK DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT HADRONIC $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 $\geq$2 TOF LG $\geq$1 TR	T1 LG74

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

13.20 New energy 16.993 GeV. Current 2.7 mA/beam.
Triggerrate 1.5 Hz, BP-current 0.8 Looks good.
Chamber current: average R1: 0.7 μA

14.50 Check multihadron cross section: $N_{hadr} = 368$; $\int L dt = 1026\ nb^{-1}$

$\sigma^{exp}_{hadr} = 0.36$ compare to $\sigma^{theor}_{hadr} = 1.14 \times 4 \times \frac{87}{s} = 0.36$

⇒ perfect agreement !!!

16.00 Ball, Minowa on shift.
18.00 Repeated attempts to accelerate beam to 17 GeV, but beam lost on reaching this energy.
20.00 Allegedly stable beam. PKR says switch on high voltage. BP current fluctuating wildly, up to ~9 mA. Eventually settles down, and we are just considering rushing the I.D. (BP ~ 1.5), when Bartel phones to say that fill is bad + will soon be dumped.
Also: JADE remains co-ordinating experiment until 08.00 on 17/3/81.

17.3.81
0000 Nakamura / Stephens
02.40 Beam currents ~ 6.5 μA Power on B_p ~ 6 N.W. coll in in. energy wrong at 17.002 GeV. We asked for correct energy of 16.993 (other groups agreed). Then ask P.K.R. to try and get our background down
3.30 B_p fluctuating between 2.2 and 3.5
3.35 B_p at 2.0 and seems to be stable.
3.36 Run 6579 started.
4.10 DAS error 45
4.18 Run 6579 ended
4.19 6580 started - failed after 2 events Miproc - "no response"
4.20 follow instruction and restart
4.21 # 6581 successfully started
4.47 Beam lost run ended.
7.00 Beams I^+ 5.92 I^- 7.23 N.W. collimator in but B_p 8-10
I.K.R. twiddling.
7.19 # 6582 start currents I^+ 1.99 I^- 2.55 BP ~ 1.2
7.20 I.D. trip. run pause
7.25 restart BP 0.7

7.30 beams very unstable new fill in 10 mins. I.D. switched off.

8.00 ZHANG, BAMFORD on shift.
9.07 Start run 6584. Run paused and ID turned off as B.P. current shoots off scale. Wait for beam to stabilise to < 2 V in beam pipe current monitor. (Real currents 6-2 mA per beam.)
9.30 ID trip, run paused.
9.43 Beams lost
9.45 ID current at these conditions are around the same as at 16.5 GeV (~1-1.5 μA in Rij 1). Very good!
15.00 PKR. still having problem injecting !
15.40 Bartel called to say problems with PETRA not related to trying to reach 17 GeV. Same difficulties now occur at 16.5 GeV. He recommends we run down magnet.
15.45 Magnet down to 4000 A.
16.00 Nozaki II, Howe on shift
17.10 PKR produces a new filling at 16.493 GeV, (after big BP-current fluctuations (up to 10 V! at 6 mA beam currents)
Magnet on 7000 A
PKR is working on reduction of our background. Also the other exp's are complaining
17.20 BP-Voltage ≤ 2 V, but PKR still fiddling for the other exp's.
17.25 Start Run
17.28 Pause Run + Run down ID, because of beam-fluctuations
17.32 BP ~ 1.5V and stable → switch on again
18.00 PKR asks for switching off HV. They want to go up in energy → beams lost
19.10 Filling ready at 16.493 GeV. BP ~ 1.5 V, ID-current ~ 1 μA, trigger rate ~ 3 Hz, 10% dead time
This Energy was a mistake (wrong file: Energy went up to 17 and then down again to 16.5 !)
Switch off HV for new acceleration.
19.20 Beams survived acceleration. Switch on HV. Clean beams, less than 10% dead time!

19.50 Run 6588 terminated because of MIPROC errors → disable MIPROC
MIPROC should stay off till tomorrow morning. Fiddler will investigate.
Message: PC=005C, AR=0004, ER=322E, XR=FFE8, MA=322E, FS=006
22.30 Stop for refill
23.20 Filling ready, but background not yet optimised (BP ~ 5V). Northwest collim. in

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT HADRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG>1 ≥1 TR	T1 LG74

T1 LUMI.	<L> x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

18/3/81 0⁰⁰ Stephens, Elsen

0:40 run 6593 ended due to Miproc error, reloaded, started new run

1:00 included 3 track trigger temporarily to have harder testing for MIPROC (in run 6594)

1:40 MIPROC taken out, 3 track trigger out, after 3 runs had been stopped by the MIPROC. This is now run 6596.

1:54 Beams dumped.

0:530 Beams back but I.D alarm – reason unknown. Call Heuer who will come in.

5.50 Run # 6597 I.D. problem was Ring 3 H.V. comparator – below threshold reset by Heuer (Secretly).

6:45 Hello phones saying PKR would like to dump the beam to try again the rather unconventional filling method they used the last time when they got the beams stored after > 3½ hours! The purpose is to leave a well documented instruction set for the next PKR shift. Apparently they are not able to document it without testing.
We object since 1) $\mathcal{L} \geq 3.5\times10^{30}$ and 2) this fill could well go on for 2 hours. But the other experiments agree in dumping.

6:50 Beams dumped (for more efficient use of the machine)

0800 Bell + Watanabe

0810 Bartel suggests to run down the magnet to 5000A, so we did it – He Suggests to bring it up when PETRA reaches it ~~6~~ 17.
PKR has technical problem with vacuum ~~valve~~ valve

08:30 Now IBM error 54.

09:15 New fill ready, but we cannot switch on ID. It gave immediate alarm. Everything looks normal at the rücksach. but cannot reset NOTAUS light. Could not reach ~~Heuer~~.
Got Heinzelmann in his office.
Background BP ~~was~~ fluctuates arround 2V.
Heinzelmann came: it is the comparater error (the same as above)

9:28 Run 6598 started. (James)

9:32 Beam lost

Message YVOLTS: MUCNT-MFR 1 CHAN 19 HV=0.017 should be = 02.700. on ~~Emag~~ type writer
I think I succeeded in restoring it.

11:00 Bartel phoned and said turn the magnet down when we fill. : Turned is down to 2000.

11:12 TASSO asked us to agree to ten minutes access some time today

13:28 Fill and magnet turned up, lasted a few minutes then beam is lost, magnet turned down

14:40 Many attempts to fill beams, all in vain so far.

16:00 Heuer and Boudary on shift

17 35 PKR phone to say that they have RF problems and suggest we power the magnet down further → 1000 A. Done.

20:27 New fill nearly ready so we power up our magnet to 7500 A.

20:50 Still beams in at 17 bell! Phone PKR. Degele says that they found a fault at a cavity and since they have now relatively stable conditions (2 x 6 mA), they want to dump the beam quite soon and refill with higher currents.

21.15 Now we have 17 bell and 2x 8 mA!!

21.20 We have problems turning on the TOF-HV. LECroy #1 doesn't go up.
Finally we do it manually

21.40 Start Run. BP-Voltage 2.2V, ID-current ~2 A, dead time ~25% (x)

21 45 Forward Hv Channel 19 drifted from correct HV setting. Manually reset several times. Seems okay now.

21. 53 Beams lost. I.D. tripped. Reset o.k.

(x) Increased dead time and trigger rate mainly from LG>1, 1TR and 2TOF, tagg-trigger

23. 25 New filling ready, quite nice (BP ~ 1.7, ID current ~ 1–1.5 mA)
This time TOF-HV no problems

23.37 MIPROC Error 45. We terminated run 6603 and switched off MIPROC.
Good luminosity with this fill.
No MUON MISSING CRATE's seen. – the intermittent missing responses from crate 12 were fixed at 15:00 today
– shape of reset pulse was sometimes not good enough to meet requirements of status board. AB.

24 00 IBM BUSY alot of the time.

0⁰⁰ Stephens & Carl on shift

0¹⁵ MIPROC-16, program loaded and booted up

0³⁰ same procedure

1⁴⁰ new filling

7²⁰ ready

5.60 #6613 I Have moved digitizer for chambers # 459 → 462 from station 2 crate 12 to 13, crate 12 (this will affect T3 trigger) to see if hole in hit map disappears.

MIPPOC was on for runs 6605 to 6608

0800 Munowa, Ball on shift

08 09 New fill ready, but background high. BP > 5. PKR say they are optimising.

0817 beams lost. PETRA Energy = 0!
Interlock broken in North Hall.

08:55 Magnet current run down to ~1000 A.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT +POSTPONE $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 $\geq$2TOF LG>1 $\geq$1TR	T1 LG>4
6602	18/3/81	21:42	21:53	7.4	6.3	23.6	665	2708	172.9	40.8	131.6	6.72	1720	0	172	564	693	531
6603	"	23.29		6.3	6.6	14.9	338	1158	88	13.1	74.9	2.77	689	0	96	331	254	232
6604	"	23.36	0.19	6.2	6.5	15.0	2517	7868	655	98	556	21.8	4789	0	505	2178	1671	1774
6605	19/3/81	0.24	0.34	5.56	5.90	11.1	502	1635	130	14.5	116	4	864	0	97	447	316	353
6606	"	0.36	1:17	5.42	5.76	13.0	2397	6835	624	81	542	19.7	4162	0	402	1929	1471	1617
6607	"	1.20	1.42	4.81	2.93	6.2	1321	2353	344	21	323	6.2	1530	0	135	927	417	559
6608	"	2.22	3.04	6.7	6.7	15.5	2269	7833	590	91	499	21.8	4764	0	503	1979	1904	1800
6609	"			6.03	6.03		→	No	DATA		MIPROC		PROBLEM					
6610	"	3.11		5.99	6.0	18.9	2068	7854	538	102	437	22	5001	0	466	1929	1843	1725
6611	"	3.46	4.38	5.47	5.49	10.2	2840	7841	752	77	675	21	4764	0	451	2375	1788	1892
6612	"	4.38	5.35	4.93	4.94	8.2	3410	7858	887	73	814	21	4811	0	410	2538	1806	1952
6613	"	5.41	6.47	4	4	6.8	3923	7861	1020	69.8	951	20	4942	0	383	2759	1769	1916
6614	"	6.49	6.56	3.91	3.91	6.5	220	417	57	3.7	54	1.1	266	0	23	165	81	103
6615	"																	
6616	"	12:00		5.38	5.77	12.7	3163	6799	823	104	719	20.3	4058	0	372	2306	1265	1593
6617	"	12.54	13.14	4.7	5.0	8.0	1128	2507	294	237	270	6.9	1497	0	135	846	506	640
6618	"	~~13.15~~	14.23	4.2	4.5	8.6	4068	7825	1059	112	947	20.5	4784	0	390	2764	1616	1893
6619	"	14.23	14.39	4.1	4.4	12.7	861	1422	224	28	196	3.8	842	0	68	532	251	362
6620	"	14.40		4.0	4.3	8.5	992	1695	258	22	236	4.5	1033	0	78	636	326	434
6621	"	18.07	18.16	6.6	7.1	16.7	532	1968	138	23	115	6.03	1209	0	124	528	494	451
6622	"	18.17	18.45	6.5	7.0	19.3	486	1996	126	24	101	5.4	1088	0	101	466	501	388
6623	"	18.46	18.54	6.2	6.8	27	482	1986	125	33.9	91.6	4.7	1377	0	131	420	472	375
6624	"	18.54	19.44	6.0	6.7	15.2	556	1592	1148	21.7	122.8	5.5	1318	0	113	570	488	393
6625	"	18.42	19.01	5.8	6.4	14.2	694	1974	180.6	25.6	154.9	6.35	1198	0	147	584	452	467
6626	"	19.01	19.13	5.7	6.2	11.6	663	2022	172.5	20.1	152.5	6.08	1313	0	113	633	470	462
6627	"	19.13	19.58	5.2	5.7	18.7	2692	7726	700.6	130.7	569.8	28.3	4871	0	468	2139	1894	1806
6628	"	19.58	20.43	4.8	5.3	15.2	2520	7798	655.9	99.6	556.3	27.3	4838	0	440	2157	1820	1825
6629	"	20.43	21.31	4.4	4.8	11	2853	7849	742	81.4	660.6	28.2	4905	0	494	2316	1822	1866
6630	"	21.32	22.15	4.1	4.5	13.2%	2575	7851	669.7	88.2	581.5	28.9	5153	0	453	2212	2066	1748
6631	"	22.16	22.33	3.9	4.3	15.5	888	3554	230.9	35.8	195.1	12.5	2062	0	204	925	989	814
6632	20/3/81	0:14	1:13	5.75	6.32	11.8%	3271	9811	851	100	751	25.6	5981	0	500	2492	2581	2339
6633	"	1:14	2:07	4.6	5.1	9.8%	3181	7860	827	73	754	19.9	4828	0	433	2353	1992	1970
6634	"	2:08	3:09	4.6	4.1	7.5%	3629	7857	949	71	873	19.5	4888	0	467	2516	1968	1947
6635	"	3:09	4:17	4.1	3.6	6.6%	3389	7848	1037	68	970	18.2	4915	0	435	2732	1775	1952

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MUNI HADRON	BEAM ENERGY (GeV)	Remarks
400	3.85	2.56	75.28	IBM	~2.0	6	41	0	16.993	Beams lost
177	4.19	1.41	76.69	IBM	1.7	8	20	1	16.993	MIPROC error → run was stopped
1171	3.72	9.36	86.05	"	1.7	7	118	3	"	
217	3.58	1.79	87.84	"	1.7	10	27	0	"	MIPROC error Run stopped
950	3.12	7.48	95.32	"	1.7	8	92	4	"	" " " "
263	1.62	2.14	97.46	"	1.1	15	22	1	"	Beam dump for new fill
1156	4.0	9.08	106.54	"	2.0 1.4	7	116	5	"	
997	3.34	6.91	113.45	"	1.9	6	86	1	"	
1057	3.04	8.78	122.23	"	1.6	10	99	4	"	
989	2.46	8.39	130.62	"	1.5	12	101	7	"	
900	2.0	7.85	138.47	"	1.2	13	91	4	"	
43	1.7	.58	138.85	"	1.1	14	2	0	"	Beam dumped for new fill
										no events in this RUN
1055	2.92	9.24	148.09	IBM	1.5	12%	130	3	"	stopped to allow MIPROC restart.
359	2.77	3.12	151.21	"	1.2	12	41	0	"	stopped after MIPROC error
1037	2.27	9.23	160.44	"	1.1	14%	126	3	"	
184	1.89	1.63	162.07	"	1.1	16	11	1	"	
205	1.86	1.85	163.92	"	1.0	14	21	1	"	beams dumped
275	4.40	2.34	166.26	"	1.9	6	34	3	"	T2 trigger tests ⇒ 2000 event runs
247	4.33	2.11	168.37	"	1.8	6	21	1	"	Test with several T2 threshold settings see p. 162
198	3.5	1.69	170.06	"	1.7	5	27	2	"	
249	3.82	2.12	172.18	"	1.7	9	27	0	"	ID Trip
274	3.35	2.33	174.51	"	1.65	8	26	1	"	
226	2.93	1.94	176.45	"	1.65	10	25	3	"	
930	2.94	7.37	183.82	"	1.60	8	85	5	"	
978	3.32	8.37	192.19	"	1.5	8	102	4	"	
933	2.43	6.92	199.11	"	1.4	~~8~~ 8	95	0	"	
808	2.07	5.33	204.44	"	1.6	7	59	1	"	
335	1.87	1.66	206.10	"	1.5	7	13	1	"	
1315	3.22	10.52	216.62	IBM	1.9	8%	152	2	16.993	
930	2.61	8.30	224.92	IBM	1.4	11%	115	3	"	
905	2.25	8.15	233.07	"	1.1	12%	108	2	"	
887	2.01	8.02	241.09	"	0.9	14%	106	2	"	histograms (except LG cluster) checked during this run. Beams dumped for refill o.k.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HADTRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG ≥1 TR	T1 LG74

T1 LUMI.	<L> x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

19/03/81

11:10 New fill is ready, BP current ≈ 2.5~3.0.
11:35 BP = 2.0 and stable
power the magnet back to 7500A.
11:45 Beams lost partly, now BP = 1.5
~~Erchter has SOT~~
12:00 Start Run 6616.
12:53 Run 6616 ended to allow MIPROC re-start.
12:54 Start run 6617
13:14 Run 6617 stopped after MIPROC error. Start run 6618
13:20 IBM busy ~90s - changes to IBM link by FS8.
13:35 FS8 making one final change to link.
13:49 No IBM link errors - to FS8 now understand problem.
1430 MARK-J phone us to say they want new fill
TASSO "
CELLO DON'T "
Main exp't CELLO will request the dump when JADE want it.
1443 CELLO request new fill at 1455. because PKR has new shift at 15:00.

16:00 Zhang and Bowdery on shift.
16:38 PKR says that they have a computer down They are reloading another one so there will be a delay.
17:03 They & show run 6621 BP. current too high (2.5) Phone PKR. Kollimator now is in and they are buying beam steering.
Started Run 6621 at 18.07
Started Run 662 at 18.16
18:50 ID tripped because anode current alarm Reset OK When we pressed the green button we got another alarm (one of the false type) which we reset. Pressing the green button we then got a magnet trip alarm. Reset OK Another magnet trip alarm. Reset OK. Then the ID powered up → OK. Very unusual!

19⁰⁰ Tests with T2 thresholds
19.45 NORD 50 BUSY ⇒ 30% D.T. instead of 18%. Seems okay now
Reset FWD μ Counter channel 17. Needed about 5 attempts.
20:15 ID trip. Reset okay. Problems with FWD μ channel 17 ⇒ it seems to 'die' every 10 minutes or so.
20:36 FWD μ channel 17 is hopeless. Richard Hedgecock told us to power down this channel and ignore error messages for it.
~~22.40 Injection~~

20:57 Tagging LG hit map has 2 holes still. Herwig Wiedt says to ignore them.
22.40 INJECTION
23.40 Background too high (BP ≳ 2.5v) to turn on LG.
24⁰⁰ Weber / Pearce on shift.
Her Weber is PKR attending to high background problem.
0:14 BP current now down to an acceptable level viz 1.9v. Start run 6632.
Reset voltage on forward muon counter 19.
(Still cannot raise #17)
0.58. ID trip - reset (had to reset twice!)
3:10 Muon crate 9 missing - reset OK. Muon crate 2 goes missing after giving me just enough time to get back from #9 - reset OK.
4:59 Still waiting for new fill. PKR had trouble with computer; this is cured, but now there is trouble in the injection
7.14 PKR has still trouble with injection of both electrons and positrons.
Lower magnet current to ~4500A to safe power. Following shift: Please do not forget to turn magnet current up to 7500A before starting to run. Left under computer control.

8.00 Minowa + Steffen on shift.
9.00 Mark-J phone to say that they want 5 min. access to repair ~~the~~ some PMT's when PETRA is down. goes
1018 New fill ready BP = 2.2
raise the magnet back to 7500A
start run 6636
1053 Mark-J phone again. they want 5 min access after the current beams are dumped.
JADE, TASSO and CELLO agree.
1100 PKR phone to say Our Luminosity value at PKR is not OK.
Int. Lumi from the last RUN SUMMARY is 7.25 nb⁻¹ / 6.8 nb⁻¹ from On-line Bhabhas.
The difference is not so much.
1139 Beams lost.
12⁰⁰ FORWARD MUON COUNTER CH. 17 - CABLE AT REAR of POWER SUPPLY DISCONNECTED & VOLTS SET TO 2700 TO STOP ALARMS. - WILL BE FIXED AT ~~EDITOR~~ ??? CH.
12⁴⁰ beams back; waiting for adjustment: rate (beam pipe counter = 25)
12⁴⁹ start run 6640
1250 PKR complain that they have ~~st~~ still problems with our Luminosity monitor.
Call Wiedt, He contacts with PKR. PKR ~~get~~ sometimes get zero value from us. otherwise reasonable values. Wiedt thinks some cables may be broken, but its okay for the time being.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tφ REJECT x10⁶	Tφ ACCEPT x10⁶	T1 ACCEPT +POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4
6636	20.3.81	10:22	10:50	7.9	8.1	17.8	1458	5871	380	84.4	295	16.7	3546	0	388	1180	1467	1230
6637	"	10:53	11:11	7.1	7.2	16.5	751	2550	196	40.0	156	7.7	1555	0	165	593	578	609
6638	"	11:13	11:34	6.8	6.8	12.7	1216	4122	317	52.4	265	12.3	2508	0	236	1013	1003	960
6639	"	11:36	11:39	6.7	6.8	14.8	154	479	40	7.4	33	1.4	268	0	26	126	101	130
6640	"	12:51	13:31	8.4	8.4	13.0	1669	6324	434	76.7	358	20.4	3705	0	430	1395	1574	1540
6641	"	14.44	14.45	8.5	8.6	26.5	12	101										
6642-6644		almost no events in these runs.																
6645	"	14.58	~~15.01~~ 15.11	8.2	8.3	30.4	170	744	44	15.7	29	2.2	460	0	42	121	205	190
6646	"	15.01	15.43	7.4	7.4	13.7	2210	7682	575	106.4	469	27.8	4005	0	480	1510	1478	2041
6647	"	15:44	16:22	Beam Beam Scal 8.0	Beam Beam Scal 8.0	15.3	954	3334	248	38	210	11.1	1896	0	212	794	705	882
6648	"	18.24	18:59	6.3	6.2	23.5	1026	4188	267	62.7	204	15.7	2781	0	289	908	1119	925
6649	"	19:10	19:13	6.1	5.9	23.2	135	539	35	8.1	26.8	2	364	0	49	111	148	108
6650	"	19.23	19:30	Beam 0.1	Lost 0.1	23.2	173	666	45	10.5	34.1	2.6	452	0	47	145	153	138
6651	"	20:20	21:00	5.8	6.6	14.4	611	2093	158	22.8	136	6.7	1284	0	126	563	475	490
6652	Bogey run. See Logbook																	
6653	~~6655~~	~~Bogey runs. IBM err, runs not started~~																
6653	"	21:03	21:09	5.7	6.4	12.4	316	1023	82	10.2	72	3.3	598	0	87	271	255	259
6654	Bad bogey runs. IBM error, runs not started																	
6655																		
6656	"	21:19	* ? × 21:19	Beam 1.9	Lost 2.2	18.3	280	* 2⁺	73	13.4	58	2.5	435	0	Φ	1	0	0
6657	"	23:10	23:43	6.4	6.5	19.8	1859	7836	483	95.5	388	24.8	4846	0	492	1776	2021	1747
6658	"	23:44	0.18	6.0	6.0	19.0	2020	7850	526	89.5	436	25.3	4843	0	458	1872	2021	1831
6659	21.3.81	0:18	1:02	5.5	5.5	12.4	2609	7846	674	84.1	595	25.9	4821	0	510	2370	2370	1888
6660	"	1:02	2:00	5.0	5.0	8.2	3450	7851	897	78.8	818	25.1	4825	0	491	2618	1539	1344
6661	"	4:56	5:32	6.4	6.4	16.5	2111	7836	550	90.6	459	27.2	4684	0	462	1842	1876	1581
6662	"	5:32	6:13	5.9	5.8	13.3	2420	7858	630	83.9	548	28.2	4742	0	481	2113	1806	1894
6663	"	6:13	6:37	5.6	5.6	11.9	1368	4062	356	42.3	314	14.4	2468	0	242	1161	914	992
6664	"	6:41	7:33	5.1	5.0	10.5	3044	7852	792	82.9	709	29.2	4764	0	464	2432	1694	1899
6665	"	7:33	8:05	4.8	4.7	9.4	1938	4629	504	47.4	456	15.5	2854	0	280	1571	921	1100
6666	"	15.09	15.18	7.22	7.38	16.9	509	1747	142	24	118	5,88	931		118	437	302	405
6667	"	15.19	16:05	6.3	6.4	11.2%	2720	7849	707	79	628	25.6	4193	0	479	2293	1285	1853
6668	"	16:07	16:32	6.1	6.2	10.3%	1470	5749	382	39	343	11.9	1969	0	230	1163	577	901
6669	"	consists only of pedestal event																
6670	"	16:36	17.35	5.2	5.3	8.5	5498	7850	910	77	833	24.1	4183	0	434	2623	1153	1888

T1 LUMI.	<L> x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT. EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GEV)	
952	4.97	6.80	247.89	IBM	20	5%	82	2	16.993	~~new fill~~ stopped due to MIPROC error.
400	4.68	3.51	251.40	"	1.9	7.	44	1	"	"
612	4.16	5.06	256.46	"	1.8	7	53	3	"	"
29	4.31	0.66	257.12	"		10	11	0	"	beams lost
981	5.13	8.56	265.68	"	2.1	6	94	12	"	new fill stopped due to MIPROC problem. Beams lost.
"	5.05	0.06	265.74	"	12.2	6	2	0	"	new fill stopped MIPROC error
				"					"	"
115	4.11	0.70	266.44	"	2.0	3 ~~9~~	9	0	"	"
1416	5.19	11.48	277.92	"	1.9	5	154	3	"	MIPROC is off
538	1.22	1.17	279.09	"	1.7	6	60	0	"	Beam lost
402	2.26	2.31	281.40	"	2.3	25	30	2	"	High background, run stopped.
60	2.53	0.34	281.74	"		23	4	0	"	
64	2.48	0.43	282.17	"	1.9	24	7	0	"	Beam lost.
291	3.62	2.21	284.38	"	1.8	20	31	2	"	
										Run stopped due to IBM link error 54
142	3.53	1.12	285.50	"	1.6	20	12	1	"	IBM link error, 54, run stopped
0	3.24	0.91	286.41	"	1.4	0	0	0	"	Beam lost See Logbook p. 164
1046	3.97	7.37	293.78	"	2.1	23	111	5	"	
1034	3.68	7.43	301.21	"	1.8	21	88	5	"	
1015	3.12	8.14	309.35	"	1.6	20	87	2	"	
1066	2.66	9.13	318.52	"	1.3	20	110	4	"	Beam dumped
1115	4.06	8.57	327.09	"	2.0	20	122	7	"	
1089	3.58	8.67	335.76	"	1.8	20	92	2	"	
536	3.17	4.34	340.10	"	1.6	20	47	0	"	
1062	2.91	8.89	348.97	"	1.4	19	128	4	"	
595	~~2.65~~ 5.13	5.13	354.10	"	1.3	20	68	4	"	Beam dumped
373	6.01	3.28	357.38	"	2.2	19	36	2	16.993	The run number ~~666~~ ought to be celebrated 6666
1449	5.48	14.9	372.28	IBM	2.1	19%	196	6	16.993	Run 6666 stopped because of MIPROC trouble
798	4.86	7.15	379.43	"	1.7	18%	99	2	"	
					~~1.5~~					
1655	4.31	15.09	394.52	"	1.5	18	206	7	"	beams lost

REJECTION OF BAD T2 TRIGGERS STARTED

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT +OSTPONE $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 $\geq$2 TOF LG 71 $\geq$1 TR	T1 LG74	T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

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13.10 ID trip, reset press green button, then get alarm again. Several trials (X) failed.
Just 2 trials more did it then
call Nozaki I
Sorry, but we cannot change the situation at the moment.
We would have to take the HV-controll box out.
(X) By the way, ~~trials~~ Several trials are only allowed, if it is an alarm which appears immediately by pressing the green button!

13.30 Beams lost
14.33 New fill is ready BP = 2.7
1444 Start run 6641
1445 JDASERR 45 SUBERROR 0 } come up.
" 1
Stop run 6641
Start run 6642 The run ends immediately giving a message "MIPROC NO RESPONSE".

1501 MIPROC taken out
Start Run 6646
15.57 ID trips. Reset.
16.00 Bell, O'Neill on shift.
16.02 Magnet trips. Phased K. They stall some.
16:10 K come and say we can run the magnet up.
16:20 Magnet run up, beam lost, magnet run down to 1000 A.
16:40 New fill. Magnet run up.
16 50 Beam lost before magnet is fully run up. Magnet run down to 4000 as it takes less time to run it up with a new fill

The 'refill' luminosity seems to work now (RL = on Color TV). It is the ~~energy~~ luminosity $\langle L \rangle$ averaged over the last 8 hours. Keep in mind that NORD hang-ups will destroy ~~the~~ RL.
The title of the histogram Z-VERTEX BEAM-GAS is misleading, it is in fact Z-VERTEX ALL.

~17:00 New fill. Background hopeless.
~17:30 Still cont run. Only track T is on.
17:57 TASSO is now happy; CELLO is unhappy but on run. We still have

Σ bp ~ 3v. PKR is now working on us.

18.23 Finally going again with Run 6648. Σ bp ~ 2.3. PKR is out of tricks to try. Lifetime ~ 1.3 hrs prime time at start of fill.

18.27. ID trip for anode current. Much trouble switching back on due to screwy HV control box. As soon as one tries to switch one about 17 lamps all go on indicating all kinds of errors which have not actually occurred, magnet trips, mysterious number 11's etc. Try to reach chamber call guy Nozaki. No luck. Reach his immediate predecessor Hellenbrand. Turns out there's nothing much you can do in the short run. Natsumura is getting around to the problem, Just keep trying if reset doesn't work.

~18.45 Big background pulses. Switch off HV. Eventually stop Run 6648 PKR wants to reload file and needs HV's off. Bartel goes to PKR to see what's up.

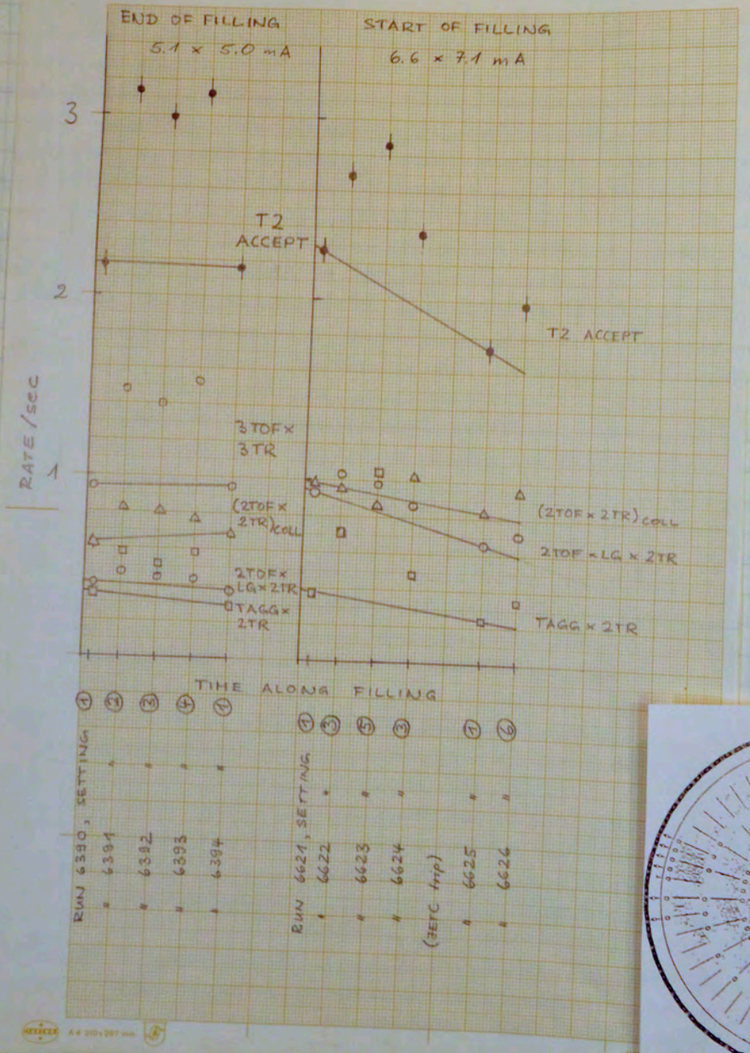
19^{00} On-line rejection of BAD T2 Triggers started from run 6648 on
5% of rejected events are kept and can be looked at with the
event type selection on 'REJECT'.
Rejection is very efficient if bad beams.
The rejection rate (in each trigger) is printed on the run summary (60% of the TASSO triggers!)
19:30 Beam lost
19.56 Beams nearly ready again. We completely forgot to run down the magnet this time. PKR never noticed

20.00 Wire supposed to switch on. Σ bp on table: 9v! They must be kidding.
20:49 B.P. down to 2V dis. Switch on I.O., it trips, reset and start run 6651.
20:59 Run 6651 stopped to allow R. Barlow to start ZSEND
21:00 Run 6652 started
21:01 " " stopped on its own accord after 8 events
21:02 Run 6653 started
21:09 IBM error 54. Run stopped.
21:10 Tried to start runs 6654 + 6655, unsuccessful.

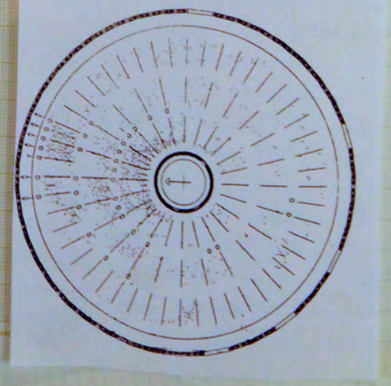
RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT POSTPONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG≥1 ≥1TR	T1 LG74

T1 LUMI.	<L> x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

20/3/81



T2 HIT THRESHOLD TEST



T2 hit thresholds

9 thresholds (3 per ring) on n_w = number of wires hit per cell

threshold	condition
a	single cell $n_w > a$
b	each of two neighbor cells $n_{w_1} > b$, $n_{w_2} > b$
c	sum of two neighbor cells $n_{w_1} + n_{w_2} > c$

A cell has a 'track' if either condition a or conditions b and c are fullfilled.

Tested threshold sets

set	Ring 1			Ring 2			Ring 3		
	a	b	c	a	b	c	a	b	c
①	12	1	12	11	1	12	12	1	12
②	9	1	10	8	1	9	9	1	10
③	8	2	10	7	2	9	8	2	10
④	7	3	10	6	3	9	7	3	10
⑤	6	4	10	5	4	9	6	4	10
⑥	8	2	10	7	2	9	9	2	11

Set ① is used since the begin of JADE, but turned out to be inefficient for positive tracks due to the large Lorentz angle of the drift space. Sets ② to ⑤ are calculated to be efficient (1 missing wire/cell included).

Conclusions

i) Set ③ seems to be the one of sets ② to ⑤ which leads to the smallest increase in trigger rate.

ii) The increase in trigger rate is ≈ 0.5/sec, disregarding the 3TOF × 3TR trigger. Inspection of the events shows that almost all of the increased trigger rate is due to events of the kind shown on the left. This kind of events can easily be rejected on-line by the new T2-CHECK routine.

iii) Set ⑥ shows that increasing the thresholds in ring 3 alone does not help.

Proposal: Implement the fully efficient threshold set ③, since it leads to an increase of the trigger rate of 0.5/sec only.

P. D.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT HADRONS $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 $\geq$2TOF LG$\geq$1 $\geq$1TR	T1 LG$\geq$4

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

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21:14 Run 6656 started o.k.

21:17 Beam lost + run stopped. Run summary is a bit crazy. It says run started and ended at 21:19 whereas on the TV it is said it started at 21:14 and ended at 21:19. Also there were no lumi trigger in the summary but there is a value for the luminosity. The values in the run summary for the T2 trigger also seem a bit strange.

There are lumi triggers in the normal scalers in the hardware and are running as are other triggers but they do not appear in the summary.

R. Barlow says there is a mix up between the previous run and the last one due to the IBM error which did not print out the previous run summary.

22:08 Turn on Hv's Ha! Ha!

22:47 Called the other experiments. They are now all running, although they are not happy he still read 3.0. Call PKR. They are very surprised that we are unhappy. They are reading 1.5. The resolution of the paradox turns out to be that PKR has installed a new volt meter to read our background level. This precision instrument turns out to have too low an impedance with respect to the voltage divider to which it is connected. PKR now agrees that our background is 3.0

23.10 And away we go! Run 6657, B.P = 2.1V

23:12 ID tripped, reset.

23.21 Check LG thresholds. "x" = 60mV. Thresholds set for 55 mV. If you don't tell anybody, neither will I. Scope sweep is really screwed. Trace only goes $\frac{1}{2}$ way across the screen.

23:42 Run 6657 ended

23:43 Run 6658 started

21.3.81

0:00 Takeda Shield

0:40 Especially to the μ-people: the message "μ-crate 12 missing" ~~appeared~~ starts appearing on the TV-screen (about once in ~5 min)

1:05 Reset μ-crate 3

1:35 Having consulted the other experiments we ask PKR for a new fill at 2 am.

2:05 Beams dumped

2:15 magnet ~~turned~~ lowered to ~ 1.4A

2:35 Raise magnet

2:40 Beams lost, lower magnet

3:45 raise magnet

3:50 Beams ready, ~ 2.8 V background, PKR tries to improve

4:25 background down to ~2.2V. When trying to switch on, we immediately get an ID alarm which we could not reset. Called expert.

4:55 In the end, with Koroli's & Hesse's help, we got the ID working: again the comparator was faulty.

7:35 Asked PKR for a new fill at 8 am (if LINAC II down, we will continue with this fill).
μ-crate #1 reset

8:00 Miproc works only on weekends! We have again 12000 triggers without miproc dying. During the week it works only for 50-500 events on average. Very strange!! RKF

8:00 Krebbiel and Kawabata on shift.

8:10 PKR has a problem on linac. They dumped beam.

9:55 Magnet rundown to 7500 A. (Save a watt) after a call from Bartel

14:05 New filling. 14.10. BP current 4 mA. We complain at PKR, Schmitt Tasso says their conditions are o.K. Schröder (3) Cello says hopeless, Mark J says excellent.
There must be some symmetry in it! PKR will do their best, they say.

14.55. BP still 2.5. We are cautious with the ID, call again at PKR, they say they have done all corrections, moved every Boule Bump or Boil (what's this in English?), but they will go thro the whole rite again. 15.00 → BP = 2.3, Decide to wait 5 more minutes

15.09 Run started. JOAS Error 44 Sub 703 Task 7 occurs. Is Run No 6666 a bad omen, worse than 666? Shure it is!

15.20 Miproc trouble, switched off it. it killed the MIPROC

16:00 ~~Schröder, Fischer~~

16:30 ~~Run stops~~ Run hangs up — no events. Kill ZSEND and restart. Now seems Ok. Yet another manifestation of the phantom ZSEND bug. but only 2-3 minutes data taking lost this time RJB.
Run 6669 only consists of pedestal events. The run did not give any summary.
The last 3 minutes on run 6668 have a wrong value of ~1400 kG for the value of the magnet field. We investigated the noise on the current reading, which showed a 2% signal associated with the 50 Hz of the mains. This is safe with the filters in the instruments.

17:50 MIPROC-Status PC=0022 AR=000F ER=3322 XR=FFF7 MA=0100 FS=0004
Miproc started again. D.C.

17:50 Beams lost. 1.3 HV alarm R1 dd 9-17. PKR says collimators at 27.2 which

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT HADRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4

T1 LUMI.	<L> x10³⁰	Skdt RUN	Skdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTIHADRON	BEAM ENERGY (GeV)

is almost closest to the beam. They don't change the position any more

18:30 Beams back. BP = 95. They are optimizing.

19:00 Start run 6671 when BP < 30.
Get I.D. alarms. Anode current generally high (peak 3.2, average 2.5 μA in Z1)

19:20 Ask for new optimisation. (27→25) Start run 6672. Anode current lower now.

19:30 Beams lost. A sextupole went off.

20:30 Beams back, but we can't switch on. BP ≈ 35

21:10 Start run 6673.

22:05 Make modification to Hiproc program, so that $\Delta = A^+ - A^- \equiv 1$. This means the calculated vertex will always be between 0 - ≈3cm. But the instruction which causes the trouble works with these numbers. Let it run over weekend to convince myself that we have a hardware problem with Hiproc.
I have seen, that $\Delta = -1$ causes PC=0 in every event. RAE.

22/3/87 0:00 Kobayashi / Hellenbrand on shift

2:00 Ask for new filling in 30 min.

2:30 Beams dumped.

3:47 Beams ready. $I_- = 8.3$ mA, $I_+ = 8.2$ mA, B.P. ≈ 9 V.

4:24 B.P. ≈ 2.6 V. now ID HV on.

4:41 ID tripped. (B.P. = 2.4 - 2.7 V)

5:10 IBM ERROR 54, MPX station. RUN 6684 Terminated
RUNs 6685 - 6687 terminated without data, trying IBM-Link
phoned IBM, they don't know, where MPX is located, try to find
but we are lucky, beams were lost, IBM-people were lucky too and find MPX

5:50 beams back again.

6:08 I.D. HV on (B.P. ≈ 2.6 V)

6:12 beams lost, sextupole failure

8:00 Olsson, Krebbiel on Shift. Run 6690 JDAS Err 56-405-1; JDAS ERR 46-1-1 both only once

10:45 Luminosity goes down drastically by all experiments, unknown why. NF asked for, will come
Magnet down to 1500 A in fill period

11.20 Filling ok with exceedingly low background just after the ramp-up + 22s BP = 2.2. Olsson runs ID up.
Run 6693 starts with 20% Dead. But PKR promises to optimize again

14:00 I think, I found the instruction in the Hiproc which makes trouble hardwarewise.
Now I changed this instruction by 6 equivalent other instructions. It looks promising!

15:50 Problems with filling, 1 magnet NOK.
We collected 30 Mevents this shift. This equals the previous record!

16:00 R Barlow, Olsson on shift.

16.05 Switch on. Beampipe ≈ 2.2 cm. PKR say they get no luminosity reading from us, but then change their minds.

16:38 Beams Lost.

17.26 Start 6699

17.35 ID Trips.

19.06 ID Trips

19:39 SF.

20:00 R. Barlow, W. Bartel on shift. Since nobody else feels responsible for this shift.

Peculiar displays on the color TV:
Under the heading 'Online Rejection' the total rejection rate is 0% although the instantaneous rejection rate (total)

The contribution of the collimator trips to the total trigger rate went up to 40% for run 6703 from ~25% on Saturday
Run 6691 has also 40%

21:00 ask for new filling

22:00 Start new fill. We get a luminosity $8 \cdot 10^{30}$.

Chamber occupancy: 8.4 x 8.2 mm 139 hits on average for lumi events
139/16.6 = 8.4 hits/mm
139/8.3 = 17 hits/mm at current.

24:00 End of Shift. We collected 51 (fifty one) multihadrons. This beats the previous record, but I don't think it'll stand for long.

0:00 Kawabata and Norachi on shift.

0:00 Asked PKR for a new filling. All other experiment agreed.

1:03 Beam dumped. Run down the Magnet to 1500 A

1:50 ID HV switched on. Beam lost immediately.

2:48 Beam ready. B.P. = 2.4. Start run 6709.

5:45 Asked PKR for a new fill at ~ 6:00

6:03 Beam dumped. Magnet current ~ 1500 A

7:00 Still no beam. PKR does not know why they can not inject beams.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT HADRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4
6671	21-3-80	19:04	19:21	7.8	7.3	40	457	2142	119	47	71.8	7.4	1411	0	121	336	601	
6672	"	19:22	19:33	7.7	7.1	27	447	1776	116	31	84.4	6.1	1114	0	116	389	451	
6673	"	21:14	21:22	7.6	7.7	36	337	1509	88	31	56.5	5.4	930	0	87	254	396	
6674	"	21:23	21:26	7.6	7.6	29	200	936	52	15	36.8	3.4	588	0	49	175	223	
6675	"	21:28	21:59	7.0	7.0	23	1824	7855	474	107	368	29.7	4913	0	423	1549	2017	
6676	"	22:01	22:02	6.9	7.0	24	89	380	23	4.6	18.4	1.3	232	0	18	90	94	
6677	"	22:04	22:40	6.3	6.4	17	2120	7847	553	93.6	458	30.5	4816	0	496	1844	1886	
6678	"	22:40	22:49	6.2	6.3	16	451	1679	117	18.2	99	6.0	1005	0	105	423	399	
6679	"	22:51	23:34	5.7	5.7	13	2535	7858	660	86.5	573	28.5	4747	0	496	2249	1702	
6680	"	23:35	0:23	5.2	5.2	11.3	2889	6367	752	84.8	667	27.4	4678	0	457	2357	1545	
6681	22/3/80	0:24	1:19	4.7	4.6	9.2	3276	6434	852	78.7	773	26.5	4705	0	434	2573	1468	
6682	"	1:20	2:23	4.2	4.1	7.8	3807	6392	989	77.2	912	26.2	4819	0	445	2855	1404	
6683	"	2:24	2:31	4.1	4.1	2.4	455	731	118	8.8	109	2.8	546	0	43	~~333~~ 331	153	
6684	"	4:27	5:00	6.8	6.9	26	1669	5934	434	114	319	24.7	4625	0	410	1536	1909	
6685 - 6687 without data																		
6688	"	6:12	6:13	7.9	7.7	2.6	72	272	18.8	4.8	13.3	1.1	208	0	21	62	82	
6689	23.3.80	7.42	8.16 ~~8.56~~ 8.16	7.19	7.13	19.8	1971	7829	512,8	101,7	411,2	29,3	4691	0	426	1636	1869	
6690	"	8.16	9.51	6.66	6.58	14.1	2411	7849	627,7	88,2	539,5	28,4	4597	0	448	2037	1672	
6691	"	9.01	9.51	5.6	5.4	10.5	3004	7850	781,9	89.4	692.5	27,7	4798	0	519	2418	1651	
6692	"	9.51	10.47	5.11	5.0	9.7	3372	7692	869.7	84.6	785,0	26.7	5014	0	580	2716	1707	
6693	"	11.27	12.02	8.34	8.59	15.6	2128	7847	553.6	86,6	467,0	25,0	4200	0	478	1842	1487	
6694	"	12.03	12.44	7.52	7.75	12.7	2396	7859	623,2	78.9	544,3	24.2	4087	0	451	2109	1330	
6695	"	12.51	13.35	6.0	6.2	10.2	2622	7854	681.8	69.2	612,6	21,6	3768	0	407	2219	1094	
6696	"	13.38	14.35	5.91	6.10	8.6	3401	7860	884,3	76,1	808,2	22,5	4157	0	456	2597	1063	
6697	"	14.36	14.44	5.19	5.36	7.7	417	940	108,6	8.9	100.2	2,4	496	0	53	325	119	
6698	"	16.19	16.40	8.57	8.64	17.4	1195	4555	311.0	54.2	248,3	15.7	2509	0	293	943	919	
6699	"	17.17	18.03	8.2	7.9	19.8	3024	7839	526.9	104.1	422.9	29.7	4308	0	469	1786	1484	
6700	"	18.09	18.50	7.2	7.0	14.5	2403	7856	625,5	90.6	535,0	28.8	4182	0	448	2080	1426	
6701	"	19.56	19.39	6.4	6.2	11.5	2788	7847	726.1	83.8	642.2	27.4	4146	0	446	2367	1264	
6702	"	19.40	20.35	5.6	5.4	9.1	3320	7851	869.0	78.9	785.1	26.1	4209	—	412	2594	1136	
6703	"	20.55	21.02	5.3	5.1	7.3	1613	3424	420	33.3	386	10.5	1860	—	136	1190	436	
6704	"	22.02	22.35	7.8	7.9	19.6	2005	7837	522.1	102.2	419.9	29.5	4839	0	495	1834	1793	
6705	"	22.36	23.14	7.0	7.1	16.5	2258	7858	587.2	91.2	495.9	28.1	4259	—	495	2043	1581	
6706	"	23.19	0.03	6.2	6.3	12.1%	2618	7854	681.2	82.6	598.6	26.9	4289	—	450	2275	1482	

T1 LUMI.	<L> x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	
245	3.44	~~2.96~~ 1.57 ~~2.96~~ 09	396.09	IBM	3.0	29	22	0	16.933	!! (16.993?)
285	4.06	1.81	397.90	"	2.8	22	23	2	"	~~beams lost~~ ← this line is wrong
176	3.88	1.31	399.21	"	2.6	24	18	1	"	beams lost
114	4.37	0.87	400.08	"	2.5	26	12	0	"	tuproc died
1012	4.43	8.09	408.17	"	2.4	24	87	4	"	"
47	3.95	0.35	408.52	"	2.1	24	1	0	"	tuproc died
998	3.86	8.18	416.70	"	2.1	22	116	0	"	
201	3.53	1.59	418.29	"	1.9	21	26	0	"	tuproc died
1043	3.53	8.96	427.25	"	1.6	21	103	2	"	
1107	4.27	12,35	439.60	"	1.5	21	149	4	16.993	← This is not a new filling.
1130	3,16	10.36	449.96	"	1.45	20	125	7	"	
1040	2.44	7.27	457.23	"	1.25	21	120	2	"	
118	2.34	1.07	460.30	"	1.15	22	13	0	"	beams dumped
951	3.82	6.38	466.68	"	2.6	23	67	4	"	Run terminated by IBM error 54. Beams lossed!!
42	5.75	0.41	467.09	"	2.6	25	5	0	"	
1210	4.05	7,98	475,07	IBM	2.4	23	86	7	16.993	Run with a natural end!
1774	3.67	8.85	483,92	"	2.0	21	109	2	"	
1068	2,97	8,92	492,84	"	1,8	21	128	4	"	Accurately after Run End before Restart 10 trip. (August)
695	1,72	5,76	498,60	"	1.8	23	74	1	"	
1553	6.53	13.89	512,49	"	2.2	20	171	5	16.993	This seems to be record luminosity. Tasso claims to have over 1×10^{31} (Lumi of the big ring (for 15 min!) of the fill
1607	6.05	14,49	526,98	"	1,8	18	214	6	"	Mark 3: $8 \cdot 10^{30}$
1509	5,22	13,70	540.68	"	1,5	18	179	8	"	Cello $7 \cdot 10^{30}$
1598	4.34	14.75	555,43	"	1.3	18	184	3	"	Jade $6.5 \cdot 10^{30}$
180	3.98	1,66	557,09	"	1.2	20	21	1	"	
846	6.12	7.31	564.40	IBM	2.2	22%	86	2	16.993	
1588	6,86	13,89	578,29	"	2,1	21	188	6	"	
1622	6.06	14,56	592,85	"	1.9	19	169	9	"	
1630	5.46	15.23	608.08	"	1.7	~~17~~ 17%	195	7	"	
1589	4.38	14.54	622.62	"	1.5	19	178	~~8~~ 8	"	
670	3.81	6.14	628,76	"	1.5	18	88	1	"	
1431	6.17	12.37	641.13	IBM	2.3%	21	178	6		starts 7.86 10^{30}
1490	5.80	13.09	654.22	"	2.1	19	170	7		
1496	5.04	13.19	667.41	"	1.8	18	171	5	—	> ~~2~~ 3 nb^{-1} this day!

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HOSTRONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1 TR	T1 LG>4
6709	29.03.81	0 04	0 55	5.5	5.6	10.9	3059	~~1856~~	~~196~~	~~87.0~~	709	25.8	4365	0	468	2470	1445	1912
6708	"	0 56	1 03	5.4	5.5	8.8	425	989	111	9.7	101	3.4	556	0	76	326	178	241
6709	"	2 48	3 25	8.0	8.2	16.4	2203	7846	573	94.1	479	30.0	4285	0	507	1939	1594	1836
6710	"	3 26	4 09	7.2	7.3	12.6	2568	7860	668	84.1	584	28.6	4187	0	488	2243	1383	1814
6711	"	4 09	5 00	6.4	6.5	10.0	3026	7860	787	78.8	709	26.9	4145	0	496	2522	1200	1965
6712	"	5 02	5 51	5.3	5.5	8.4	3501	7859	910	76.7	834	25.4	4312	0	440	2652	1302	1847
6713	"	5 59	6 02	5.2	5.4	8.9	150	371	39.2	3.5	35.7	1.1	205	0	19	124	67	109
6714	"	14 38	14 43	9.2	8.4	18.6	233	853	60.7	11.3	48.8	3.08	482	0	71	171	199	198
6715	"	16:44	17:20	7.1	7.4	18.3	2143	6361	558	102	456	29.4	4458	0	535	1979	1678	1774
6716	"	17:20	17:23	7.1	7.4	14.1	118	396	31	4	26	1.4	218	0	28	98	81	90
6717	"	18:00	18:43	7.1	8.1	16.5	1868	5331	486	80.4	406	23.4	3637	0	484	1753	1246	1511
6718	"	20:38	21:15	4.9	5.5	8.6	2217	4209	577	49.3	527	16.6	2681	0	264	1719	745	1209
6719	"	21:19	21:58	4.3	4.8	7.3	2281	4571	593	43.6	550	14.6	2531	0	238	1748	594	1052
6720	"	23.35	24.13	7.9	8.0	12.7	2277	7824	592	103.6	489	28.7	4170	0	576	1997	1637	1893
6721	29.3.81	0 14	0058	9.1	9.1	13.0	2584	7840	672	87.5	584	27.6	4122	0	481	2153	1518	1912
6722	"	101	149	6.3	6.3	10.9	2893	7830	752	81.7	670	25.1	4159	0	516	2472	1318	1862
6723	"	149	246	5.5	5.5	6.3	3364	7817	876	78.6	797	23.4	4023	0	437	2617	1133	2001
6724	"	246	308	5.3	5.3	5.4	1224	2675	319	24.5	294	7.4	1393	0	145	917	393	677
6725	"	310	347	4.8	4.9	4.8	2153	4173	560	38.4	522	11.6	2142	0	219	1482	544	1044
6726	"	6.03	6.40	7.4	7.8	12.8	2114	7827	550	95.6	454	25.2	4554	0	478	1849	1535	1603
6727	"	6.40	7.27	6.6	6.8	8.4	2578	7834	671	81.1	590	24.7	4277	0	488	2163	1365	1774
6728	"	726	7.54			9.8	1580	4138	411	40.4	370	12.6	2254	0	221	1253	689	962
6729	"	8.37	9.18	9.0	9.0	16.8	2115	7827	550	92	458	28.9	4318	0	495	1859	1567	1800
6730	"	9.18	9.58	7.3	7.2	13.7	2361	7842	614	84.2	530	26.9	4371	0	513	~~2617~~	1562	1809
6731	"	9.58	10.46	6.5	6.4	10.9	2853	7845	742	81.0	661	26.8	4363	0	481	2378	1473	1831
6732	"	10:47	11:01	3.8	4.0	7.1	637	1252	166	11.8	152	3.9	731	0	85	436	224	301
6733	"	11:32	12:21	8.2	7.6	16.1	2311	7841	601	96.6	504	27.8	4191	0	501	1969	1527	1827
6734		12.23	12.41	7.8	7.2	15	1033	3737	269	40	229	11.6	2152	0	230	982	707	789
6736	"	13.56	14:35	8.4	8.0	18.1	2097	7828	546	98	447	27.6	4357	0	510	1853	1774	1845
6737	"	14.35	15.18	7.6	7.2	13.6	2450	7844	637	86.8	550	27.1	4236	0	480	2054	1622	1931
6738	"	15:18	16:06	6.8	6.4	10.9	2844	7850	740	80.3	660	25.3	4309	0	454	2350	1506	1864
6739	"	16:06	16:28	6.7	6.4	9.6	849	2167	221	21.3	199	6.5	1180	0	142	702	372	563
6740		17:31	18:07	9.54	9.43	19.9	1932	7816	503	100	402	29.6	4203	0	525	1834	1509	1771
6741	"	18:07	18:43	8.5	8.4	17.2	2103	7843	547	94	452	30.9	4173	0	458	1972	1433	1877

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SEC)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HOSTRONE x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR	T2 COLL	T2 ≥2TOF LG>1 ≥1 TR	T1 LG>4

T1 LUMI.	<L> x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION (%)	# OF BHABHA	# OF MULTI HADRON	BEAM ENERGY (GeV)
1430	4.17	12.77	680.18	IBM	1.5	18	177	9	16.993
172	3.58	1.52	681.70	"	1.4	18	19	0	"
1576	6.38	14.04	695.74	"	2.4	20	187	4	"
1653	5.82	14.95	710.69	"	2.2	19	204	14	"
1651	4.99	15.11	725.80	"	1.9	18	233	5	"
1581	4.11	14.39	740.19	"	1.6	19	161	5	"
53	3.15	0.47	740.66	"	1.5	20	6	0	"
156	5.91	1.38	742.04	"	2.7	23	27	0	"
1479	5.86	12.55	754.59	"	2.7	21	159	6	"
72	5.41	0.64	755.23	"	2.7	21	10	1	"
1225	5.93	11.08	766.31	"	2.6	20	143	5	"
1064	4.37	9.68	775.99	"	1.5	19	136	3	"
986	7.94	8.98	784.87	"	1.4	20	103	4	"
1626	6.49	14.77	799.74	"	2.7	21	196	12	"
1677	5.90	15.24	814.98	"	2.5	18	207	7	"
1676	5.33	15.42	830.40	"	2.1	18	202	8	"
1667	4.58	15.39	845.79	"	1.8	17	226	11	"
550	4.09	5.01	850.80	"	1.5	~~21~~ 19	71	4	"
918	3.93	8.46	859.26	FI1196	1.3	18	99	4	"
1511	6.30	13.31	872.57	IBM	2.7	24	177	5	"
1624	6.38	16.44	889.01	"	2.2	19	202	4	"
868	5.01	7.92	896.93	"	1.8	20	97	3	"
1562	~~6.56~~	13.88	910.81	"	2.6	21	206	5	"
1517	5.79	13.66	924.47	"	2.2	19	197	10	"
1518	4.85	13.83	938.30	"	2.1	18	187	5	"
198	2.81	1.79	940.09	"	1.8	20	22	1	"
1656	6.46	14.74	955.03	"	2.5	19	217	8	"
708	5.87	6.07	961.1	"	2.2	23	77	2	"
1766	6.34	13.30	974.4	"	2.2	21	185	7	"
1532	5.68	13.92	988.32	"	2.0	18	210	11	"
1532	4.94	14.06	1002.38	"	1.9	18	176	8	"
396	4.36	3.70	1006.08	134	18	19	62	4	"
1674	7.75	14.97	~~1021.05~~ 1021.05	"	2.6	20	192	5	"
1634	6.92	14.56	1035.61	"	2.4	19	213	6	"

6709	Beam dumped
6714	Beam dumped
6715	Beams lost
6717	beams lost
6720	Beam dumped
6725	stopped due to IBM problem
6726	writeon TAPE, Beams dumped
6729	beam lost
6733	Beam dumped
6736	Beams lost
6740	Beams lost

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT HADRONS $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 $\geq$2 TOF LG $\geq$1 TR	T1 LG74

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	Skdt RUN	Skdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

172

23.3.81

08:00 Bowdery & Watanabe on shift

08:10 PETRA cannot inject at present. No estimate available for restart. The access today will start at 08:30 rather than 10:00 because of this.

11.30 We have investigated the spurious alarms, which happen by pressing the green button for ID switch on (See p. 160). It should be better now.

12:59 fill ready. BP = 3.5 V. PKR trys to minimize background.
Tasso says they have IBM link problem. We can not test but on the screen it ~~seems~~ says OK.
(e^+, e^- ; 8.2 + 9.0 mA) Now magnet is 7500 A.

13:30 PKR still working but BP = 5 V now.

13:~~40~~ 35 Barlel was informed on this problem. We will ~~see~~ check vacuum, and see what else causing this.

13:40 Beam lost. We could not use this fill. Lower magnet to 1500 A.
PKR do not know why beams were lost. They say that our vacuum is OK but they are charging a pump somewhere so we must wait 5 (?) minutes.

14:26 New fill ready. Again the same story. BP = 6 V. I^+ = 9.5, I^- = 8.7 mA.

14:30 PKR adjust~~ment~~ brought BP down to 3.5 V, but still too high.

14:42 BP < 3 V so we start but beams lost after about 800 events.
checked std. histograms. All appear to be normal.

14:55 CELLO wants ~~4~~ 15 min. access now. Tasso & MarkJ agreed, so we also agree.

15:30

To run the solenoid from terminal:
Logon under user JADE

	PASSWORD: JADE
call program	e MAGNET
set magnet to 1500 amps (or any other value)	> GO 1500
leave program	> EXIT
Logout	e LOG

If execution error 8 occurs, reading of the DVM is unstable. You can try again, typing GO ..., but should report this error in the log-book.

23.3.81 - 24.3.81

173

16:00 Petersen / Hellenbrand on shift
17:23 Run 6726 stopped, beams lost
18:40 Run 6717 stopped, Magnet trip, phoned K
20:38 2 hours later started a new Run (6718)
21:15 Run 6718 stopped IBM Error 54
2400 Nozaki I + Minowa on shift
0330 The beams are going to be dumped at 3.45. Ask PKR for that.
0345 Beams dumped, injection started. Run down the magnet to 1500 A
0539 New fill ready, run up the magnet to 5000 A
0545 Run up the magnet to 7500 A
PKR is still optimizing the background. BP ≒ 3.0
05~~52~~ BP ≒ 3.0 ask PKR for further optimization.
0602 start Run 6726
0754 Beams lost. Run down the magnet to 1500 A. Execution error 8, DVM END WITH IER=1 IN SOLENOID.
Try again, OK
8:00 Goddard & Kobayashi on shift
8:25 New fill ready
8:53 I.D. tripped. (B.P ≒ 2.5 V)
10:55 About half of the beam lost ($I_+ \sim I_- \sim 4$ mA). Asked for new filling.
11:30 Beams ready. B.P. current decreased from ~9 V to 2.5 V within ~1 min. !!
12.30 JDAS error 74, suberror 701.
12.45 IBM error 54 run stopped. ID trip
New run started — same error
Beams lost.
16:00 ** 57 multihadrons on this shift ~~xx xxx~~ a new record
16:00 Bock, Bethke on shift. (+ Loebinger)
16:11 ID trip. high current 96.
16:15 TASSO phone. They have >50 nb^{-1} this fill. We have ~40 nb^{-1} so far. They want new fill.
We have $L = 4.69 \times 10^{30}$ $R_H = 3.87 \times 10^{30}$. We will wait.
16:24 ID trip high current 93. Beam lost. Load run 6739.
17:10 New filling. Optimizing background.
17:30 BP ~ 2.6. NW inner collimator is in. Start run 6740.
17:40 Online lumi 8×10^{30}. Dead time ~20%
17:48 ID trip.
18:07 Run 6740 ended. Start run 6741

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (secs)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TΦ REJECT x10⁶	TΦ ACCEPT x10⁶	T1 ACCEPT HADRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1 TR	T1 LG>4
174																		
6742	24.03.81	18.44	19.25	7.0	6.8	15%	2426	7847	631	96.2	535	29.4	4462	0	498	2227	1537	
6743	"	19.25	20.11	6.2	6.0	11.9%	2724	7847	709	84.2	624	28.6	4468	0	491	2343	1435	
6744	"	20.11	20.22	6.1	5.9	10.5%	628	1684	163	17.1	146	5.6	954	0	105	542	313	
6745	24/3/81	21.26	22.01	8.1	7.7	22.7%	1907	7825	496	112.8	383	27.4	4684	0	489	1679	1900	
6746	"	22.02	22.37	7.4	7.0	18.1%	2100	7840	547	99.0	448	26.7	4592	0	464	1875	1823	
6747	"	22.38	23.18	6.8	6.4	13.8%	2401	7850	624	86.0	538	25.8	4571	0	454	2069	1730	
6748	25/3/81	00.20	00.55	8.5	8.3	17.9%	2112	7839	549.6	98.2	451.4	29.6	4188	0	513	1885	1407	
6749	"	00.56	01.36	7.6	7.4	14%	2409	7842	626.7	87.4	539.2	28.25	4145	0	480	2094	1365	
6750	"	01:37	02:24	6.8	6.6	11.1%	2821	7853	734	81.3	653	26.5	4171	0	450	2341	1216	
6751	"	02.24	03.18	6.0	5.8	9.2%	3209	7857	835	76	758	24.4	4101	0	451	2528	1087	
6752	"	03:18	03:27	5.9	5.6	8.3%	525	1196	137	11.4	125	3.5	641	0	76	403	180	
6753	"	03:55	04:30	9.1	8.8	20.8%	1966	7828	512	106	405	29.3	4190	0	501	1731	1583	
6754	"	04.31	05:08	8.2	7.9	15.5%	2222	7852	578	89.7	488.7	27.8	4182	0	480	1936	1570	
6755	"	05:09	05:51	7.4	7.1	12.8%	2506	7845	652	83.7	568	26.5	4213	0	487	2158	1378	
6756	"	05:51	06.31	6.7	6.4	10.6%	2371	6404	617	65	551	21.2	3382	0	348	1878	1035	
6757	"	07:10	07:44	8.1	7.8	20.8	1921	7845	500	104	396	26.8	4457	0	420	1671	1646	
6758	"	07:44	08:04	7.7	7.4	16.6	1164	4282	303	50	253	145	2444	0	265	1012	880	
6759	"	08:04	08:45	6.9	6.6	13.6	2388	7839	621	85	537	24.9	4469	0	521	2030	1576	
6760	"	08:45	09:31	6.2	5.9	11.1	2759	7841	718	79	638	23.6	4413	0	439	2242	1440	
6761	"	10.09	10.49	7.7	8.1	16.2	2167	7816	564	91	473	27.1	4093	0	508	1989	1281	
6762	"	10.49	11.35	6.8	7.1	14.1	2728	7845	710	100	610	25.6	4010	0	503	2201	1283	
6763	"	11.35	12.30	6.0	6.3	9.6	3063	7841	799	77	722	23.6	4023	0	471	2450	1104	
6764	"	12.30	12.45	5.1	5.4	9.7	854	1803	222	17	192	5.3	911	0	99	596	220	
6766	"	13.23	14.07	6.8	8.2	14.3	2432	7770	632	91	542	27.7	4220	0	565	2225	1240	
6767	"	14.07	14.53	6.1	7.3	11.8	2728	7825	710	83	626	27.8	4236	0	453	2312	1249	
6768	"	14.53	15.22	5.7	6.9	10.0	1682	4305	438	44	324	14.7	2380	0	263	1378	671	
6769	"	16.24	16.59	8.0	7.7	17.4	2087	7823	542.9	94.3	448.3	29.2	4302	0	522	2008	1414	
6770	"	17.00	17.42	7.1	6.8	18.8	2507	7841	652.3	122.5	529.7	27.3	4207	0	471	2101	1383	
6771	"	17.42	18.27	6.4	6.1	11.7	2654	7831	689.9	80.9	609.0	25.9	3997	0	455	2204	1299	
6772	"	18.27	18.53	6.0	5.7	9.0	1676	4087	436.2	39.4	376.9	12.3	2110	0	215	1298	560	
6773	"	20.05	20.47	7.9	7.5	13.5	2462	7804	649.3	86.3	554.0	25.1	4022	0	535	2180	1242	
6774	"	20.48	21.32	7.1	6.7	11.3	2643	7820	687.4	77.76	609.6	22.7	3942	0	464	2445	1375	
6775	"	21.33	21.41	6.7	6.9	9.3	436	1155	113.5	10.5	102.9	2.9	531	0	48	338	138	
6776	"	22.12	23.11	5.6	5.3	7.6	3495	7844	909.1	66.79	840.4	18.0	3784	0	378	2492	957	
6777	"	23.12	23.33	5.5	5.1	6.7	635	1310	165.3	11.03	154.3	2.8	615	0	49	418	158	

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$ 10³⁵ e1	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	
175										
1388	5.13	12.45	1048.06	IBM	2.1	19	153	3	16.993	
1425	4.66	12.69	1060.75	IBM	2.0	19	164	5	"	
294	4.34	2.66	1063.41	IBM	1.9	17.19	36	5	"	Beam dumped
1245	5.68	10.83	1074.24	IBM	2.5	22	120	6	"	
1227	5.16	10.84	1085.08	IBM	2.3	20	150	11	"	
1242	4.61	11.08	1096.16	IBM	2.1	20	140	5	"	Beam dumped
1676	7.07	14.94	1111.10	"	2.7	20	183	9	"	Luminosity (corrected) reached $9\times10^{30}\,cm^{-2}s^{-1}$ ←
1687	6.26	15.07	1126.17	"	2.3	18	185	4	"	
1669	5.38	15.17	1141.34	"	2.0	19	178	8	"	
1726	4.94	15.86	1157.20	"	1.8	19	210	4	"	
264	4.57	2.40	1159.60	"	1.5	18	27	2	"	beams dumped
1721	7.85	15.24	1174.84	"	2.8	19	202	8	"	Luminosity (corrected) reached $1.024\times10^{31}\,cm^{-2}s^{-1}$ ←
1676	6.85	15.21	1190.05	"	2.5	18	204	7	"	
1634	5.84	14.63	1204.68	"	2.2	19	189	4	"	
1354	5.13	12.15	1216.83	"	2.0	18	187	2	"	beams dumped
1456	5.87	11.28	1228.11	"	2.5	23	129	6	"	
781	5.16	6.01	1234.12	"	2.5	22	69	4	"	
1385	4.65	11.10	1245.22	"	2.3	20	147	6	"	
1349	3.98	10.38	1256.20	"	2.1	20	121	5	"	Beams dumped
1682	6.78	14.69	1270.89	"	2.6	20	214	2	"	
1781	5.96	16.25	1287.14	"	2.1	17	209	6	"	
1752	5.68	17.42	1304.58	"	1.8	18	215	3	"	
399	4.28	3.66	1308.24	"	1.6	18	40	2	"	Beams dumped / RUN SUMMARY 6765 lost 0 events
1684	5.85	14.23	1322.47	"	2.3	19	204	4	"	
1530	5.06	13.81	1336.28	"	2.0	18	194	7	"	← today we collected already > 240 nb^{-1}
830	4.46	7.51	1343.79	"	1.8	19	84	3	"	Beams dumped
1583	6.62	13.81	1357.60	2BM	2.5	21	163	6	"	
1575	5.60	14.03	1371.63	"	2.1	19	167	5	"	
1535	5.09	13.52	1385 1392.60	"	2.0	17	184	4	"	
816	4.45	7.45	1392.60	"	1.9	19	114	2	"	
1749	6.33	15.58	1408.18	"	2.2	19	207	8	"	Beam dumped
1634	5.69	15.3	1423.21	"	2.0	17	206	10	"	
298	6.14	2.77	1425.98	"	1.7	17	29	1	"	
1974	5.24	18.33	1444.31	"	1.5	A²	248	7	"	Stopped for I.D. repair
314	4.57	2.90	1447.21	"	1.3	18	41	2	"	Beam dumped.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	TΦ REJECT $\times 10^6$	TΦ ACCEPT $\times 10^6$	T1 ACCEPT HADRONS $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4

19:30 Run 6742 ended. Start run 6743

19:50 TASSO want new fill now. I think we should keep present one for ~1 hour. After ringing other experiments, consensus is to have new filling in ½ hour.

20:00 IBM link error - link restarted succesfully.

20:20 Stop run 6744 to dump beams. Magnet → 1500 A.

20:50 New filling. Magnet → 7500 A for optimization.

21:21 PKR cannot improve background further. BP ~ 2.6. Switch on

21:25 Start run 6745 ID trip after 105 events. Reset.

21:35 I.D Trip — Reset.

22:00 Run 6745 ended — Start run 6746

22:37 Run 6746 ended — start run 6747

23:18 Run 6747 ended — Beams dumped.

24:00 Watanabe and Boudary on shift.
57 hadrons per shift is the record to beat. Last shift got 45.

00:10 New fill is ready, but PKR is optimizing. Solenoid is ~~now~~ turned up to full current.

00:19 BP = 2.7 V. start run even though they say still optimizing. Watch the meter. LG threshold 60 mV. (by Mark J. It continued another 20 min.)

00:38 Our luminosity (corrected for dead time) was for a few minutes greater than $9 \times 10^{30}\,cm^{-2}s^{-1}$. Now it is 8.72×10^{30}. TASSO has about $1.1 \times 10^{31}\,cm^{-2}s^{-1}$! (8678.8 mA/beam)

02:07 JDAS error 56-405 and 46-1 appears once each in succession. No action taken.

03:00 MARK J & TASSO want a new fill. CELLO doesn't. We think that the fill is still good since L (accepted) = 4.6×10^{30} and RL = 4.07×10^{30}. We compromise after using delaying tactics! Refill at 03:25.

03:25 Beams dumped. L = 4.3 RL = 4.1 so not too bad. Magnet down to 1500 A.

03:48 New fill ready. Optimization Solenoid up.

03:55 Start 6753.
L (dead time corrected) = 1024 E30. A new record for JADE.

04:35 Tasso calls. They are unhappy about our delaying tactics. They do not have a nice monitor like RL, and think it is a waste to run long at low luminosity. Since RL is only a monitor, and the approach to this value is becoming slower, we offered a compromise of raising our threshold to dump beams to ~20% higher than RL. I presume that RL is the average of the actual luminosity not the one corrected for dead time, so that we should compare it with yellow L on the screen. (P160)

yes!

06:20 We have L (actual) = 5.04×10^{30}
RL = 4.88×10^{30}
We refill at 06:25 before PKR changes shift (Chart.)

T1 LUMI.	<L> $\times 10^{30}$	$\int L\,dt$ RUN	$\int L\,dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

07:00 New fill ready. Optimizing. BP = 4.5 V.
Solenoid exec. error #8 and DVM went over 7536, but 2nd GO 7500 set it OK.

07:10 BP = 2.5 V and seems to be stable. Start run 6757.

07:25 BP = 2.8 V, dead time instantaneous 30%. They are still optimizing.

We finish with 58 multi-hadrons. A JADE record!

9:00 Toledo, Ulrich

8:40 Bargained on refill-time with other experiments: 9:00 was uncomfortable for CELLO because they could not switch on in this fill before 7:45 (we: 7:10), therefore: Beams to be dumped at 9:30.

10:00 New fill ready. We have lost ~5 minutes luminosity time, because we started running the magnet after injection. So we propose to raise the magnet (say up to 5000 A) just before the completion of injection, when PKR starts ramping the energy.
I+ 9.12 mA, I- 8.73 mA BP = 2.5 V

10:05 Start first run of this fill: they are quite fast in supply new beams in these days.
Is it really worthwhile to leave the magnet current during injection?

10:12 ID trip, remote reset-current

10:50 RUN 6761 started. Muon crate missing 7. reset OK.

11:35 - 6763 - - - - 5 - -

11:51 ID trip

12:20 Beams to be dumped at 12:45

12:45 Suddenly our triggers stopped although beams were still there.
MARK J suffered from the same problem. Problem caused by PKR's Branch-master-clock

12:46 Beams dumped

13:20 New fill ready. RUN 6766 started. Now trigger OK.
BP ~ 2.4 V

13:43 ID-trip

15:05 Beams to be dumped at 15:15

16:00 Mccann Naraska and Cheng on shift

Started Run 6767 at 16:23.

18:40 Would like to refill, but Synchrotron doesn't work, so we'd and keep this beam.

19:00 Beams dumped, IBM down.

19:10 Kawabata and Lee do some test.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	RECORDED EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJECT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT HADRONIC $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3 TR.	T2 COLLIN	T2 $\geq$2TOF LG>1 $\geq$1 TR	T1 LG>4
6778	26/3/81	0:19	1:02	8.6	8.2	17.8%	2023	7844	526	94	432	23.6	3942	0		493		
6779	"	1:03	1:16	8.3	7.9	14%	733	2750	203	28.5	175.2	8.0	1362	0		164		
6780																		
6781	"	1:31	2:16	7.1	6.8	11.1%	2648	7837	689	76.7	612.2	22.1	3931	0		442		
6782	"	2:16	3:05	6.4	6.0	9.2%	2926	7453	761	69.9	691.7	20.1	3766	0		397		
6783	26/3/81	3:28	4:00	9.3	9.1	21.2%	1881	7830	489	103.8	385.5	26.8	4248			526		
6784	"	4:01	4:35	8.5	8.2	17.4%	2028	7836	527	92.9	434.6	26	4231	-		494		
6785	"	4:35	5:14	7.6	7.4	15%	2295	7827	596	87.8	509.1	26.7	4243	0		504		
6786	"	5:14	5:57	6.9	6.6	12%	2530	7838	658	80.	578.2	25.2	4122	0		426		
6787	"	5:57	6:32	6.3	6.0	10.3%	2073	5664	539	55.7	483.8	17.6	2939	0		309		
6788	"	6:56	7:07	9.8	9.4	28.1%	330	1522	85.8	24.1	61.7	4.8	824	0		103		
6789	"	7:09	7:46	8.8	8.4	17.3%	2016	7837	524	90.9	433.7	25.7	4018	0		500		
6790	"	7:46	8:24	7.9	7.5	13.9%	2235	7837	582	80.8	500.8	23.4	4004	0		476		
6791	"	8:24	09:10	7.0	6.6	11.1%	2559	7852	666	73.6	592.1	21.4	3816	0		430		
6792	"	9:10	09:25	6.7	6.3	9.6%	828	2148	215	20.6	194	5.9	1085	0		124		
6793	"	10:27	11:01	8.3	8.0	17.5	1843	6973	480	83.8	397	21.8	3586	0		527		
6794	"	15:53	16:32	8.2	8.1	20.5	2086	7808	543	111	431	23.1	4254	0		634		
6795	"	16:32	17:15	7.3	7.2	12.4	2512	7842	653	80.9	573	22.7	3840	0		477		
6796	"	17:15	18:11	6.4	6.2	9.6	2982	6593	776	74.1	702	21.2	3956	0		433		
6797	"	18:11	18:57	5.8	5.6	7.7	2646	4837	688	53.1	63.5	15.4	3068	0		—		
6798	"	19:22	19:35	8.9	8.9	19.2	793	2357	201	32.5	162.6	9.4	1570	0		—		
6799	"	19:36	20:13	8.0	8.0	14.3	2227	6522	579	83.1	496.5	24.6	4119	0		—		
6800	"	20:14	20:56	7.1	7.1	12.1	2531	6614	658	79.4	579.0	23.5	4082	0		—		
6801	"	21:02	21:50	6.2	6.2	9.8	2903	6685	755	74.1	680.6	21.1	3911	0		—		
6802	"	21:51	22:22	1.5	1.9	8.2	1796	3623	467	38.5	423.6	10.8	2060	0				
6803	"	23:12	23:42	9.3	8.9	17.2	1581	5565	411	70.6	333.8	17.8	3130	0		426		
6804	27/3/81	0:43	1:09	9.8	9.7	20.5	1108	3373	288	59	224	14.5	2360	0		346		
6805	"	3:41	4:23	9.0	8.6	16.8	2206	6106	574	97	477	27.5	4606	0		596		
6806	"	4:29	4:59	8.3	7.8	13.9	1963	5235	510	71.2	439	21.3	3523	0		393		
6807	"	5:04	5:52	7.3	6.9	10.6	2904	6545	755	78.7	676	25.3	4201	0		470		
6808	"	5:53	6:29	6.8	6.4	8.8	2139	4274	557	49	508	14.9	2697	0		290		
6809	"	8:27	9:03	9.6	9.8	18.8	2080	7842	541.3	101.8	439.5	27.4	4225	0		594		
6810	"	9:03	9:45	7.8	7.9	14.1	2482	7835	645.6	90.8	554.7	24.8	3859	0		474		
6811	"	9:45	10:34	6.9	7.0	10.2	2929	7843	762.1	77.5	684.6	23.7	3802	0		438		
6812	"	10:35	11:31	6.0	6.1	8.3	3372	7848	877.6	72.5	805.1	21.3	3772	0		409		
6813	"	11:32	11:33	6.0	6.1	9.1	84	194	21.8	1.67	20.1	0.46	104	0		11		

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	T2 COLLIN	T2 $\geq$2TOF LG>1 $\geq$1TR	T1 LG>4	T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)
										1800	1355	1880	1844	8.21	16.61	1463.82	IBM	2.5	19	205	6	16.993
										700	467	665	678	7.78	6.89	1469.91	"	2.1	17	72	3	"
										2207	1198	2048	1682	5.76	15.27	1485.18	TAPE 129	2.0	17	218	7	"
										2227	1073	1898	1630	5.06	14.81	1499.99	IBM	1.7	18	184	11	"
										1735	1567	1963	1464	6.93	13.03	1513.02	IBM	2.7	20	170	7	16.993
										1894	1581	1972	1475	6.39	12.96	1525.98	"	2.4	18	191	9	"
										2085	1461	2016	1404	5.33	12.23	1538.21	"	2.2	18	183	7	"
										2211	1349	2060	1487	5.20	13.16	1551.37	"	2.0	18	194	4	"
										1665	895	1473	1147	4.97	10.31	1561.68	"	1.8	17	136	6	"
										285	325	375	275	[illegible]	3.55	1565.23	"	2.7	20	33	2	"
										1786	1502	2099	1580	6.81	13.74	1578.97	"	2.5	18	182	5	"
										2080	1329	2021	1661	6.75	15.08	1584.05	"	2.3	18	208	10	"
										2226	1156	2053	1831	6.61	16.82	1610.97	"	1.9	16	234	6	"
										689	287	548	472	5.15	4.27	1615.24	"	1.7	17	51	1	"
										1733	1229	1680	1564	7.63	14.06	1629.30	"	2.6	19	185	6	"
										1791	1342	1647	1735	7.38	15.40	1644.70	"	2.6	23	184	4	"
										2083	1148	1859	1971	7.22	18.13	1662.83	"	2.1	19	229	14	"
										2432	1627	1898	1817	5.60	16.69	1679.54	"	1.9	18%	257	7	11
										1947	798	1397	1307	4.60	12.17	1691.71	"	1.6	19	166	6	16993
										699	584	669	535	6.60	5.10	1696.81	"	2.0	21	47	3	"
										1968	1376	1894	1665	6.71	14.96	1711.77	"	1.8	19	212	5	"
										2203	1266	1956	1638	5.82	14.74	1726.51	"	1.5	18	173	8	"
										2369	1123	1958	1788	5.59	16.22	1742.73	"	1.4	17	203	6	"
										1244	554	1056	996	5.10	9.16	1751.89	"	1.3	16	112	3	"
										1399	1213	1259	953	5.52	8.72	1760.61	"	?	21	118	6	"
										979	777	962	787	6.27	6.94	1767.55	"	2.6	22	104	4	"
										1850	1568	1613	1474	5.81	12.82	1780.37	"	2.5	24	181	3	"
										1652	1161	1396	1371	5.52	10.33	1791.20	"	2.3	21	147	4	"
										2304	1341	1773	1696	5.23	15.18	1806.38	"	1.8	19	208	4	"
										1647	741	1203	1121	4.82	10.31	1816.69	"	1.6	19	113	7	"
										1891	1331	1633	1824	7.78	16.17	1832.86	IBM	2.6	22	180	3	"
										2122	1196	1844	1992	7.27	18.23	1850.96	"	2.2	18	217	8	"
										2302	1109	1886	1998	6.33	18.53	1869.49	"	1.9	17	233	9	"
										2439	1019	1995	1952	5.36	18.09	1887.58	"	1.6	17	29	7	"
										74	22	43	44	5.05	0.42	1888.00	"	1.4	22	7	0	"

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RUN 6778: 26/3/81 0:19 1:02 8.6 8.2 17.8% 2023 7844 526 94 432 23.6 3942 0 493 — IBM Problem
RUN 6779: " 1:03 1:16 8.3 7.9 14% 733 2750 203 28.5 175.2 8.0 1362 0 164 — IBM Problem ∞ TOO FEW EVENTS FOR RUN SUM
RUN 6780:
RUN 6781: " 1:31 2:16 7.1 6.8 11.1% 2648 7837 689 76.7 612.2 22.1 3931 0 442 — EVENT ON TAPE !
RUN 6782: " 2:16 3:05 6.4 6.0 9.2% 2926 7453 761 69.9 691.7 20.1 3766 0 397 — Beam dumped
RUN 6783: 26/3/81 3:28 4:00 9.3 9.1 21.2% 1881 7830 489 103.8 385.5 26.8 4248 526
RUN 6784: " 4:01 4:35 8.5 8.2 17.4% 2028 7836 527 92.9 434.6 26 4231 - 494
RUN 6785: " 4:35 5:14 7.6 7.4 15% 2295 7827 596 87.8 509.1 26.7 4243 0 504
RUN 6786: " 5:14 5:57 6.9 6.6 12% 2530 7838 658 80. 578.2 25.2 4122 0 426
RUN 6787: " 5:57 6:32 6.3 6.0 10.3% 2073 5664 539 55.7 483.8 17.6 2939 0 309
RUN 6788: " 6:56 7:07 9.8 9.4 28.1% 330 1522 85.8 24.1 61.7 4.8 824 0 103
RUN 6789: " 7:09 7:46 8.8 8.4 17.3% 2016 7837 524 90.9 433.7 25.7 4018 0 500 — Beam dumped
RUN 6790: " 7:46 8:24 7.9 7.5 13.9% 2235 7837 582 80.8 500.8 23.4 4004 0 476 — MIPROC PROBLEM.
RUN 6791: " 8:24 09:10 7.0 6.6 11.1% 2559 7852 666 73.6 592.1 21.4 3816 0 430
RUN 6792: " 9:10 09:25 6.7 6.3 9.6% 828 2148 215 20.6 194 5.9 1085 0 124
RUN 6793: " 10:27 11:01 8.3 8.0 17.5 1843 6973 480 83.8 397 21.8 3586 0 527 — beam lost
RUN 6794: " 15:53 16:32 8.2 8.1 20.5 2086 7808 543 111 431 23.1 4254 0 634 — shut down
RUN 6795: " 16:32 17:15 7.3 7.2 12.4 2512 7842 653 80.9 573 22.7 3840 0 477
RUN 6796: " 17:15 18:11 6.4 6.2 9.6 2982 6593 776 74.1 702 21.2 3956 0 433
RUN 6797: " 18:11 18:57 5.8 5.6 7.7 2646 4837 688 53.1 63.5 15.4 3068 0 —
RUN 6798: " 19:22 19:35 8.9 8.9 19.2 793 2357 201 32.5 162.6 9.4 1570 0 —
RUN 6799: " 19:36 20:13 8.0 8.0 14.3 2227 6522 579 83.1 496.5 24.6 4119 0 —
RUN 6800: " 20:14 20:56 7.1 7.1 12.1 2531 6614 658 79.4 579.0 23.5 4082 0 —
RUN 6801: " 21:02 21:50 6.2 6.2 9.8 2903 6685 755 74.1 680.6 21.1 3911 0 —
RUN 6802: " 21:51 22:22 1.5 1.9 8.2 1796 3623 467 38.5 423.6 10.8 2060 0
RUN 6803: " 23:12 23:42 9.3 8.9 17.2 1581 5565 411 70.6 333.8 17.8 3130 0 426
RUN 6804: 27/3/81 0:43 1:09 9.8 9.7 20.5 1108 3373 288 59 224 14.5 2360 0 346
RUN 6805: " 3:41 4:23 9.0 8.6 16.8 2206 6106 574 97 477 27.5 4606 0 596
RUN 6806: " 4:29 4:59 8.3 7.8 13.9 1963 5235 510 71.2 439 21.3 3523 0 393
RUN 6807: " 5:04 5:52 7.3 6.9 10.6 2904 6545 755 78.7 676 25.3 4201 0 470
RUN 6808: " 5:53 6:29 6.8 6.4 8.8 2139 4274 557 49 508 14.9 2697 0 290
RUN 6809: " 8:27 9:03 9.6 9.8 18.8 2080 7842 541.3 101.8 439.5 27.4 4225 0 594
RUN 6810: " 9:03 9:45 7.8 7.9 14.1 2482 7835 645.6 90.8 554.7 24.8 3859 0 474
RUN 6811: " 9:45 10:34 6.9 7.0 10.2 2929 7843 762.1 77.5 684.6 23.7 3802 0 438
RUN 6812: " 10:35 11:31 6.0 6.1 8.3 3372 7848 877.6 72.5 805.1 21.3 3772 0 409
RUN 6813: " 11:32 11:33 6.0 6.1 9.1 84 194 21.8 1.67 20.1 0.46 104 0 11 — Beam dumped [illegible]

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT HADRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG>1 ≥1 TR	T1 LG>4

T1 LUMI.	$\langle L \rangle$ x10³⁰	Shdt RUN	Shdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

25.3.1981

20.00 We are running again, ID current shows typical horizontal enhancements. Asked PKR to improve. They try.

22.00 Runs 6773 to 6775 have in Segment 1 and 2 wrong amplitude due to wrong 20 V at the preamps. I had produced a short circuit during a pulser test. From Run 6776 it should be ok again. (on+2)

23.05 Looked at mean A+ + A- — looks OK now.

26.3.81

0.00 WENNINGER, BAMFORD.
0.15 Slow run 6778
1.02 Slow run 6779
1.30 Run 6779 stopped due to IBM error 54. Run 6780 also stopped after ~14 events due to same problem. So we slow run 6781 and output to mag. tape.
2.16 Slow run 6782 output to IBM.
2.30 BP mean ADC # 14 negative, run 6781 was to check the next run; ⇐ Run 6782 checked OK.
3.05 Beam dumped
3.25 Start run 6783 ... 6787
6.35 Beam dumped
6.55 Slow run 6788
7.00 ID. trip pause run 6788. Reset.
7.10 JOAS errors 46, follow instructions on book. stop run 6788. Call Eichler after 8.00
Slow new run 6789 MIPROC OFF.
7.30 ID. trip. Avoids cursor. pause run 6789. Reset.
7.45 End run 6789 / start run 6790.
8.00 We accumulated ≥70 multi-hadron events during last shift — please do better!
8.00 Ball Matsumura
08.53 ID trip. reset ok.
09.23 TASSO call to request new fill. As they do so, beams are lost. ID trip. Stop run 6792.
Rumours from TASSO of PETRA close-down at 12.00.
10.05 New fill ready, optimising background.
10.24 Start run 6793. PETRA will shut for tourists at 11.00.
11.00 PETRA shut-down. Stop run 6793.
Magnet currents ⟶ 1000 A.
Muon system -x, +z station (roof + endwall -x, +z quadrants) was down from end run 6781 (02:15, 26/3/81)

to start run 6792 (09:10, 26/3/81). HT. fault. Please examine muon hitmap and mean hits/chamber histograms carefully. If you see any gaps ≥4 channels wide, call expert immediately. AB
15.50 New filling ready. Magnet ⟶ 7500 A BP ~ 26. Start run 6794.
HV error manifame 1, channel 19 Reset.
16:10 ID trip Reset OK. Dead time is 25%.
17.20 ID trip.
19.30 Run 6798 stopped because of Nord ERROR 13 in 34323
Page fault for non-demand

M/9

20.55 Change of DL8 after Run 6800 was dead for last run.

22.39 Beam lost (Sender)
23.41 Beam lost again
27/7/81
0:00 EICHLER, BEAM ON SHIFT
0:42 New fill, run 6804 started. First 40 events at wrong field
Miproc has now the same pedestals as IBM-program. Also I try again the instruction which previously failed. We have improved the ground connections inside the Miproc according to Krebiehl directions. This has certainly improved the performance. Have to wait for more statistics which is coming in at 4Hz.
PKR tries all background reduction techniques for JADE. BP-current still at 2.5 Volts.
Chamber current ~~not ok~~ histogram does not look flat. Maxima at top and bottom
1:08 Beams lost. Miproc is more stable than Petra!
2:00 Change to RUN-START program: after T2-trigger constants have been written to serial crate in Rackrack, this crate is set to "inhibit". This should reduce (eliminate?) the events with many wires set with amplitude 0 (pick-up-events)
2:10 The last two beam losses were caused by failure in cooling system of one of the transmitters. K-people are working on it. No time estimate.
3:38 New fill. Start run 6805
3:45 I.D. trips due to magnet trip (VORLAUFBAUCH). Reset.
Muon crate missing part 12 flashes very often
Many, many spikes in jet wire map
For experts: the stop run signal in case of ID-trip does not work any more!
5:00 error 54 xberror 1400 on IBM-channel. Call operator. He resets channel
5:03 continue data taking with new run.

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	T0 REJECT x10⁶	T0 ACCEPT x10⁶	T1 ACCEPT HADRONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 ≥2 TOF LG>1 ≥1 TR	T1 LG>4

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27/3/81

6:27 Beam dumped for new fill. Vakuum-interlock-Störung / BREAK

8.00 Barth & Zhang on shift + Bethke
8.15 fill ready start tuning
8.25 Start run 6809 $I_{BP} = 2.6$
11.30 ask for a new fill
11.35 IBM went down, but PETRA is not yet ready
IBM-operators say everything crashed at once and they do not know yet the reason
1.15 filling ready IBM down write on tape
Beam pipe voltage 2.3 for 9.8 on 9.5 mA !! you see it is possible to achieve good conditions for us.

Run 6814 does not exist
Write to mag tape

17.20 Bethke + Zhang on shift — but only once. Do not switch off the Taproc in this case!
14.27 Error 46 (TDAS) appeared. Did Eichler's instructions and started new run. Eichler not reachable.
(Error 46 appeared together with Error 56: TOF-Bunch wrong length).
15.15 switched on again up
15.25 Magnet-programm died with Error 8, IER=1. Magnet turned to 7500 by hand.
15.58 Started run 6820, BP: 2.5 V

16.00 Friday 27/3/81 Dieter Heidt & Fred Loehrer on shift.
18.10. Request new filling.
18.55 New fill ready start run 6823
19.35 End run 6823 Start 6824
20.40. IBM Error 54 Suberror 140000 } Phoned IBM. They will fix.
Timeout at MPX station
20.50 IBM up again. But much printing on line printer.
Followed by IBM error 53 Suberror 0
21.00. The series of errors eventually cleared by themselves (IBM disclaimed any responsibility after clearing error 54.
Run 6826 started successfully (eventually).

T1 LUMI.	<L> x10³⁰	Shdt RUN	Shdt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

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21.45 Request beam dump for new filling
22.55 New fill ready BP 2.5 V. Start run 6827
23.21 beam lost — I.D. trip Anode current. Reset but then found spark trip R1 9→16 + R1.17. Assume these to be spurious & reset.
Chamber expert (Siegie Bethke) advises that we can put volts back onto I.D. watching chain current closely.
28.3.81 0.00 J. Allison, B. Naroska
Switched on I.D., Sparking in R1.1. Reset and switched on, currents look more or less normal.
1 V 34 dead, call Bethke again, he will come. Channel # 225-240.
0.33 12.32 I.D tripped. Run ended (# 6828). Beams lost again (unknown reason) ↓ repaired
1.19
2.00 Frequently IBM-busy, deadtime ~ 60%, call them
5.03 ID trip. # 6833 stripped. It was a MAGNET TRIP. ~~Vorlauf < Pump 2 ask~~. Pumpe ausgefallen 1+2.
Would not reset. Pump motor had tripped because motor was overheating. "May re-occur" (K-purple).
5.30 Reset & magnet current back on.
6.25 Ralph Eichler declares MIPROC working — but would not allow me to activate rejection !!!!

7.05 In the display of Anode currents single channels shoot up to approximately twice the height as the rest and fall down again. "This phenomenon has been going on for the whole shift. Experts please comment!

7.30 Asked for new filling at 8.00

8.00 Eckst, Zhang, Bethke on shift (J^-: 3.1 mA J^+: 8.6 mA)
8.42 Start run 6837 after new filling. BP current: 2.7 V. Chamber current very unstable (swinging and many single spikes). Asked PKR to make it better, but. They tried to optimize, but without any success. So we run at this conditions.
Explanation of the fast single spikes in chamber-current: The current is not displayed continuously, the channels are scanned one after the other. So a short spike in the whole chamber may appear as one-cell-spike.
9:05 The spikes begin to disappear (not all, but most of them); BP-current now 2.5 V (J^-=8.9, J^+=8.5)
9:20 looking to histograms of current run → Anode current with very crazy shape; but on the rope it is quiet normal! → Ended run 6837, started 6838 ⇒ histogram now o.k. (See remarks + histograms - folder).
12:00 Since run 6837 most events don't have a correct Jetch-current-Bank; ⇒ only few events/run are

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	TØ REJECT x10⁶	TØ ACCEPT x10⁶	T1 ACCEPT HADTONG x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3 TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1 TR	T1 LG>1
6815	27.3.81	~12.25	12.56	8.5	8.5		1859	6395	483.4	72.1	411.3	20.7	3489	0	480	1602	1397	1571
6816	"	12.57	13.45	7.5	7.6		2870	7848	746.8	144.6	602.1	24.5	4204	0	512	2191	1532	1931
6817	"	13.45	14.28	6.8	6.9		2545	6597	662.3	65.1	597.2	19.5	3441	0	381	1966	1162	1629
6818	"	14.28	14.44	6.5	6.6		891	2121	231.8	20.0	211.8	6.06	1093	0	126	687	331	533
6819	"	14.46	15.12	6.2	6.2		1590	3477	413.7	32.3	381.4	9.9	1809	0	213	1158	517	871
6820	27.3.81	15:58	16.38	7.0	8.4		2333	7834	607.1	90.1	517.0	29.4	4083	0	519	2013	1387	1983
6821	"	16.39	17.26	6.1	7.5		2765	7844	719.0	84.5	634.5	27.6	4084	0	494	2260	1267	1945
6822	"	17.26	18.14	5.4	6.7		2885	7060	750.3	70.7	679.7	22.8	3744	0	394	2275	1063	1652
6823	27/3/81	19.01	19.35	7.8	7.8		2084	7848	542.5	92.7	449.8	27.0	4373	0	544	1982	1662	1884
6824	"	19.36	20.21	6.9	6.9		2647	7840	688.9	84.5	604.4	27.0	4134	0	492	2232	1427	1955
6825	"	20.21	21.00	6.3	6.3		2294	3846	596.8	261.5	335.3	13.2	2077	0	236	1225	663	944
6826	"	21.01	21.52	5.6	5.6		3058	6275	795.5	94.1	701.5	21.4	3368	0	368	2151	916	1532
6827	27/3/81	22.57	23.22	~8.0	~8.0		1346	4554	350.4	55.5	294.4	16.8	2559	0	306	1085	1045	1088
6828	28/3/81	00.08	00.34	9.4	9.3		1486	5224	386	63.5	323	20.3	2791	0	339	1240	1066	1272
6829	"	01.19	2.01	9	9		2382	7846	619	127	491	31.3	4132	0	518	1996	1428	1842
6830	"	2.01	2.47	8.0	8		2713	7854	705	85	620	29.4	4029	0	507	2296	1217	1864
6831	"	2.47	3.41	6.99	7.11		3196	7845	831	80.5	750	26.7	4017	0	420	2502	1081	1863
6832	"	3.40	4.06	6.14	6.22		1452	3256	377	31.3	346	10.2	1714	0	—	1118	462	732
6833	"	4.47	5.05	8.8	8.6		105	3821	273	48.3	225.3	15.5	2045	—	—	964	737	886
6834	"	5.32	6.19	7.2	7.0		2786	7884	724	85.4	638	30.1	4081	-	1358	2266	1358	1817
6835	"	6.19	7.13	6.4	6.2		3227	8339	839	80.4	758.7	27.8	4139	—	—	2976	1120	1332
6836	"	7.14	8.03	5.8	5.5		2947	6458	767	62.0	705.0	20.9	3370	0	360	2201	883	1495
6837	"	8.44	9.19	8.3	8.7		1754	6220	456.5	74.9	381.6	24.1	3333	0	444	1574	1127	1467
6838	"	9.19	10.3	7.4	7.8		2593	7842	674.4	85.8	588.6	29.5	3934	0	489	2171	1225	1895
6839	"	10.03	10.53	6.5	6.9		2940	7849	764.0	78.9	685.5	26.8	3908	0	467	2383	1032	1879
6840	"	10.53	11.41	5.7	6.0		3370	7849	876	74	802	23	3545	0	387	2619	967	1836
6841	"	11.50	12.23	5.3	5.6		1975	4090	513.8	37.9	475.9	11.8	2040	0	230	1451	440	967
6842	computer ended run after the 1st trigger without any Error-output on display: "BP AC 2099 no response" ⇒ processor restarted																	
6843	and without luminosect. On printer:																	
6844																		
6845	"	13.40	14.00	8.7	8.5		664	2530	172.9	33.4	139.5	9.9	1502	0	166	585	543	561
6846	"	14.09	14.15	8.4	8.2		326	1298	84.8	15.7	69.1	4.8	728	0	80	296	261	306
6847	"	14.21	15.01	7.5	7.4		2393	7846	623.1	92.9	530.1	33.3	4413	0	523	2133 20	1480	1795
6848	"	15.02	15.45	6.8	6.7		2555	7838	665.0	68.1	578.9	30.1	4397	0	488	2221	1482	1878
6849	"	15.45	16.12	6.4	6.3		1188	3325	309	35.2	274	11.9	1783	0	216	975	568	839

T1 LUMI.	<L> x10³⁰	∫Ldt RUN	∫Ldt	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)	
1199	5.89	10.95	1898.25	TAPE FH 102	2	19	134	5	16.995	on [redacted] Tape FH 102
1555	7.99	14.32	1913.27	IBM	1.9	18	165	4	"	
1401	5.10	12.97	1926.24	"	1.6	18	170	4	"	
443	455	4.06	1930.30	"	1.4	18	64	1	"	
732	9.24	6.34	1937.64	"	1.4	18	93	1	"	Beam dumped for new fill
1625	6.24	14.55	1951.59	IBM	2.4	18	214	8	"	
1715	5.65	15.61	1967.20	"	2.1	18	190	6	"	
1527	4.83	13.94	1981.14	"	1.8	18	157	3	"	Beams dumped for re-fill
1461	6.12	12.76	1993.90	IBM	2.5	20	164	6	"	
1620	5.52	14.61	2008.51	"	2.1	18	180	11	"	
763	3.02	6.93	2015.44	"	1.9	18	89	3	"	Run stopped aft IBM problems.
1280	3.90	11.91	2027.35	"	1.7	18	153	3	"	Beams dumped for new fill
831	5.61	7.55	2034.90	IBM	2.5	20	107	1	"	Beam lost
1070	6.50	9.65	— 8	"	2.5	19	118	0	"	I.D trip. Dead cell #225-240. Beams lost.
1723	6.58	15.64	2050.54	"	2.5	18	192	5	"	
1844	6.23	16.90	2067.44	"	2.0	18	230	9	"	
1832	5.30	16.92	2084.36	"	1.7	18	244	6	"	
751	4.79	6.96	2091.32	"	1.6	18	75	7	"	
837	7.25	7.62	2098.94	"	2.2	19	129	2	"	Magnet trip.
1804	5.94	16.54	2115.48	"	2.0	17	231	7	"	
1748	501	16.17	2131.65	"	1.7	2[illegible]	214	8	"	
1579	474	13.98	2145.63	"	1.5	19	169	4	"	Beam dumped for new fill
1374	6.90	12.10	2157.73	"	2.6	20	166	7	"	
1848	6.45	16.73	2174.46	"	2.3	17	230	7	"	ended because of energy anode-current-limit program (probe sufficient)
1935	6.01	17.66	2192.12	"	2.1	18	220	12	"	
1325	5.25	17.7	2209.8	"	1.6	18	241	9	"	[40 Multi Hadron this fill !
1003	4,70	9.3	2219.1	"	~1.5	18	176	5	16,993	Beam dumped for new fill
428	5.60	3.72	2222.82	IBM	2.5	24	56	2	16.993	stopped because of second time-out errors (DC8-crate)
210	5.27	1.72	2224.54	"	2.5	23	18	1	"	
1506	5.54	13.38	2237.92	"	2.3	19	161	4	"	
1446	5.05	12.89	2250.81	"	2.0	19	179	7	"	
626	4.76	5.65	2256.46	"	1.8	18	85	0	"	

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJCT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT HADRONS $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3 TOF 3 TR.	T2 COLLIN	T2 $\geq$2 TOF LG $\geq$1 TR	T1 LG74

recorded in the histograms 26 / 27 (anode-current , chain-current).
The spikes on the chamber-current also seem to be an electronic mistake. To forget the remarks at 8:42

13:30 (After electronic change): Now computer reads out the Jetset-current-bank and fills the histograms.
But: Scope-view "Chamber-current" is now totally crazy and random. Also the histogram #26! Called Matsumura for repair.
(The anode-current scope in the Rudewide shows the reality!

~13:35 After new fill started run 6842 → terminated by computer after 1st Trigger without error message on screen and without Runsheet. Tried again → same happenings.
On line printer occured "BP AC 2019 no response" (Wagner had switched off BP-crate). Started processor and continued running on

13:49 with run 6845 (BP current = 2.4)
14:00 Stopped run on request of ID cf because BP current fluctuated heavily (also anode-current).
Phoned to PKR → they are adjusting.

14:07 Started run 6846 , BP-current : 2.5 V
14:15 Stopped run 6846 because of several Time-out errors 44 Sub 705 in a DL8-crate. Checked all cables and tried again: error disappeared.

14.21 Started run 6847 (BP current 2.4V); without any error.

16:00 Goddard / Minowa on shift
16:05 Pause run 6849 to repair ~~ID~~. something with ID.
1612 Stop " "
1632 Beams dumped
1654 New fill ready BP = 4.0
1718 Optimization finished, but ID is not ready
1726 start run 6850
17:30 Anode-current-display and readout repaired so far. But still are simple (fast and random) spikes on the display. Don't worry about it.

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	Skdt RUN	Skdt	IBM/ TAPE	BEAM PIPE	REJCT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

29.3.81
0:00 Warning, Observer on shift
0:30 asked for a new fill 01:00 Observer !
1:50 IBM stopped, to update summertime. We write on tape
2:00 = 3:00 change from winter to summer time
⇒ CAMAC + NORD time has still to be changed
4:00 IBM down again, we write on tapes
4:30 asked for a new fill
6:57 beams lost, synchrotron fall

8:00 Bethke / Dittmann on shift
10:00 PKR phoned: One transformator lost a lot of oil. They are repairing. No chance for new beams before 12:00.

12:00 Clocks adjusted by D.C.
14:05 New fill → lost at 14:25
14:25 New fill. Start run 6868 , BP current = 2.6 V
15.50 Magnet run down to 1500 ("Kurze Unterbrechung") —— 1 Sender missing.
16.00 Sunday 29/3/81 Takeda and Fred Loebinger on shift
17.10 Stable beams — Lost before we have a chance to switch on.
17.55 Stable beams BP. 2.6 We switch on.
18.00 Error message on dot printer.
" ERROR IN OPENING FILE FOR READ ### 34 2 "
No discription of it in 'WHAT TO KNOW about JDAS'.
19:45 LG threshold adjusted to 55 mV
20.30 Beams dumped for new filling
21,25 Stable beams — start run 6873 BP: 2.7
22.50 This filling has had relatively low luminities (5×10^{30} at start). We ask for new fill at 23.00
23.20 Problems with Septum E^+
23.35 Stable beams — start run 6876 BP. = 2.7
23.40 Pause & turn off I.D. for beam twiddling.
23.45 Beam twiddling led to Beams Lost!
30/3/81
00.05 "Kurze Unterbrechung" — Run magnet down to 5000 A
0.07 Drumm and Goddard on shift.
~~0~~ 0.20 Injection starts again, tune works again. It will be probably need ~~two~~ one day. — So far: Luminosity and beam-lifetime worse!
0.50 Restart data taking

RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS x10⁶	Tφ REJECT x10⁶	Tφ ACCEPT x10⁶	T1 ACCEPT PROTONS x10⁶	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 ≥2TOF LG>1 ≥1TR	T1 LG>4
6850	28.3.81	17.26	18.00	7.8	8.4	12.6	2077	7838	540	96.4	444	28.6	4325	0	503	1825	1729	1900
6851	"	18.01	18.44	7.0	7.6	12.6	2528	7850	658	83	575	27.5	4067	0	454	2108	1295	1972
6852	"	18.44	19.33	6.2	6.8	7.4	2874	7850	748	80	668	25.1	4071	0	454	2267	1254	1951
6853	"	19.33	20.18	5.6	6.1	9.7	2691	6514	700	67	632	19.7	3491	0	374	2043	1020	1586
6854	"	21.03	21.43	8.3	8.8	17.8	2324	7839	604	87.7	514	31.3	4140	0	509	2085	1257	1756
6855	"	21.43	22.27	7.4	7.9	8.1	2605	7847	678	83.2	594	28.4	3989	0	467	2221	1100	1860
6856	"	22.27	23.18	6.5	7.0	10.1	3024	7847	788	79	708	26	4075	0	487	2437	1094	1828
6857	"	23.18	0.17	5.7	6.2	8.2	3523	7851	917	74.9	842	23.6	4087	0	455	2661	935	1808
6858	"	0.18	0.31	5.6	6.0	7.0	813	1616	211	14.8	197	4.6	858	0	90	588	200	354
6859	"	1.04	1.41	9.1	9.2	16.2	2202	7844	573	92.6	480	28.2	4319	0	487	1024	1531	1932
6860	"	1.42	1.52	8.2	8.3	15.3	571	2001	148	22.7	126	7.0	1103	0	123	539	384	461
6861	"	1.53	3.28	8.0	8.1	13.4	2034	6859	544	73.2	471	22.1	3867	0	410	1781	1205	1508
6862	"	3.30	3.58	7.3	7.4	12.3	1658	5193	431	52.1	378	15.9	2948	0	324	1371	867	1176
6863	"	4.00	4.33	6.8	6.9	11.2	1914	5500	438	56.8	442	17.0	3224	0	322	1552	891	1231
6865	"	5.13	5.53	9.0	9.3	14.1	2340	7845	609	85.8	523	28.6	4102	0	508	1988	1319	1826
6866	"	5.54	6.39	8.1	4.4	13.1	2683	7847	698	91.6	607	26.4	4065	0	493	2198	1491	1908
6867	"	6.39	6.57	7.3	7.5	10.0	1065	2727	277	27.7	244	8.7	1437	0	158	951	372	617
6868	29.3.81	14.56	15.28	8.4	8.7	18.6	1936	7399	503.2	93.8	405.1	23.6	4065	0	542	1654	1361	1655
6869	"	17.56	18.36	7.9	8.0	13.9	2381	7827	619	86.2	533	28.0	4131	0	502	2043	1157	1800
6870	"	18.37	19.23	7.0	7.0	11.0	2751	7847	716	78.7	637	24.0	3985	0	454	2182	1147	1929
6871	"	19.23	20.17	6.1	6.2	8.9	3191	7841	830	73.9	756	21.7	3936	0	423	2355	1085	1925
6872	"	20.17	20.29	5.9	6.0	7.9	721	1645	188	14.9	173	4.2	872	0	66	551	233	390
6873	29/3/81	21.24	22.01	7.9	8.2	16.4	2231	7852	581	95.1	486	25.5	4518	0	538	1824	1790	1902
6874	"	22.02	22.44	6.9	7.3	12.4	2520	7851	656	81.1	575	22.8	4387	0	479	2009	1792	1904
6875	"	22.45	23.00	6.7	7.0	10.7	894	2524	232	24.9	207	7.1	1395	0	142	684	553	695
6876	29/3/81	23.36	23.46	9.0	9.3	25.5	96	408	25.0	6.4	18.6	1.2	243	0	28	85	106	86
6877	30/3/81	0.50	1.25	8.1	8.1	17.1	2088	7846	542	92.7	449	23	4484	0	504	1690	1974	1878
6878	"	1.25	1.40	7.8	7.8	12.6	870	2721	226	28.5	189	8.3	1513	0	189	694	577	668
6879	"	4.48	5.29	8.3	7.9	14.8	2387	7851	621	91.9	530	29.5	4363	0	525	2049	1473	1874
6880	"	5.29	6.20	7.3	6.3	10.8	3056	7849	795	85.9	709	30.4	4303	0	432	2448	1361	1965
6881	"	6.20	7.19	6.5	6.1	8.9	3506	7847	913	80.9	832	27.2	4366	0	462	2645	1306	1911
6882	"	7.19	8.00	6.1	5.6	11.9	2396	4448	625	74.4	550	15.0	2611	0	268	1712	708	1047
6883	"	8.47	9.20	6.9	8.1	12.9	1979	5807	515	66.5	444	20.8	3020	0	402	1642	856	1290
6884	"	10.19	10.54	8.3	8.5	17.5	2090	7846	544	95.2	449	26.0	4192	0	519	1747	1477	1787
6885	"	10.54	11.36	7.4	7.7	12.8	2481	7843	646	82.9	513	26.0	4172	0	480	2145	1281	1859

T1 LUMI.	$\langle L \rangle$ x10³⁰	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJECT EVENT FRACTION %	# BHABHA	# MULTI HADR.	BEAM ENERGY (GeV)
1420	6.09	12.64	2269.10	IBM	2.5	20	167	6	16.993
1656	5.97	15.09	2287.17	"	2.2				
1639	5.21	14.98	2293.17	"	1.9	19	195	6	"
1317	4.86	11.99	2316.16	"	1.7	18	159	3	"
1808	7.0	16.28	2327.44	"	2.6	18	212	4	"
1752	6.46	16.83	2344.27	"	2.4	20	219	4	"
1817	5.44	16.48	2360.75	"	2.0	18	218	7	"
1813	4.75	16.73	2377.48	"	1.7	18	206	4	"
373	4.37	3.55	2381.03	"	1.7	20	44	1	"
1585	6.34	13.95	2394.98	"	2.45	20	178	8	"
405	6.05	3.45	2398.43	"	2.3	19	41	3	"
1337	5.66	11.85	2410.28	FM125	2.2	21	160	7	"
958	5.07	8.41	2418.69	IBM	2.0	22	116	7	"
960	4.38	8.39	2427.08	FM127	2.0	22	122	4	"
1788	6.87	16.08	2443.16	IBM	2.4	18	233	5	"
1769	5.32	15.89	2459.05	"	2.2	19	238	5	"
622	5.34	5.69	2464.74	"	1.9	19	70	6	"
1530	6.95	13.45	2478.19	IBM	2.6	23	176	4	16.993
1747	6.61	15.93	2493.92	"	2.5	21	220	12	"
1798	5.98	16.46	2510.38	"	2.2	19	221	5	"
1816	5.19	16.58	2526.96	"	1.8	18	240	7	"
353	4.54	3.27	2530.23	"	1.6	20	50	1	"
1282	5.03	11.23	2541.46	IBM	2.6	22	161	7	16.993
1215	4.61	11.62	2553.08	"	2.3	18	135	2	"
381	3.85	3.44	2556.52	"	2.0	19	37	1	"
69	6.51	0.62	2557.14	IBM	2.7	24	10	0	16.993
1305	5.60	11.69	2568.83	"	2.6	22	186	2	"
476	5.00	4.35	2573.18	"	2.4	20	53	0	"
1488	5.57	13.30	2586.48	"	2.6	20	178	8	"
1484	4.43	13.55	2600.03	"	2.4	19	191	9	"
1411	3.69	12.94	2612.97	"	2.2	19	166	4	"
725	2.78	6.67	2619.64	"	1.8	21	92	2	"
1383	6.31	12.48	2632.12	"	2.3	19	164	1	"
1687	6.82	14.26	2646.38	"	2.6	22	161	8	"
1654	5.93	14.72	2661.10	"	2.3	19	186	8	"

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RUN	DATE	START	STOP	I^+	I^-	DEAD TIME	TIME (SECS)	NORD EVENTS ACCEPTED	ALL TRIGGERS $\times 10^6$	Tϕ REJCT $\times 10^6$	Tϕ ACCEPT $\times 10^6$	T1 ACCEPT PRESCALE $\times 10^6$	T2 ACCEPT	T3 ACCEPT	T2 3TOF 3TR.	T2 COLLIN	T2 $\geq$2TOF LG$\geq$1 $\geq$1TR	T1 LG$\geq$4

T1 LUMI.	$\langle L \rangle$ $\times 10^{30}$	$\int L dt$ RUN	$\int L dt$	IBM/ TAPE	BEAM PIPE	REJCT EVENT FRACTION %	# BHABHA	# MULTI HADRON	BEAM ENERGY (GeV)

30.3.81

1^{30} changed LG threshold : now adjusted to 65 mV

1^{40} beams lost

$\sim 2^{15}$ During background optimization (of new filling) the beams started to decay rapidly.
We switch off HV after request of PKR to do so. We took not yet data.
Beams are dumped (lost?) – and nothing happens for some time.

2^{53} Shot try failed just before or just at reaching the ~~set~~ "wanted" beam energy.

$\sim 3^{15}$ similar to 2^{15} beams stabilized at 5-6 mA, where PKR does orbit research and correction. Then dumped beams.
Probably the ~~orbit~~ machine had "changed" and the orbit had to be adjusted.

4^{48} New filling. Restart data taking

7^{35} All experiments + PKR agree with us that the beams will be dumped at 8^{00} for a new filling.
PKR thinks, they will have "no" problems.

7^{49} After IBM boys ~~too~~ came up.

8^{00} Beams dumped

8^{00} Eichler & Kobayashi on shift

8^{45} New fill ready.
BP-current 10 Volts due to counter 16. Pull it out → BP-current 2.2 Volts.
Lower HV on counter 16 to 1100 Volts and rise again to nominal value of 1550 Volts.
BP-current stays low. PM recovered.
LG-threshold set to 60 mV.

9^{20} Beams ~~lost~~ Lost

10^{15} New fill ready, but IBM not ready because they are changing disks (~5 min.).

1600 Stephens + Minowa on shift

1607 Start run 6890.
JET CHAMBER anode current is not monitored ~~during~~ sometime during the run 6890, ~~B~~
because Matsumura repairs a BNC-connector for it.

1626 The BNC-connector for the anode current monitor has been replaced.