

JADE LOG BOOK XIII
Revs 16288 - 17542



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JADE LOG BOOK

N^o XIII

Revs 16288 - 17542

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T# REJ $\times 10^4$	T# ACC. SUM	T# REGR1 E, > 100GeV	T# REGR2 E, > 100GeV	T# REGR3
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LOG BOOK # 13

← now nothing will work.

Friday

9-3-84

23⁰⁰ Diekmann Feit on shift PETRA still on its way to the "trip" energy

23⁰⁵ Ann 16288 terminated via many illegal hits, try to "clean" JLS #165 1327 suspected

10.3.84 K.A. Hellmuth, U. Schneekloth on shift

1:32 new fill, start run 16291

5:32 " " 16294

8⁰⁰ JADE in the hands of the Super Software Mangers - H. Miltel C. Browder on shift

11⁰⁰ JL check. JADE 53

Mark-3 61

We are last! This is terrible

TASSO 56

CELLO 54

11⁰¹ runs via the FAMP to the IBM: 16298, 16300

run 16299 did not exist

Following last Thursday's JADE meeting, Nord-50 PATRIT rejection for T_{zacc} candidates with ≤ 400 ID hits ring 1 & 2 where no track found (TYPE11) and where tracks are found with $|Z_{min}| > 300$ mm. Barrel bhabhas also have PATRIT performed.
First run: 16302 HEM

Energy change confusion. First came TV message so we stopped run 16302. Then it said "Luminosity run" but energy hadn't changed - assuming they had hit wrong button (the change wasn't announced) we started run 4 then energy did change. Oh dear

14⁰⁵ Nord hung up level 3

14⁵⁰ problems - LC ADCs missing LATS, high dead time, high trigger rate for 2 minutes

RUN	DATE	START	STOP	AT RUN START		DEAD TIME [%]	TIME [sec]	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₀ REJ. $\times 10^6$	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ BIT 2 E ₁ > 6 GeV	T ₂ BIT 17 2T·E ₄ > 22T
				I ⁺	I ⁻										
16288	9.3.84	22:46	23:06	3.32	3.29	9.9	1121	2017	1256	291	28	1200	1315	183	768
16289	10.3.84	23:15	01:35	3.09	3.07	6.0	4838	8002	4607	1260	76	5338	5300	283	677
16290	10.3.84	01:36	1:04	2.57	2.57	5.7	7657	2646	7504	430	24	7763	7744	255	203
16291	10.3.84	1:33	2:46	4.12	4.29	7.4	4360	8002	5268	1133	84	4765	6036	8937%	893
16292	10.3.84	2:46	4:03	3.21	3.32	6.6	4575	8002	4875	1189	78	5140	5505	873	733
16293	"	4:03	4:42	2.66	2.82	6.5	2325	4123	2470	604	39	2725	2622	389	305
16294	"	5:32	4:34	4.74	4.34	7.9	4275	8002	5333	1111	108	4733	6135	745	960
16295	"	6:45	7:57	3.40	3.41	6.9	4333	5001	5062	1127	76	4817	5392	772	749
16296	"	7:58	9:17	2.94	2.97	6.4	4720	5001	4665	1229	78	5278	5293	764	677
16297	"	9:51	11:01	4.06	4.10	9.3	4057	8001	5336	1055	87	4677	5982	756	924
16298	"	11:01	11:33	3.25	3.19	7.1	1929	3395	2121	476	34	2047	2359	350	359
16300	"	11:35	11:45	2.97	2.91	7.0	612	1029	624	159	"	621	755	92	100
16301	"	11:47	11:59	2.99	2.91	9.5	655	1374	886	170	16	932	765	116	113
16302	"	12:43	13:05	4.11	4.17	9.5	1337	2668	1213	347	33	1425	2130	253	368
16304	"	13:09		3.67	3.74	9.1		6274	2667						
16305	"	14:08	15:06	3.01	3.04	12.0	3487	8002	4213	907	109	5896	3802	572	456
16306	"	15:06		2.57	2.66	6.2	1522	3430	1037	396	24	1784	1684	286	199
16307	"	16:01	17:11	4.29	4.34	8.5	4194	8002	3693	1091	93	4750	5996	817	975
16308	"	17:12	18:24	3.10	3.21	8.0	4279	8002	3451	1113	89	5455	4948	746	698
16309	"	18:25	18:32	2.70	2.64	6.0	371	689	266	99	6	446	408	73	48
16310	"	19:01	20:08	4.43	4.41	9.3	3977	8002	3612	1035	96	4726	6092	825	1013
16311	"	20:09	20:49	3.27	3.33	6.7	2389	4374	1788	621	41	2732	57292	478	482
16312	"	23:00	0:07	4.06	3.90	16.3	3964	8002	3976	1031	106	5509	4172	583	593
16313	11-3-84	0:08	1:25	3.21	3.12	7.0	4612	8002	3286	1200	84	5405	5113	729	569
16314	"	1:26	1:42	2.69	2.63	7.4	915	1729	748	238	18	1149	949	132	121
16315	"	3:55	5:01	4.21	4.30	9.9	3959	8002	3985	1029	102	5247	5156	519	787
16316	"	5:01	6:05	3.24	3.33	6.2	3775	6430	2540	981	60	4003	4370	642	569
16317	"	7:51	8:52	3.42	3.72	28.8	3440	7709	3905	895	258	4980	5689	467	639
16318	"	9:33	10:44	3.64	4.11	15.5	4029	8002	3951	1048	162	5054	5410	659	743
16319	"	10:44	11:53	2.90	3.33	6.2	4078	6913	2722	1062	66	4425	4623	716	532
16320	"	12:25	11:13	4.06	4.09	21.1	2940	8002	3155	739	158	5749	3944	432	619
16321	"	13:13	14:26	3.35	3.39	7.4	4313	8002	3279	1039	84	4930	5555	287	288
16322	"	14:26	15:02	2.70	2.77	13.4	2114	4910	2537	550	74	3593	2346	369	303
16323	"	15:52	16:19	3.81	4.13	56.2	2227	7063	5394	579	326	5218	3646	218	1098

Forward INT. LUM (N/B)

ON/OFF			<L>	∫Ldt BHABHA RUN	∫Ldt EXP. 12-88	IBM TAPE	AT RUN START		T ₂ REJ. FRACT. (%)	Σ BHABHA	MH	E _{BEAM}	REMARKS
N50	MIP	TOF					BP [V]	TOF [V]					
on	on	on	7.41	1.23	13.11	IBM	0.55	0.75	42	8	0	23,195	many illegal but Mr. O.K.
on	on	on	0.99	4.76	17.27	"	0.50	0.11	52	27	1	"	beams dumped
on	on	on	0.73	7.08	78.35	"	0.34	0.09	53	7	0	"	
"	"	"	1.80	6.78	25.13	"	0.6	0.18	49	44	3	"	
"	"	"	1.15	4.93	30.06	"			51	32	1	"	
"	"	"	0.89	2.37	32.37	"	0.5	0.11	50	75	0	"	beams dumped
"	"	"	1.84	6.31	38.68	"	0.68	0.27	49	41	2	"	
"	"	"	1.17	5.39	44.07	"	0.57	0.16	44	35	2	"	
"	"	"	0.88	3.54	47.61	"	0.51	0.12	52	23	2	"	beams dumped
"	"	"	1.81	5.54	53.15	"	0.75	0.34	47	36	1	"	
"	"	"	1.14	1.85	55.00	"	0.61	0.16	46	12	1	"	FAMP ON - FAMP hangup of some sort
"	"	"	1.10	0.31	55.31	"	0.60	0.14	50	2	0	"	
"	"	"	1.00	0.62	56.93	"	0.59	0.13	47	4	0	"	FAMP OFF (later) Beams lost
"	"	"	1.79	2.77	59.70	"	0.77	0.34	45/61	18	0	"	Started T ₂ rejn (see pi)
"	"	"	1.04	6.01	6.01	"	0.56	0.14	48/66	1	2	23210	Need stopped level B
"	"	"	0.76	2.47	8.48	"			48/66	16	0	"	
"	"	"	0.74	1.09	9.56	"	0.51	0.10	50/61	7	0	"	Beams dumped & NS crash (sure time)
"	"	"	1.31	7.09	16.65	"			48/58	46	0	"	
"	"	"	0.87	3.08	19.73	"	0.58	0.15	51/59	20	0	"	
"	"	"	0.57	0.31	20.04	"	0.47	0.10	46/62	2	0	"	Beams dumped
"	"	"	1.56	4.47	24.57	"	0.72	0.37	47/57	29	2	"	
"	"	"	1.18	3.70	28.24	"	0.56	0.16	48/57	24	0	"	Beams dumped for Tasso's accen
"	"	"	1.31	5.55	33.76	"	0.63	0.20	50/51	36	1	"	
"	"	"	0.86	2.62	36.38	"	0.55	0.14	52/60	17	0	"	
"	"	"	0.68	1.08	37.46	"	0.5	0.1	43/58	7	0	"	Beams dumped
"	"	"	1.62	6.01	43.97	"	0.8	0.3	50/51	39	2	"	
"	"	"	1.11	7.19	47.66	"	0.55	0.14	49/62	30	1	"	Beams dumped
"	"	"	1.16	2.62	50.28	"	0.7	0.2	55/50	17	2	"	Beams dumped
"	"	"	—	6.01	56.29	"	0.7	0.25	48/52	5	1	"	(20+ output?)
"	"	"	1.18	6.01	62.30	"			49/62	39	0	"	Beams dumped
"	"	"	1.44	3.24	3.24	"	0.75	0.5	47/55	21	2	23,225	
"	"	"	1.27	6.64	9.88	"	0.7	0.25	47/60	43	2	"	
"	"	"	0.88	1.85	11.73	"	0.6	0.15	48/49	12	0	"	Beams dumped.
"	"	"	0.09	0.93	12.66	"	0.75	0.35	53/24	6	0	"	Beams lost. Very bad beam conditions in this run

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ REZ $\times 10^6$	T ₂ ACC. SUM	T ₁ ACCUM E ₁ [GeV]	T ₁ INT L E ₁ [GeV]	T ₂ INT L E ₂ [GeV]
				I ⁺	I ⁻										

PLEASE NOTE

In case of repeated trouble with the Nord-50 program (i.e. it crashing) you can try the old version (by entering ABORT-N50 and specifying OLD-N50DAR when you start a run & it requests the N50 program.

HE " This has been tested several days and looks OK.

10.3.84

16.00 Totsuka/Hill on shift.

17.30 JDAS READOUT ERROR 33: Missing LAM branch 2 crate 5 - headglass.

20.45. Tasso have problems with liquid Argon \Rightarrow Require immediate access. Beams Pumped. "Short Break" Tasso say \sim 30 mins.

22.00 When trying to login to the NORO the following error message was received repeatedly -
ERR 00 AT 12322 ; ILL MONITOR CALL

- NORO restarted
- problem solved.

to 23.00 Luminosity.

23:40 JDAS Read out error 33 - Missing LAM branch 2 crate 5 - LG ADCs

11.3.84

00.00 Finch/Wagner on shift

00.30 TSPY error Trigger 3 I/P missing Street 28 group 4

01.26 JDAS RO. ERROR 44 - DMA TIMEOUT B Z C1: LATCHES

05.46 Tasso call - new fill is 1/4 hour at also to allow them brief access to liquid argon

8⁰⁰ - 16⁰⁰ Petersen & Yamada

8³⁵ ID trip, The beams were lost partly.

8⁴⁵ very high dead time (90-100%). PKR tries to improve background for TASSO but it destroyed our good condition.

11.3.84

9³⁰ New beams ready.

10⁰⁵ ID trip as soon as PKR tried the "Untergrund Optimierung".
- Jet chamber High Current -

Background condition is very bad. The dead time \sim 100%.
Called PKR and complained. The answer was "Now the TASSO magnet went down. Since then the ~~to~~ JADE background increased." We agreed to wait until TASSO fixes the magnet. But, after the telephone call the background improved in a few minutes.

11⁵⁰ TASSO called asking about our flat at 23.210 GeV. others have
Cello: 58 TASSO: 55 M-J: 67 ; JADE has 62 nb⁻¹
During the next fill, the energy will be changed to 23.225 GeV!

13⁰⁰ Trigger rate increases time to time causing high dead time.
The major trigger is ~~now~~ (LG sept + <ITOF), which goes up high (70/sec)!
During the high dead time period, the TOF current monitor did not increase at all. If it happens too often, we have to modify the threshold for the LG septant, which is now \sim 200 MeV. Now PETRA is running at 46,450 MeV.

15⁴⁰ New fill for the run 16323 is a rather bad fill.
PKR tries to optimize ~~the~~ background for TASSO, which makes our dead time high. The main trigger source is the LUMI trigger.

16⁰⁰ Catright, Kananoto on shift

16:06 ID soft tripp. (R16323) pause + switch on + continue.

16:12 Moon Crate H fixed. Single Card Computer replaced by spare. Seems to be okay now C.B.

16⁴⁶ New fill seems to be much better than the last one - deadtime < 10%

17¹⁰ "No events for 5 seconds"
Followed prescription on sheet by trigger box, diagnosed "level 5" error & followed instructions to reset. It worked.

AT RUN START DEAD TIME (%) TIME RECORDS IN RECORDS OUT ALL x 10⁶ T₁ RES x 10⁶ T₁ ACC SUM T₂ RES x 10⁶ T₂ ACC SUM T₁ BIT 2 E₁ > 6 GeV T₂ BIT 17 2T · E₁ > 2 TR

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (sec)	RECORDS IN	RECORDS OUT	ALL x 10 ⁶	T ₁ RES x 10 ⁶	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ BIT 2 E ₁ > 6 GeV	T ₂ BIT 17 2T · E ₁ > 2 TR
				I ⁺	I ⁻										
16324	11.3.84	16:46	17:52	4.46	4.42	15.8	8924	8002	4038	1021	162	5195	5203	708	762 762
16325	"	17:53	18:47	3.10	3.17	14.1	3273	8002	4570	852	120	6081	3555	583	473
16326	"	18:48	19:52	2.54	2.66	6.9	3830	6236	2367	997	68	4215	3945	673	482
16327	"	20:18	21:27	4.20	4.34	8.5	4120	8002	3384	1072	91	4663	5966	854	901
16328	"	21:27	22:43	2.91	3.12	6.7	4516	8002	3097	1175	79	5101	5353	874	730
16329	"	22:43	23:02	2.33	2.55	5.7	3487	5620	2111	907	52	3826	3481	636	389
16330	12.3.84	0:07	0:27	3.56	4.07	14.3	1232	2480	1189	321	46	1405	1912	205	280
16331	"	0:38	1:55	3.11	3.60	6.5	4569	7970	3081	1189	78	5128	5467	815	642
16332	"	2:29	3:40	3.73	4.22	7.6	4237	8002	3350	1102	84	4799	5722	793	860
16333	"	3:40	4:56	2.89	3.31	6.5	4506	8001	3163	1172	77	5299	5181	861	60
16334	"	4:56	5:42	2.40	2.78	11.6	2625	4095	1593	683	81	2829	2433	468	249
16335	"	6:29	7:44	3.37	3.94	7.0	4405	8001	3325	1147	81	5027	5652	858	776
16336	"	7:44	8:06	2.68	3.18	7.5	1282	2415	1030	334	24	1589	1415	217	162
16337	"	8:18	8:32	2.45	2.93	6.2	1144	2049	833	298	19	1313	1257	213	162
16338	"	12:15	13:08	3.99	4.08	7.2	1900	3202	1301	495	34	1878	2475	215	321
16339	"	16:48	17:25	3.74	3.87	19.3	2104	8001	5707	547	105	6732	2283	220	252
16340	"	17:23	18:04	3.08	3.23	7.4	2370	5170	2786	616	45	3825	2568	298	259
16342	"	18:09	19:39	2.71	2.85	5.9	5765	7998	2959	1397	82	5429	5170	767	525
16343	"	19:40	19:40	2.11	2.22										
16344	"	22:48	0:13	3.97	3.92	6.7	5080	8001	3234	1322	88	4905	6002	668	746
16345	13.3.84	0:14	1:22	2.90	2.77	6.1	4034	6504	3532 1049	1049 1049	64	4237	4285	556	561
16346	"	1:50	2:38	4.23	4.25	9.9	2614	5370	2554	679	67	3425	3456	415	463
16347	"	3:20	4:33	4.41	4.33	2.8	4349	8002	3443	1130	87	4879	5695	937	805
16348	"	4:34	5:31	3.11	2.96	8.5	3438	6496	2925	894	76	4448	3894	587	531
16349	"	5:59	6:34	4.36 4.29	4.29	8.0	2079	3867	1644	541	49	2245	3003	377	507
16350	"	7:28	8:07	4.16	4.20	9.4	4101	8001	3729	1068	100	5185	5057	622	647
16351	16352	No data													
16353	"	8:56	9:40	2.75	2.81	6.8	2620	4438	1739	681	46	3000	2760	376	287
16354	"	10:45	11:13	3.97	4.01	13.0	3475	8002	4258	904	118	5755	4080	532	490
16355	"	11:14	11:52	2.82	2.91	10.6	2265	4656	2241	589	62	3361		367	240
16356	"	12:38	13:26	3.76	3.98	13.8	2821	6702	3455	734	161	4575	3348	411	439
16357	"	14:23	15:38	4.11	4.20	6.9	4464	8001	3643	1162	80	4975	5614	710	749
16358	"	15:39	16:46	2.80	2.79	6.5	4018	7121	2731	1046	68	4773	4587	677	623
16359	"	17:18	18:28	3.97	3.97	7.4	4211	8002	3270	1096	81	5153	5401	834	748
16360	"	18:29	19:42	2.78	2.77	6.1	4702	8002	3043	1225	75	5493	4904	783	605

Forward INT. LUM (VUB)

ON/OFF			<L>	SLdt BUNCH RUN	SLdt EXP	IBM/TAKE	AT RUN START		T ₂ RES FRACT (%) MP16/NSD	Σ BUNCH	MH	E _{beam}	REMARKS
NSD	MIP	TOF					BP (V)	TOF (V)					
ON	ON	ON	1.55	6.18	18.84	IBM	0.92	0.68	49/51	40	1	23.225	
"	"	"	0.90	4.63	23.47	"	0.59	0.17	50/44	30	2	"	
"	"	"	0.65	3.71	27.18	"	0.53	0.12	52/63	24	0	"	Beams dumped
"	"	"	1.47	5.25	32.43	"	0.76	0.34	47/59	34	0	"	
"	"	"	0.84	4.17	36.60	"	0.64	0.17	48/62	27	1	"	
"	"	"	0.58	2.47	39.07	"	0.48	0.08	52/64	16	1	"	Beams dumped
"	"	"	1.49	3.24	42.31	"	0.68	0.24	47/53	21	1	"	
"	"	"	1.13	4.63	46.94	"	0.64	0.19	51/63	30	1	"	Beams dumped
"	"	"	1.44	6.33	53.27	"	0.69	0.23	47/59	41	3	"	
"	"	"	0.99	5.56	58.83	"	0.56	0.14	51/62	36	0	"	
"	"	"	0.66	1.73	60.56	"	0.47	0.09	53/62 53/62	13	0	"	
"	"	"	1.29	5.71	66.27	"	0.65	0.19	50/60	37	1	"	
"	"	"	0.95	1.08	67.35	"	0.54	0.11	48/63	7	1	"	energy increase
"	"	"	0.72	0.77	0.77	"	0.50	0.11	48/60 48/60	5	0	23.240	Beams dumped
"	"	"	0.94	1.79	2.56	"	0.68	0.21	50/61	8	0	"	beam lost
"	"	"	1.37	2.32	4.88	"	0.62	0.21	51/29	15	1	"	
"	"	"	1.16	2.63	7.51	"	0.58	0.14	51/47	17	1	"	
"	"	"		8.00	15.51	F22B70	0.52	0.10	53/51	51	7	"	beams lost
"	"	"	1.46	6.49 6.49	22.00	IBM	0.7	0.3	51/61	42	0	"	
"	"	"	0.82	2.94	24.94	IBM	0.5	0.1	50/82	19	1	"	beams dumped
"	"	"	1.82	4.17	29.11	"	0.75	0.3	47/53	27	3	"	beams lost
"	"	"	1.61	6.96	36.07	"	0.72	0.35	48/58	45	1	"	
"	"	"	0.92	3.25	39.32	"	0.6	0.12	57/56	21	0	"	beams dumped
"	"	"	1.56	2.47	41.79	"			69/59	16	0	"	beams lost
"	"	"	1.64	6.07	47.86	"	0.73	0.10	49	39	0	"	Word hung up
"	"	"	0.93	1.86	49.72	"	0.55	0.12	51/62	12	1	"	Beams Dumped
"	"	"	1.33	4.62	54.34	"	0.76	0.35	48	31	0	"	
"	"	"	0.94	2.01	56.35	"			48/53	13	1	"	lost Beams
"	"	"	1.16	3.27	3.27	"	0.76	0.36	40	23	1	23.255	1 Beam group missing after taking. Parking signal. lost Beams
"	"	"	0.84	5.93	9.00	"	0.73	0.36	49/56	37	0	"	Septant threshold raised to 2500eV
"	"	"	0.78	3.25	12.25	"	0.55	0.14	52/60	21	1	"	beams dumped
"	"	"	1.37	6.04	18.29	"	0.74	0.30	50/61	39	0	"	
"	"	"	0.78	5.11	23.40	"	0.54	0.13	52/61	53	0	"	

RUN	DATE	START	STOP	AT RUN START	I ⁺	I ⁻	DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL × 10 ⁶	T# REZ × 10 ⁶	T# ACC. SUM	T# ARESUM	T# INT L	T# INT L	T# INT L
-----	------	-------	------	--------------	----------------	----------------	---------------	------	------------	-------------	-----------------------	--------------------------	-------------	-----------	----------	----------	----------

12-3-84 Masuhira, Fest on shift

- 0³⁰ Background suddenly increase because TASSO-magnet failed. stop run 16330.
- 0⁴⁰ TASSO magnet back again
- 1⁵⁸ Beams lost. Stop run 16331.
- 5⁰⁰ trigger box hang up level 5 in run 16334.
(No PAUSE during debugging-time made the deadtime higher.)
- 5¹⁵ IL. CELLO 54, JADE 59, MARKJ 64, TASSO 39 (← magnet problem)
- 5⁴⁵ Lead glass HV failure. (Run 16334)
PMT corresponding to HV distributor 15 ch 1 (counted from 0) is bad. → plugged off → OK.
For this we plugged out and in again the top row of HV cables of distributor 15 and the first 3 in the second row left hand side - please check whether they properly connected → checked. (KOB)
→ recovered
- 6²⁷ start run 16335.

8⁰⁰ Matsumura, Meike on shift
run 16336: 204 jets illegal but counts

10:30 Magnet → OA, Interlocks broken, to install more shielding for μ test chamber. AB.
15⁵⁰ Forward MUON COINCIDENCES - PSK VALUES CHANGED TO COINCIDE WITH SET VALUES.
HV WRONG MESSAGE FOR COUNTERS SHOULD NOW DISAPPEAR. CRH & BN.

16⁰⁰ Finch & Kobayashi

- 10:51 Trigger 2 output missing 109 - looks ok. ok histogram
- 18:05 IBM is dead. We write data on tape.
- 19:43 Beams lost + I.D. trip
M.B. Run 16342 - Run summary did not show INT.LUMI or NHARHA INT.LUMI.
on basis of Monte of Bhabha I have entered a value of 80/nb. ~~in~~ the SCD column. ASF.

13/3/84

- 00:50 Nozaki & Ambros on shift
- 02:05 JADE keyboard error 33 Missing LAM bit 2 Cr 3: Leadglass ADCs

13.3.84

- 2:41 Short break due to some problems of the monitor of PETRA.
- 2:54 Injection
- 8:00 ORITO → ZORN on Shift.
- 8:40 Data taking stopped - NORD had to be reloaded.
- 10:00 Dead time suddenly shot up & went back after a few minutes. Complained to Peter who at first didn't know.
- 12:54 There is a problem with high amplitude noise (20 kHz) on several TTAC inputs - barrel groups and splunks. It is accompanied by peaks of missing blocks in LG hit maps. It should be investigated by a LG expert. J.O.
- 14:00 The threshold for LG Barrel septant trigger was raised from 250 mT to 300 mT (~250 MeV). R.16357 J.O.
- 14:30 For the first ~20 min of Run # 16357 the beams were separated ⇒ Lumi ~ 0

16⁰⁰ W. Bartel and H. Riesenberg on shift

- 16³⁵ Both beam pickups in the red (too low). Two electron peaks in the histogram #78. I ≈ 2.27 mA
- 16⁴⁵ Stop for refill
- 17¹² New fill ready! Very fast!
Start Run 16359 L = 1.2 × 10³⁰
- 20²⁵ New filling. Start Run 16362
- ID Amplitude in cell 22.2 was unstable from Run # 16345 onwards. Puls width readjusted. RB
- 21²⁵ Magnet current fluctuates down to 7445 A. Pause run, reset magnet, continue
- 21⁴⁰ Soft ID trip due to magnet alarm, twice - and another magnet fluctuation, this time up to 7550 A!
• In the last run (# 16362) we observe for the ID 281 illegal hits, 66 illegal wire numbers and 473 illegal timings. They may be due to DL 170 (wire 1360-1367) or/and DL 171. hits in similar cases before the error disappears by itself. Contacts cleaned → ok in Run # 16364
- 22³⁵ FWD μ #7 and #9 with HV #6 and #8 very noisy decrease HV by 100V
#7 2400 → 2300V → 2250 #9 2625 → 2500
- 23¹⁰ #7: 2300V #8: 2450V
- 23⁴⁰ Beams lost.

14-3-84

AT RUN START I+ I- DEAD TIME (%) TIME RECORDS IN RECORDS OUT ALL x10⁶ T₀ REG. x10⁶ T₁ ACC. SUM T₂ ACC. SUM T₁ BIT 2 E₁>660V T₂ BIT 17 2T₂·E₄>2T₁

10 RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (Sec)	RECORDS IN	RECORDS OUT	ALL x10 ⁶	T ₀ REG. x10 ⁶	T ₁ ACC. SUM	T ₂ ACC. SUM	T ₁ BIT 2 E ₁ >660V	T ₂ BIT 17 2T ₂ ·E ₄ >2T ₁
				I+	I-										
16361	13/05	19:48	20:01	2.20	2.21	5.8	725	1222	473	189	11	881	712	113	76
16362	"	20:27	21:34	3.95	3.96	10.2	3868	8001	3463	1007	103	4659	5717	775	974
16363	"	21:54	22:47	3.01	2.98	8.4	3955	8002	3427	1030	86	5068	5851	834	977
16364	"	22:49	23:41	2.48	2.46	6.8	3046	5724	2297	793	54	3865	3607	593	624
16365	14/03	0:46	1:55	4.24	4.20	8.3	4118	8002	3261	1071	885	4830	5770	713	882
16366	"	1:55	3:03	3.06	3.09	8.8	3987	8002	3462	1037	92	5526	4745	706	636
16367	"	3:03	4:14	2.58	2.60	7.8	4229	8001	3397	1100	856	5770	4457	784	541
16368	"	4:14	4:16	2.21	2.23										
16369	"	4:43	4:18	4:18	4:18	8.2	3968	8002	3308	1032	84.8	4884	5735	777	890
16370	"	5:50	7:05	3.13	3.07	6.5	4444	8001	3028	1156	75	5351	5167	801	706
16371	"	7:05	7:46	2.57	2.52	6.4	2397	4346	1670	624	40	3065	2505	443	311
16372	"	8:16	8:34	4.20	4.26	7.3	440	879	393	114	8	528	600	85	103
16373	"	8:36	8:49	3.64	3.63	8.7	792	1627	690	206	17	986	1140	163	176
16374	"	9:51	9:56	3.8	3.7	6.9	254								
16375	"	9:56	11:10	3.80	3.78	7.4	4365	8007	3330	1136	84	5796	5280	702	684
16376	"	11:10	11:40	2.67	2.77	12.8	1986	4729	2516	577	66	3677	1961	320	259
16377	"	11:48	12:16	2.33	2.40	5.7	1694	2828	1022	441	25	1980	1666	317	197
16378	"	12:55	14:06	3.86	3.89	7.5	4228	8002	3206	1101	83	4878	5785	754	827
16379	"	14:07	14:38	2.65	2.72	6.7	1845	3443	1312	480	32	2319	2150	317	284
16380	"	18:43	20:03	3.63	3.67	6.2	4747	8002	3014	1236	77	5214	5400	637	624
16381	"	20:03	20:46	2.60	2.69	5.8	2552	4263	1492	664	39	2911	2598	407	271
16382	"	21:14	22:29	4.20	4.22	6.8	4480	8001	3219	1166	80	5009	5475	785	699
16383	"	22:30	23:31	2.82	2.88	6.0	3613	6194	2313	941	56	4228	3746	657	410
16384	"	23:57	0:07	4.00	3.99	7.0	560	1022	428	186	10	600	707	109	282
16385	15/03/79	01:39	2:58	3.91	3.97	6.5	4695	8002	3050	1221	79	5110	5503	637	646
16386	"	2:58	4:03	2.76	2.82	5.8	3837	6324	2318	998	57	4315	3817	610	409
16387	"	4:31	5:43	4.06	4.10	7.1	4363	8002	3234	1135	60	4944	5471	731	674
16388	"	5:44	6:31	2.85	2.85	6.2	2815	4880	1778	737	46	3272	3005	473	327
16389	"	6:57	8:09	3.99	3.99	7.1	4340	8002	3003	1130	80.5	5054	5384	756	662
16390	"	8:09	8:34	2.78	2.79	6.3	1255	2266	828	327	20.7	1525	1343	239	145
16391	"	8:34	9:08	2.57	2.58	5.9	2008	3430	1199	523	30.8	2381	1991	353	199
16392	"	9:15	11:00	3.65	4.21	6.8	4409	8002	3136	1147	70.3	5157	5300	837813	671
16393	"	10:59	12:04	2.62	3:08	6.1	3774	6508	2418	983	60	4536	3906	706	418

Forward INT. LUM (N.B)

ON/OFF			<L>	∫Ldt BHABHA RUN	∫Ldt EXP.	IBM TAPE	AT RUN START		T ₂ REJ. FRACT. MP/KV	Σ BHABHA	MH	E _{BEAM}	REMARKS
NSO	MIP	TOF					BP [V]	TOF [V]					
ON	ON	ON	0.57	0.4	23.80	IBM	0.44	0.08	57 57	1	0	23.255	beam dumped
ON	ON	ON	1.42	4.03	27.83	"	0.75	0.25	44 58	26	1	"	"
-	-	-	0.87	3.41	31.24	"	0.62	0.17	47 58	33	0	"	"
-	-	-	0.71	2.48	33.72	"	?	?	51 58	21	1	-	beam lost.
-	-	-	1.30	7.12	40.84	"	0.63	0.27	48 61	55	0	"	"
"	"	"	0.82	2.94	43.78	"	0.58	0.15	51 59	29	0	"	"
"	"	"	0.52	3.72	47.50	"	0.45	0.09	53 60	32	0	"	"
"	"	"	0.41	0.07		"						"	beam dumped
"	"	"	1.34	6.50	54.00	"	0.72	0.28	48 61	51	3	"	"
"	"	"	0.73	3.25	57.25	"	0.57	0.15	51 62	33	0	"	"
"	"	"	0.57	1.08	58.33	"	0.40	0.09	52 62	13	0	"	beam dumped
"	"	"	2.18	1.24	59.57	"	0.62	0.2	46 57	8	0	"	"
"	"	"	1.59	1.24	60.81	"	0.60	0.19	48 57	8	1	"	beam lost
"	"	"	0.68	0.27		"						"	ignore run
"	"	"	1.23	5.73	66.54	"	0.68	0.26	50 60	37	3	"	"
"	"	"	0.68	1.70	68.24	"	0.52	0.11	51 63	17	0	"	"
-	-	-	0.62	1.71	1.71	"	0.50	0.10	53 62	15	0	23.270	New Energy beam dumped
"	"	"	1.10	4.34	6.05	"	0.7	0.30	49 61	28	1	"	"
"	"	"	0.76	0.43	6.98	"	0.52	0.11	61 63	6	1	"	"
"	"	"	1.11	4.34	11.32	"	0.6	0.2	51 61	28	0	"	"
"	"	"	0.69	1.86	13.18	"	0.5	0.1	51 66	12	1	"	Beams dumped
"	"	"	1.36	6.67	19.85	"	0.7	0.3	48 61	43	0	"	"
"	"	"	0.73	3.26	23.11	"	0.55	0.1	51 64	21	0	"	Beam dumped
"	"	"	1.48	4.24	27.35	"	0.7	0.27	55 60	8	0	"	Beams lost
"	"	"	1.10	6.20	30.55	"	0.7	0.22	50 67	40	0	"	"
"	"	"	0.65	2.17	32.72	"	0.53	0.10	50 65	14	1	"	Beam dumped
"	"	"	1.22	6.05	38.77	"	0.75	0.31	47 61	39	0	"	"
"	"	"	0.79	2.17	40.94	"	0.58	0.12	50 65	14	2	"	Beams dumped
"	"	"	1.19	4.50	45.44	"	0.7	0.35	48 64	44	1	"	"
"	"	"	0.83	0.93	46.37	"	0.59	0.12	49 63	8	0	"	run ended - no ligger.
"	"	"	0.70	1.71	48.08	"	0.54	0.10	51 63	14	0	"	Beams dumped
"	"	"	1.51	8.99	57.07	"	0.74	0.32	49 61	68	0	"	"
"	"	"	0.99	5.58	62.65	"	0.52	0.13	53 62	42	0	"	beam dumped and energy change

RUN	DATE	START	STOP	AT RUN START	I ⁺	I ⁻	DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL × 10 ⁶	T ₁ RES. × 10 ⁶	T ₂ ACC. SUM	T ₁ AREA	T ₁ INT. L	T ₂ INT. L
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12 14/3/84
Stephens & Knies on shift

046 Run # 16365 started
122 Histograms checked visually - OK.
155 #16365 end
155 16366 started
4) YSPY Detected error trigger 2 output missing 105, 107
303 Run 16366 end
307 Run 16367 started

JDAS readout error 33 Missing LAM branch 2 crate 5 LG ADC's
everything seems OK. so leave for the moment.
YSPY Det error 4
TOP TDC no hits 45
Mj 1 input missing 27
" 1 output " 35
" 2 " " 105, 109, 163, 165

380 Mark J inform us - new filling in ~ 1/2 hrs.
416 Beams dumped.
82 L. Barkl & P. Hill
Nord apparently did not hang
82 Nord hang - no triggers.
Stopped run and restarted - OK.
925 IBM down write to tape
11.25 JDAS readout error 33 - Missing LAM branch 2 crates 5+6 LG ADC's
11.40 New Energy E_b = 23.270 GeV.
12:15 Beams dumped
13:45 missing LAM branch 3, crate 2 (μ-chamber)
15:00 Ex-JADE-member Eckhardt Elsen visited the experiment

14.3.84
15:50 Short break, transmitter problem run down magnet
16.
16.00 Whittaker and Totsuka on shift.
16.44 Injection starts - magnet current runs up again to 7500 A.
17.00 Short break again. Cavity problem. will be fixed in 1/4 h.
18.40 Luminosity run finally starts.
22.10 JDAS Readout Error 33 - missing LAM branch 3 crate 2 - Main Chamber.

15/03/84
0:00 Finch & Sato
0:23 Following beam loss - short break - a 1 hour ok predict
2:19 Two guys appear they say they have received air conditioning temperature alarm! We can't see anything wrong so they go away.
JDAS error 33 missing LAM branch 2 crate 5 LG ADC's.
8:00 B. Zorn & K. Stephens on shift.
9:32 No triggers stop run - no light flashing on NSO (Trigger Box)
8:34 restarted - OK.
8:50 Mark J. new filling in 10 min -
8:51 Mark J. small problem with machine so filling few ~ 1/2 hrs.
11:38 Mark J. will dump at 12:00 and increase the energy of other groups have enough luminosity - ours is ~ 60
11:50 Histograms OK
12:00 Energy change and beam dump.
12:55 Cavity problems - about an hour delay.
14:15 Switch on - but beams very unstable and B_p and T₀F [vis] high so wait a few minutes

RUN DATE START STOP AT RUN START DEAD TIME (%) TIME RECORDS IN RECORDS OUT ALL x10⁶ T₁ RES x10⁴ T₂ ACC SUM T₁ BIT 2 T₂ BIT 17

14 RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (SEC)	RECORDS IN	RECORDS OUT	ALL x10 ⁶	T ₁ RES x10 ⁴	T ₂ ACC SUM	T ₁ BIT 2 E ₁ >6GeV	T ₂ BIT 17 2T-E ₁ >7.2TR	
				I ⁺	I ⁻										
16394	15/3/84	14:24	15:27	2.91	3.21	21.9	3719	8001	4041	968.	212.	5077	5667	474	564
16395	"	15:30	15:55	1.67	2.00	4.9	1340	2011	641	349	171	1418	1160	182	95
16396	"	16:26	17:40	4.16	4.20	7.7	4323	8002	3305	1125	80	5065	5569	732	872
16397	"	17:41	18:55	2.79	2.90	6.5	4424	8001	3092	1152	75	5458	4976	858	700
16398	"	19:30	20:45	4.21	4.26	7.0	4420	8002	3198	1150	80	4981	5533	779	807
16399	"	20:44	21:34	2.73	2.84	6.0	2929	5016	1818	763	47	3395	3050	508	333
16400	"	22:02	23:16	4.17	4.19	7.1	4354	8002	3223	1133	80	5098	5344	779	729
16401	"	23:16	23:53	2.73	2.78	6.2	1944	3509	1273	505	31	2403	2009	371	205
16402	16/3/84	0:30	1:04	3.99	4.02	7.1	4348	8002	3218	1130	81	4966	5547	747	775
16403	"	1:44	3:00	2.70	2.79	6.2	4507	7914	2924	1172	73	5548	4535	836	481
16404	"	3:25	4:02	3.94	3.18	7.6		5705	4374						
16405	"	4:09	5:25	3.09	3.17	6.4	4545	8001	3050	1182	76	5486	4850	807	619
16406	"	5:25	5:32	2.22	2.35	5.7	348	586	212	90	5	412	324	58	43
16407	"	6:15	7:26	3.93	3.95	7.2	4239	8002	3151	1103	79	5072	5236	777	743
16408	"	7:26	8:02	2.66	2.73	6.4	2109	3830	1419	549	35	2646	2178	429	273
16409	"	8:51	9:16	4.05	4.08	8.1	1417	2595	1049	369	30	1416	2017	205	296
16410	"	9:19	10:03	2.05	3.35	5.9	2576	4328	1621	671	40	2972	2639	442	341
16411	"	10:31	11:37	4.12	4.20	7.7	3655	7013	2753	952	73	4319	4683	675	672
16412	"	11:44	11:54	2.72	2.87	6.5	533	983	347	139	9	627	627	91	74
16413	"	12:29	13:19	4.16	4.07	7.7	2958	5532	2181	770	59	3310	3961	543.	554
16414	"	14:45	15:15	3.89	3.77	8.1	1730	3355	1365	450	36	2063	2285	336	350
16415	"	16:14	17:28	3.93	4.00	7.1	4508	8002	3255	1173	83	5068	5480	807	7487
16416	"	17:30	17:43	2.58	2.71	6.3	1138	1881	762	296	18	1326	1217	209	170
16417	17/3/84	13:22	14:44	3.66	3.80	6.2	4903	8002	3059	1277	80	5023	5579	596	711
16418	"	14:45	15:02	2.30	2.54	5.3	998	1519	556	259	14	1017	956	105	93
16419	"	15:07	15:24	1.95	2.24	5.0	1015	1481	512	264	13	1010	901	119	67
16420	"	17:10	18:24	3.53	3.64	6.5	4733	8002	3081	1231	81	5082	5516	609	720
16421	"	18:20	19:32	2.27	2.55	5.7	3709	5897	2109	966	55	3970	3734	446	433
16422	"	21:24	22:44	3.49	3.48	6.4	4763	8001	2975	1240	79	4957	5541	587	732
16423	"	22:44	23:36	2.27	2.36	5.6	3012	4856	1702	783	44	3305	2910	398	326
16424	18.3.84	0:54	2:16	3.35	3.40	6.1	4865	8002	3026	1264	78	5086	5421	602	751
16425	"	2:16	3:41	2.21	2.33	5.6	5032	8001	2834	1308	73	5458	4916	696	580
16426	"														
16427	"	5:19	6:37	3.70	3.71	6.6	4652	8002	3128	1209	80	5017	5540	648	813

Forward INT. LUM (XNB)

ON/OFF			(L)	SLdc BHAMIA RUN	SLdc EXP	IBIT TAPE	RF RLU START B.P [V]	TOP [V]	T ₂ RES FRACT		Σ GAARD-11	MH	E _{BEAM}	REMARKS
N50	MIP	TOF							MIP	N50				
ON	ON	ON	.42	2.75	3.75	IBM	0.8	0.52	51	61	23	1	23.285	
"	"	"	0.32	0.47	3.22	"	0.35	0.05	53	62	8	0	"	beam dumped
ON	ON	ON	7.29	5.90	9.72	"	0.65	0.25	50	59	38	0	23.285	
"	"	"	0.69	2.95	12.07	"			52	61	30	0	"	beam dumped
"	"	"	1.36	5.59	17.66	"	0.71	0.32	48	59	50	1	"	
ON	ON	ON	0.80	2.02	19.68	IBM	0.55	0.12	50	62	73	3	"	beam dumped
"	"	"	1.23	5.60	25.28	"	0.65	0.20	49	61	52	2	"	
"	"	"	0.70	2.33	27.61	"	0.55	0.10	48	61	22	0	"	beam dumped
"	"	"	1.55	7.29	34.90	"	0.7	0.3	48	62	47	0	"	
"	"	"	0.90	3.88	38.78	"	0.55	0.11	51	64	25	1	"	beam dumped
"	"	"	1.74	4.35	43.13	"	0.75	0.32					"	NORD 10 stopped, no RS
"	"	"	1.07	6.52	49.65	"	0.65	0.20	51	62	42	1	"	
"	"	"	0.97	0.31	49.96	"	0.50	0.08	53	65	2	0	"	
"	"	"	1.57	5.90	55.86	"	0.76	0.32	47	62	38	4	"	
"	"	"	0.91	2.17	58.03	"	0.55	0.10	50	64	14	0	"	
"	"	"	1.50	1.86	59.89	"	0.77	0.38	46	61	12	1	"	
"	"	"	0.61	1.55	61.44	"	0.50	0.10	52	62	10	1	"	Beams dumped
"	"	"	1.25	4.97	66.41	"			46	62	32	0	"	
"	"	"	0.89	0.62	0.62	"	0.58	0.14	48	62	4	0	23.300	New Energy beams lost
"	"	"	1.36	4.04	4.66	"	0.8	0.4	47	64	26	0	"	fix DL8 problem Beams lost.
"	"	"	1.40	6.06	14.61	"	0.7	0.32	49	61	39	1	"	
"	"	"	0.85	1.40	16.01	"	0.5	0.12	49	64	9	0	"	beam dumped.
"	"	"	1.34	6.06	22.07	"	0.6	0.20	49	60	39	2	"	
"	"	"	0.88	0.62	22.69	"	0.5	0.10	51	60	4	0	"	
"	"	"	0.63	0.62	23.31	"	0.41	0.06	52	62	4	0	"	beam lost
"	"	"	1.26	7.15	30.46	"	0.66	0.22	48	62	46	0	"	
"	"	"	0.77	3.11	33.57	"	0.52	0.10	51	61	20	0	"	Beams dumped
"	"	"	1.69	4.35	37.92	"	0.70	0.22	48	63	28	0	"	
"	"	"	0.71	1.40	39.32	"	0.59	0.09	50	63	9	0	"	Beams dumped
"	"	"	0.95	3.89	43.21	"	0.6	0.2	49	63	25	0	"	
"	"	"	0.50	3.11	46.32	"	0.5	0.1	51	63	20	3	"	instruments is missing (see note on p.17)
"	"	"	1.08	6.06	52.38	"	0.7	0.25	49	61	39	0	"	

RUN	DATE	START	STOP	AT RUN	START	DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T# REZ $\times 10^6$	T# ACC. SUM	T# ACCUM E > 200 GeV	T# ACCUM E > 60 GeV	T# ACCUM E > 20 GeV
-----	------	-------	------	--------	-------	---------------	------	------------	-------------	-------------------	----------------------	-------------	----------------------	---------------------	---------------------

16 15.3.84
 15:14 JDAS error 33 missing LAT branch 3
 15:45 luminosity v. low but Talk J says that PKR have machine problems and would like to understand them before dumping
 YSPY trigger 2 output missing 149.
 16:00 Bartel and Hellenbrand on shift
 20:06 Trigger 3 I/P missing: ST 34 GP2 cured by itself
 23:30 2 clusters of noisy Lg-blocks appear call in Takeshita: Problem is known, they cannot do anything at present.

16/3/84
 0:00 Matsumura, Heier on shift
 4:02 NORD 10 stopped at Level 14, Protect Ring 3
 8:00 Ambu & Takeshita
 9:15 ID tripped (RUN 16409 stopped)
 13:00 YSPY detected error no response ID: DL8 #2 missing \Rightarrow exchanged
 14:00 Mashimo replaced Takeshita 14:00-16:00
 14:15 Beams lost.
 14:45 DL8 exchange completed. start run 16414. Now everything looks OK.
 15:15 Beams lost.

16:00 Nozaki, Schmidt on shift
 23:45 ~~at~~ 18:00 PKR tried to fill the beams, but they ^{many times} ~~lost~~ ^{always} the beams suddenly after reasonable ~~currents~~ currents were accumulated. PKR do not know the reason and tried to get beams by doing any things they could imagine as the source of beam loss. However no beams have been obtained so far.

17/3/84
 0:00 Dietrich and Whittaker on shift
 'short'! Break continues.
 4:30 PKR - told us, that no beams will be available before 9:00-10:00 in the morning. see low magnet to 500A!

17.3.84
 8:00 Finch & Zorn on shift still no beam condition exists
 Problems with feed back system. An expert is due to arrive by noon.
 12:00 Petra TV says break till 14:00. However they get beams in to 23.2 GeV when we're not looking
 Petra TV says 'Injecta' - first we have to run our magnet up. 2 minutes after our magnet is up we lose the beam. Petra TV says short break.
 13:21 We're taking data!
 15:01 ID Trip
 15:23 Beams lost / ID Trip
 16:00 Murphy & Kobayashi
 Trying to fill.
 19:11 M-J wants new fill at 19:30.

18/3/84
 0:00 Rado and Dieckmann on shift
 3:45 low beam currents \rightarrow Pick-up preamplifiers changed: e^+ unit 3dB; e^- unit 0dB
 3:46 Run 16426 is lost somewhere in the dark depths of the NORD memories as we "downed" the Run before the Parameter setting was finished, because the beam was dumped.
 8:00 Whittaker and Kawamoto on shift
 9:35 Ebeam \rightarrow 23.315 GeV

16:00 YAMADA # 5. WAGNER ON SHIFT
 14:40 ID. high current. \rightarrow Beams lost. at $I^+ = 2.76 \text{ mA}$, $I^- = 2.88 \text{ mA}$ Run 16435
 17:10 ID trip. Beams lost. at $I^+ = 2.77 \text{ mA}$, $I^- = 2.84 \text{ mA}$ Run 16436
 17:20 short break.
 M-J called: The reason of the beam loss is "high temperature in the PETRA ring."
 Thermo switch worked. In order to cool down, the need to wait at least 20 minutes.
 20:40 New beams ready

19/3/84
 0:00 Becker & Mashimo on shift.
 8:30 Magnet set to 0, Isolator on

RUN	DATE	START	STOP	I ⁺	I ⁻	DEAD TIME (%)	TIME (sec)	RECORDS IN	RECORDS OUT	ALL x10 ⁶	T ₀ REJ x10 ⁶	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ BITZ E ₁ > 66V	T ₂ BITZ E ₂ > 2TR
16428	19.3.84	6:37	7:36	2.45	2.54	5.9	3451	5674	2072	897	53	3842	3602	516	477
16429	"	8.16	9.32	3.98	4.00	6.9	4534	8002	3153	1180	81	4994	5638	684	794
16430	"	9:39	10:57	2.58	2.64	5.7	4633	7463	2715	1205	69	5132	4542	702	528
16431	"	11.27	12.43	3.88	3.94	6.6	4554	8001	3194	1185	79	5214	5357	718	762
16432	"	12.44	13:34	2.48	2.57	5.8	3003	5024	1883	781	45	3507	3019	500	367
16433	"	14.30	15:47	4.01	3.88	6.6	4551	8002	3153	1184	78	5192	5339	713	727
16434	"	15:47	16:04	2.19	2.23	5.6	991	1678	583	258	14	1140	965	154	98
16435	"	16:53	17:42	3.76	3.83	6.8	2887	5125	2126	751	51	3274	3569	448	535
16436	"	18:10	19:11	3.96	3.97	7.0	3613	6639	2731	941	66	4199	4655	633	736
16437	"	20:45	21:36	3.72	3.80	6.5	3065	5177	2044	797	52	3339	3563	439	535
16438	"	22:09	23:26	3.89	3.95	6.5	4618	8002	3177	1202	79	5106	5335	750	797
16439	"	23:26	0:18	2.49	2.57	5.7	3002	5053	1861	781	45	3462	3041	443	385
16440	19.3.84	0:53	2:12	3.87	3.95	6.5	4672	8002	3114	1216	79	5084	5583	735	789
16441	"	2:12	3:23	2.50	2.61	5.6	4203	6794	2495	1094	61	4738	4078	654	476
16442	23.3.84	Test run	see p. 21												
16443	"	13:30	13:33	2.52	2.62	6.6	136	310	125	35	2	200	160	30	42
16444	"	13:31	14:58	2.44	2.54	5.7	5173	8002	2868						
16445	"	16:23	16:36	3.24	3.23	7.2	740	1403	554	192	13.8	848	960	94	163
16446	"	16:56	17:57	2.67	2.65	5.4	3686	5266	1626	958	51.3	3290	3859	134	80
16447	"	17:58	18:10	1.93	1.98	5.3	646	981	351	168	8.8	669	599	55	69
16448	"	21:49	21:58	3.50	3.58	15.7	510	1001	466	132	20.8	117	740	24	138
16449	"	21:58	23:03	3.11	3.21	8.3	3477	7480	3503	905	75.2	5019	4515	1699	876
16450	"	23:05	23:14	2.08	2.22	8.3	362	998	317	94	7.8	793	355	440	49
16451	24/3/83	0:36	1:38	3.97	3.99	9.3	3710	8002	3624	965	90	5204	5667	7435	7189
16452	"	1:39	2:53	2.25	2.35	7.0	4469	8002	3359	1163	81.6	5215	5604	733	975
16453	"	2:54	3:01	2.25	2.34	5.6	421								
16454	"	3:55	5:06	4.14	4.22	8.5	4099	8002	3860	1066	90	4970	5997	832	1135
16455	"	5:06	6:24	2.96	3.11	6.5	4628	"	3282	1204	78.5	5992	5465	730	887
16456	"	6:24	6:32	2.22	2.35	6.2	438	870	315	774	7.1	534	497	64	64
16457	"	9:03	10:24	3.82	3.89	7.1	4497	8001	3412	1171	84	5083	5853	729	1050
16458	"	10:24	11:14	2.66	2.79	3.9	2967	2827	1260	772	29	1597	2559	214	248
16459	"	14:17	14:42	3.45	3.55	12.0	1453	3915	2509	378	15.8	2325	2998	181	338
16460	"	17:53	18:01	3.86	4.01	76.8	211	755	623	55	42	561	376	10	44
16461	"	19:49	20:08	3.88	3.92	9.2	1386	2633	1194	361	33	1622	2023	228	1241

Forward Int. Lum (1.8)

ON/OFF	NSO	MIP	TOF	<L>	Ldt BHABHA RUN	Ldt EXP	IBM TAPE	ATRUNSTART BP [V]	TOF [V]	T ₂ REJ FRACT HP16 NSO	Σ BHABHA	HH	E _{BEAM}	REMARKS
on	on	on	0.63	2.33	54.71	IBM	0.55	0.1	52	61	15	0	23.300	Beams dumped
"	"	"	1.39	7.15	61.86	"	0.7	0.3	49	62	46	2	"	"
"	"	"	0.77	3.89	3.89	"	0.55	0.12	52	62	25	0	23.315	New energy, some fill, beams dumped
"	"	"	1.33	6.22	10.11	"	0.71	0.29	51	60	40	3	"	"
"	"	"	0.78	1.24	11.35	"	0.49	0.10	53	59	8	0	"	Beams dumped.
"	"	"	1.15	5.29	16.64	"	0.69	0.27	50	60	34	1	"	"
"	"	"	0.74	0.78	17.42	"	0.45	0.09	49	65	5	0	4	BEAMS DUMPED
"	"	"	1.28	3.11	20.53	"	0.70	0.25	51	58	20	1	"	Beams lost Backgr?
"	"	"	1.70	4.98	25.51	"	0.70	0.30	50	52	32	2	"	Beams lost.
"	"	"	1.39	4.51	30.02	"	0.63	0.24	51	59	29	3	"	Beams lost
"	"	"	1.34	6.22	36.24	"	0.7	0.3	50	60	40	3	"	"
"	"	"	0.77	2.65	38.89	"	0.5	0.1	51	60	17	0	"	"
"	"	"	1.01	6.38	45.27	"	0.7	0.3	51	61	41	1	"	"
"	"	"	0.75	2.96	48.23	"	0.48	0.1	53	61	19	0	"	"
"	"	"	0	0.31	48.54	"	0.6	0.1	42	61	2	0	"	Tagging HV was off
"	"	"	0.69	4.82	53.36	"	0.6	0.1				0?	"	Run summary lost
"	"	"	1.36	0.93	54.29	"	0.7	0.2	46	62	6	0	"	Run stopped due to HV failure (LG)
"	"	"	0.87	3.22	57.51	"			51	63	2+?	0	"	no E-cap beam, LG band wrong
"	"	"	0.58	0.47	57.98	"			53	63	3	0	"	Beams dumped
"	"	"	1.69	0.47	58.45	"	0.65	0.19	46	60	3	0	"	"
"	"	"	1.09	3.89	62.34	"	0.5	0.1	49	59	25	1	"	Energy change so run stopped
"	"	"	0.47	0.17	0.17	"	0.5	0.1	51	59	0	1	23.330	New energy, Beams lost
"	"	"	1.57	4.60	4.60	IBM	0.65	0.3	54	59	30	1	23.135	remeasure high points in R
"	"	"	1.00	3.68	8.28	"	0.38	0.09	53	57	24	0	"	"
"	"	"	0.66	0.15	8.43	"	0.37	0.1	51	59	1	0	"	beams lost.
"	"	"	1.72	6.89	15.32	"	0.73	0.33	52	58	45	2	"	"
"	"	"	0.90	4.14	19.46	"	0.15	0.14	53	56	27	0	"	"
"	"	"	0.66	0.77	20.23	"	0.39	0.09	49	59	5	0	"	beams dumped
"	"	"	1.30	6.89	27.12	"			53	57	45	1	"	"
"	"	"	0.87	1.07	28.17	"	0.45	0.11	54	56	7	0	"	"
"	"	"	0.16	0.92	29.11	"	0.71	0.29	50	57	6	0	"	Beams lost, lots tail! Acc trigger
"	"	"	0.42	0.00	29.11	"			55	48	0	0	"	Beams lost
"	"	"	1.84	1.84	30.95	"	0.6	0.25	53	56	12	1	"	energy, E ₁ , I ₁ typed in by hand.

RUN	DATE	START	STOP	AT RUN START	DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T# REZ $\times 10^4$	T# ACC. SUM	T# ACCUM	T# ITZ	T# ITZ
-----	------	-------	------	--------------	---------------	------	------------	-------------	-------------------	----------------------	-------------	----------	--------	--------

20 4.3.84

- 10⁵ We have only one Bhabha (E.C.) event so far ^{in run 16440} (~15 min.). MARKJ phoned PKR.
- 1¹⁵ Now we have 10 Bhabha events. Everything OK.
- 5⁵⁰ Magnet \rightarrow 500 amps, problems with cooling, no lumi in this shift
- 8³⁰ Magnet off set to 0. Insulator on.
The magnet may stay like this until Thursday, also the water may remain on unless K wants to turn it off
- 12:20 Interlock 2 broken. ^{W. Barkl}
More absorber around μ test chamber. Interlock reset. Total abs beam side now 1cm Pb.
- 14³⁰ 2 missing channels (ID, wire # 117 [8/1/15] and # 534 [10/2/6]) repaired. SB/A.O.
- 23⁴⁵ R. Marshall arrives from England to check how PETRA is running, early for tomorrow morning's shift. Well there are several words in the English language which I would like to select and a few from the German language also. I don't mind that nobody in my immediate circle bothered to let me know so I could avoid spending travel money, but goddammit - the log book could be a bit more informative!!
- ~~21/3/84~~ ~~20/3/84~~ 23⁰⁰ Hellenbrand was here to make checklist for ID, one DL8 crate switched off because of overload (br 4 cr 6) repaired 27/3/84 KHH
- 0:15 Takashita come to check temperature around DL8 = 18.2°C.
- 4:00 U. Meier (JADE is still existing)
- 08:00 T. Greenham (----- a -----)
- 22:00 C. Bowden checking μ -hardware. All seems well.....
- 23:20 Hellenbrand checking ID, overload br 6 crate 5, switched off, repaired 22/3/84 KHH

22/3/84

9:30 Alarm crate ID in Rucksack switched off, because power-pack was faulty, and also the spare-power-packs do. At least one will be repaired today. Until that time, switching on of I.D. is not possible. Please contact one of the Heidelbergers (Bechte, Hahn, Hellenbrand, Duchman) if Data-taking comes near... S.B.

21

16:15

- Statement from Group meeting
- PETRA Schedule 23/3/84 0⁰⁰ - 7⁰⁰ Polarization measurements - no magnet
7⁰⁰ \rightarrow HEP
- Beate is sure magnet not needed \therefore Night-shift will not appear (HEP)
- 19⁰⁰ ID-Alarm-crate repaired. Everything ok. S.B.
- 20⁰⁰ Takashita temp. of electric room is 18.4°C.
- 7¹⁵ 23/3/84 Halls
Having phoned PHR earlier I come in to switch magnet on. It won't - Call Kyrus L. G. power supply alarm peeping. Thinking it has a plus (whilst trying to get magnet on) I pull cable - first breakage!
Module in base of rack 6 had "Lüfter ausfall". According to instructions I powered off & on - seemed to work.
K switch magnet on. When raising via computer the magnet moves up a little and get message YMAANT! ++ Drive Error ++
NO Q when loading register. ^{whatever that means.}
- 7⁴⁴ Raise magnet by hand to 7500 Amr └ Even better - its not documented!
- 8:00 Dieckmann, Meier
- 11:30 LG-Trigger PSU Failed \rightarrow Alarm (Lüfterausfall) switching power off and on helped
- 12:30 RUN 16442 μ TEST RUN - WRITTEN TO IBM. 1078 records out (only leader + TRUVE banks)
- 13:06 Which Energies ?? (Confusion!)
What Mark J says:
First Finish point at: 23.315
Afterwards: 23.135
- 13:30 Tagging #V MFR61 was off. (Run # 16443) Now OK.

RUN	DATE	START	STOP	AT RUN START	I*	I-	DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL x10 ⁶	T# REJ x10 ⁴	T# ACC. SUM					

22
15 15 Trouble with Nord:
Run 16444 stopped automatically, as it was full (8000 events)
Blinking message "Run summary saving" appears on Condos TV
I start a new Run. The ↑ message keeps on blinking. After 1 minute I press ESC
on Command Terminal, Enter RT, RTEDAS, LOG doesn't work. OUT ERROR 91 IN 34441 (EDAS)
Reload Nord, Rebuild EDAS, YRUNSM, YMENU doesn't help. Howard comes in.

Restarting Nord - clock is not read properly - clearly this is not an individual program error but looks more like the complete system is mangled. Start a DIENT
This clarity turns out to be like Elbe mud. File RUNPAR:DATA was totally empty. Restored from backup & reset. HET

16:00 Nawoska and Bowdary on shift
We are waiting for the on-line computer to be ready.

16:23 Run 16445 started
16:35 LG Power supply alarm. We tried to switch off and on the HV unit that tripped but our efforts were rewarded with several loud bangs from the unit.
We call an expert to look at it.

While expert is fixing distributors for LG endcap we continue running wikout E-cap lumi. Run 16446

During the run 16446, all LG HV^V were wrong due to the spark noise. (including the barrel part)

A broken channel was found and disconnected. (Ring 30 Wand. #39) Takashita, Yamaoka

18:10 Beams dumped
Apparently there are vacuum problems around TASSO ⇒ short beam lifetimes

Mark J	62.5 nb ⁻¹
Cello	56 nb ⁻¹
Tasso	49.4 nb ⁻¹
Jade	58 nb ⁻¹

21:45 After many fruitless attempts, PKR managed to keep some beam up to highest energy.

At restart, NSO programs had to be loaded (???)
Then console went back with error messages. → Kretschmer had been here and forgotten to put back NP-16 start cable after his tests as usual.

24/3/84 HV of whole leadglass system is read out wrongly - Takashita comes.
08:00: Hellenbrandt, Olsen R/6451 start 036 HV tag +z not on in begin
beam Energy changed to 23.735 to remeasure high point in R
We get several error messages of DVM over ^{load} flow, mfr 23. After some detector work (through a CANAC LIS of 170kV!) we find that the Display range on the DVM (Rack 19, middle), being 2, is too small for a value 2.034. We switched to 20. LG/BP expert, please check!

Beams lost 3:01 Rest LG was run unaccountably, did not even see 192 92 from being slightly off.
4:01 Chamber alarm.
4:30 Many LG HV channels slightly off

08:00 Kawamata, Mills

9:40 LG Trigger power supply tripped. → switched on after ~30 sec. (RUN 16457)
(Linear sum crate)

10:05 LG Trigger Power supply tripped again.

10:00 Event rate very low (beams 2-3, 2.6 MA)

11:14 Beams lost

12:15 PKR say problems they get no new POSITRONS - repair may take an hour. Lower magnet (by hand) (its very heavy)

13:17 Raise magnet current

JIDAS changes
1) Nord-50 TZANA altered to cure mini bug involving internal overwriting (very rare)
2) YTEXT altered to put out warning messages if certain analysis flags are turned OFF but the depending rejection flags are ON.

14:7 Run 16459 started with new filling. we had changed 2 fuses in LG power supply.
Background problems & low luminosity. Seems to be a lot of lumi triggers.
These are accidentals - complain to PKR. They loose beams

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T# RES $\times 10^4$	T ₂ ACC. SUM	T ₁ RESUM E ₁ RESV	T ₁ BIT 2 E ₁ 2666V	T ₂ BIT 2	T ₂ 29.17
				I ⁺	I ⁻											

Forward INT. LUMI

NOTICE TO SHIFT CREWS - CHANGE TO SUMMERTIME.

Summertime starts early in the morning of Sunday. I will adjust the CAIAC and NORD clocks on Monday morning. HE+

- 24.3.84, 16⁰⁰ Becker + Bethlee on shift
- 16⁴⁰ Lead Glass ~~FF~~ ^{trigger power} alarm: Switch unit on-off - alarm again. Call Kawamoto, he will come. We have beam and could run, if not - see above.
- 17⁴⁵ Found Fan that gives Fan-failure. Exchanged (last spare piece)
- 19⁴¹ Fill ready, stand run 16461. strange: Nord asks for Le^+Je^- Energy (to put in by hand), but run proceeds normally in writing to IBM and showing energy Je^+, Je^- on screen!
- 20⁰⁸ Beam loss: ID alarm
- 20⁴⁰ Lead Glass Trigger Power Alarm: Switch unit on/off - o.k. (Lüfterausfall)
- 21⁰⁰ " " " " " " " " " " " "
- 21⁰⁶ " " " " " " " " " " " "
- 21²⁷ 2x " " " " " " " " " " " "
- Phoned Kobayashi. For there is no Fan-unit (spare) left, he suggested to switch off the Ge-trigger power (to right, lower unit) ^{as long as} until there is no lumi to cool down the electronics. May be, we can live with this trick until monday.
- 21⁴⁰ lumi-run, but Ge-power-supply holds only for ~10 sec. We cannot measure! (call for Japanese)
- 22³⁰ We run again!!
- 2 Japanese and the shift-crew solved the problem: reason of this fan-failure was a filter, full of dust. After removing it, the fan is like an "osham". But: there are 5 of this crates, we removed only ~~one~~ ^{one} filter (fan directly on the floor). This error might happen more frequently also in the other crates. Tokyo-people should think about removing this remaining filter in the next short break. and: there is no spare fan at the time, because the one exchanged this afternoon is really mechanically faulty.
- 23³⁵ HV wrong: power supply 22, 23

25.3.84
 0⁰⁰ Hill & Taloshita
 7⁵⁷ and 7⁵⁹ ID tripped.
 For the moment, please ignore "HV wrong and HV Read error". (Taloshita)

8⁰⁰ Ambrus + Dietrich
 9¹⁸ ID tripped several times (RUN 16466). Beams will be dumped soon. Try again with new fill.
 12⁴⁵ Camae and NIP clocks updated to Summertime.
 15⁰⁰ NORD says "LEVEL 14"

16:00 Kobayashi and Greenshaw
 16:00 Temperature alarm (hardware room) went off, temperature on thermometer 18°C. MKK3 couldn't be reached
 16:50 Temp in hardware room 18.1°C
 17:56 JDA5 Readout error 33 - missing LAM branch 5 crate 3: I.D. Ring 1 appears twice. (Run 16472)
 Hardware room temp 18.5°C
 19:30 JDA5 Readout error 77, as above.
 19:46 Beams lost, afterwards "Short Break" is indicated.
 22:30 Temperature alarm (hardware room) temperature on thermometer 18.5°C
 23:07 JDA5 Readout error 33, as above.

26.3.84
 00:00 Schmidt & Darvell
 00:10 over temperature in hardware room. we call 3437 but get no answer. At the same time we open doors and after a couple of minutes the alarm goes away.
 02:30 After several temperature alarms we decide, as a result of there being no answer to our attempts to telephone MKK3, to experiment with opening doors to the hardware room. We find that the best solution is to hold the door giving access to the back of the racks open. We appreciate that this is not the way that the air conditioning system is supposed to work, but no workable alternative is open to us.
 07:30 we regularly get high voltage read errors - Power supply 22 & 23 on LG/SP system.
 07:47 There seems to be some trouble with the Gould printer. Run summaries for the last two runs were not printed automatically. we had to display them on the Tektronix terminal and then make hard copies. perhaps HE+ will look into it?
 8⁰⁰ - 11⁰⁰ Greenshaw + Peterson

AT RUN START I+ I- DEAD TIME (%) TIME RECORDS IN RECORDS OUT ALL x 10^6 T0 REG. x 10^6 T1 ACC SUM T2 ACC SUM T1 BIT 2 T2 BIT 15

26 RUN	DATE	START	STOP	I+	I-	DEAD TIME (%)	TIME (Sec)	RECORDS IN	RECORDS OUT	ALL x 10 ⁶	T0 REG. x 10 ⁶	T1 ACC SUM	T2 ACC SUM	T1 BIT 2 E1 > 6 GeV	T2 BIT 15 2T.E4 ≥ 2T1
16462	24.3.84	22:30	23:50	3.17	3.32	6.5	4802	8002	3164	1249	81	5199	5711	623	879
16463	25.3.84	23:51	0:18	2.36	2.52	5.6	1598	2521	887	416	23	1747	1604	787	211
16464	"	4:17	5:34	4.04	4.27	11.7	943	1920	877	245	28	1054	1567	163	275
16465	"	6:16	6:59	3.59	3.69	7.2	2554	4614	1887	664	48	2632	3346	345	481
16466	"	7:01	8:22	2.86	2.97	5.8	3614	5859	2146	940	54	3811	3782	423	492
16467	"	9:10	9:47	4.03	4.06	8.7	962	1670	720	250	21	961	1282	125	210
16468	"	9:48	11:05	3.91	3.94	6.8	4633	8002	3147	1206	82	4924	5759	687	867
16469	"	11:06	11:28	2.67	2.69	5.7	1790	2110	782	336	19	1390	1324	182	133
16470	"														
16471	"	16:09	16:09												
16472	"	16:10	17:29	3.58	3.34	6.8	4715	8002	3217	1225	83.5	4480	5521	692	744
16477	"	17:29	18:16	2.68	2.48	6.1	2763	4445	1691	719	43.6	2468	2907	431	379
16474	"	11:01	19:40	7.28	7.22	8.2	2727	4689	2074	606	49.6	2748	3146	475	619
16475	"	20:58	22:15	3.35	3.43	7.2	4526	8002	3457	1178	85.2	5047	5489	824	956
16476	"	22:15	22:20	1.88	1.98	5.9	269	490	180	70	4.1	323	283	34	60
16477	"	22:51	23:54	3.59	3.61	19.2	3137	8002	4460	812	186	4768	5881	981	1747
16478	"	23:55	00:46	2.85	2.70	6.3	3030	5874	2102	789	49.5	3364	3375	464	540
16479	26.3.84	01:24	02:36	3.16	3.06	7.5	4318	8002	3613	1124	85	5156	5525	735	1054
16480	"	02:36	03:00	2.05	1.99	7.9	1425	2819	1303	370	29	1804	1992	276	467
16481	"	03:28	04:28	3.85	3.88	34.2	3630	8002	4620	945	323	4619	6125	955	2036
16482	"	04:30	05:30	2.37	2.44	11.5	3625	6932	3428	944	108	4424	4879	734	1072
16483	"	05:55	06:54	3.99	4.04	22.3	3506	8001	4496	913	204	4760	6065	924	1770
16484	"	06:58	07:41	2.23	2.31	7.8	2550	4919	2236	664	52	3198	3416	523	713
16485	"	08:10	09:12	3.96	3.88	17.5	3202	8001	3913	963	169	4602	6163	844	1607
16486	"	09:12	10:01	2.38	2.44	7.7	2867	5514	2346	745	58	3576	3772	566	730
16487	"	17:48	19:04	3.34	3.35	6.7	4549	8002	3447	1184	79	5135	5531	697	971
16488	"	19:10	19:20	1.96	2.02	5.5	618	973	386	161	9	669	620	85	85
16489	"	22:27	22:48	3.57	3.61	7.0	4543	8001	3316	1181	83	5035	5638	692	964
16490	"	23:44	0:01	1.94	2.05	5.6	981	1567	598	255	14	1013	1007	147	123
16491	27.3.84	0:32	1:47	3.40	3.44	7.0	4468	8001	3463	1161	81	5047	5571	740	922
16492	"	1:47	1:59	1.83	1.94	5.5	601	1008	390	156	9	676	589	84	283
16493	"	2:25	2:33	3.80	3.83	27.4	409	712	325	106	29	410	521	67	323
16494	"	2:59	4:11	3.79	3.80	7.6	4280	8001	3382	1112	85	4951	5569	766	966
16495	"	4:12	4:37	1.89	2.01	6.1	1497	2563	943	389	24	1716	1608	259	221

Forward INT. LUMI

N50	MIP	TOF	<L>	SLdt BHABHA RUN	SLdt EXP.	IBM TAPE	BP	TOF	T2 Rej. MP16/N50	Σ BHABHA	MH	E _{Beam}	REMARKS
ON	ON	ON	0.75	3.52	34.47	IBM	0.8	0.4	54 59	23	0	23.135	
"	"	"	0.41	1.07	35.54	"	0.4	0.1	55 66	7	0	"	Beam dumped
"	"	"	2.77	1.79	37.53	"	0.72	0.32	49 59	13	0	"	Beams lost. Note that is now 1 hour difference between N50 time and real time.
"	"	"	1.45	3.22	40.75	"	0.72	0.32	44 61	21	1	"	
"	"	"	0.75	2.45	43.20	"	0.60	0.14	49 65	16	1	"	Beams lost
"	"	"	1.45	1.23	44.43	"	0.78	0.3	48 58	8	0	"	
"	"	"	1.01	4.44	48.87	"			49 63	29	3	"	
"	"	"	0.70	1.07	49.94	"			49 62	7	0	"	Beams dumped
							0.8	0.4					Need hang up. no data
							0.7	0.1					
"	"	"	1.02	3.83	54.77	"	0.2	0.1	48 63	25	2	"	
"	"	"	0.67	2.60	57.77	"	0.55	0.1	52 61	17	1	"	Beams dumped (rescan ended)
"	"	"	1.11	2.96	3.13	"	0.7	0.3	68 60	14	1	23.330	Beams lost New energy (continuous at previous height)
"	"	"	0.92	4.67	7.80	"	0.8	0.45	49 60	30	1	"	
"	"	"	0.45	0.0	7.80	"	0.45	0.1	49 66	0	0	"	Beams dumped
"	"	"	0.83	3.27	11.07	"	0.8	0.5	48 45	21	5	"	
"	"	"	0.52	1.25	12.32	"	0.55	0.14	51 60	8	2	"	Beams dumped
"	"	"	0.56	2.49	14.81	"	0.6	0.23	51 56	16	5	"	
"	"	"	0.37	0.31	15.12	"	0.5	0.16	52 55	2	0	"	Beams dumped
"	"	"	0.80	3.74	18.86	"	0.85	0.58	48 43	24	0	"	
"	"	"	0.55	1.87	20.73	"	0.6	0.3	52 52	12	1	"	Beams dumped
"	"	"	0.98	3.58	24.31	"	0.85	0.7	49 45	23	1	"	
"	"	"	0.55	1.25	25.56	"	0.5	0.2	52 56	8	1	"	Beams dumped
"	"	"	1.06	4.21	29.77	"	0.80	0.5	47 58	29	0	"	
"	"	"	0.61	1.25	31.02	"	0.55	0.2	50 59	8	0	"	Beams dumped
"	"	"	1.01	4.67	35.69	"	0.8	0.3	51 58	30	0	"	
"	"	"	0.46	0.28	35.97	"	0.5	0.2	56 57	1	0	"	Beams Dumped.
"	"	"	1.00	5.76	41.73	"	0.75	0.35	50 60	37	4	"	
"	"	"	0.49	0.31	42.04	"	0.45	0.1	49 60	2	0	"	
"	"	"	0.93	3.90	45.94	"	0.71	0.34	50 60	25	0	"	
"	"	"	0.52	0.47	46.41	"	0.43	0.1	48 58	3	0	"	
"	"	"	1.04	1.56	47.97	"	0.75	0.4	47 60	10	0	"	Beams dumped
"	"	"	1.00	4.21	52.18	"	0.72	0.4	48 59	27	2	"	
"	"	"	0.47	1.09	53.27	"			51 64	7	1	"	

30 RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (sec)	RECORDS IN	RECORDS OUT	ALL x 10 ⁶	T ₁ REJ x 10 ⁶	T ₁ Acc SUM	T ₂ Acc SUM	T ₁ BIT 2 E ₁ > 6 GeV	T ₂ BIT 2 2T-E ₁ > 2TR
				I ⁺	I ⁻										
16496	27.3.84	5:05	6:17	3.82	3.84	7.9	4293	8002	3506	1117	89	4961	5753	857	3420
16497	"	6:17	6:19	1.74	2.03	7.1	59	150	65	15	1	92	74	14	30
16498	"	08:39	08:40	3.71	3.74	18.8	3581	8002	4390	932	125	4854	5903	906	1740
16499	"	9:40	9:53	2.01	2.13	10.0	539	1181	610	140	14	730	847	134	230
16500	"	04:53	10:03	1.86	1.49	10.0	610	1753	692	159	15.9	869	909	184	265
16501	"	12:22	13:34	3.65	3.71	8.6	4253	8002	3697	1107	94.7	4408	5935	765	1223
16502	"	17:34	16:01	1.90	2.04	8.5	1553	2670	1075	404	34.2	1751	1683	235	267
16503	"	14:17	14:26	1.53	1.68	5.8	517	824	384	134	7.9	567	562	85	118
16504	"	15:31	16:36	3.51	3.65	14.2	3856	8002	3869	1003	143	4687	6093	852	1512
16505	"	16:36	17:52	2.48	2.63	7.4	3904	7325	3107	1015	75	4760	5053	765	1028
16506	"	18:13	17:09	4.02	4.13	14.1	3151	6679	3229	819	115	3852	5185	761	1265
16507	"	19:42	20:44	3.98	3.99	15.5	3689	8001	3257	960	118	4551	6132	879	1527
16508	"	20:44	21:54	2.66	2.75	8.7	4027	8002	3529	1058	91	5071	5693	865	1160
16509	"	21:55	22:01	1.94	2.03	6.7	391	725	315	101	6	489	453	70	87
16510	"	22:27	22:52	2.99	3.01	26.3	943	1929	1008	237	22	971	1597	178	545
16511	"	23:16	23:33	4.04	4.08	31	912	1937	1004	237	73	989	1642	184	436
16512	"	23:34	23:35	3.54	3.61	23	20	82	50	5	1	42	34	10	13
16513	29.9.84	0:23	1:26	4.02	4.12	37	3795	4002	4414	982	363	4776	7016	872	2705
16514	"	1:26	2:26	2.69	2.84	30	3537	8002	4355	919	272	4542	6736	953	2004
16515	"	2:26	2:32	2.01	2.19	55	365	775	484	95	52	364	749	79	283
16516	"	3:04	3:45	3.99	4.05	29	2630	5307	2805	632	185	8868	4436	619	1260
16517	"	4:19	5:19	3.84	3.87	20	3650	8002	3936	950	192	4438	6356	897	1597
16518	"	5:20	6:23	2.69	2.74	9.6	3789	8002	3518	986	95	4984	5663	865	3996
16519	"	6:39	6:45	1.89	1.96	7.0	358	768	344	93	65	492	435	95	101
16520	"	7:13	8:17	3.94	3.97	36.5	3638	8002	4503	946	345	4575	6622	977	2183
16521	"	8:17	8:46	2.15	2.38	17.9	3944	2044	448	448	80	2426	2887	448	833
16522	"	9:41	10:52	3.94	3.96	22.5	3748	8002	4232	975	219	4468	6306	882	1618
16523	"	10:58	12:04	2.48	2.62	9.4	3921	8001	3602	1020	95.6	4954	5606	867	1213
16524	"	12:04	12:43	1.83	1.98	6.7	2331	4304	1776	606	41	2909	2710	472	466
16525	"	12:44	12:54	1.54	1.69	7.1	570	1097	468	148	11	751	689	130	187
16526	"	14:00	15:06	3.91	3.85	26.1	3937	8002	3860	1025	267	4107	7051	734	1606
16527	"	15:06	16:15	2.56	2.49	9.0	4091	8002	3228	1065	95.5	4790	5770	721	1028
16528	"	16:16	16:23	1.84	1.83	8.2	399	749	297	104	8	470	497	65	100
16529	"	16:56	17:59	3.88	3.87	19.2	3756	8002	3751	977	188	4278	6584	765	1467
16530	"	17:59	18:41	2.63	2.57	12.2	2445	5451	2505	637	78	3328	3791	607	881

Forward INT. LUMI (N.B.)

ON/OFF				<L>	SLdt BHABHA RUN	SLdt Exp.	IBM/TAPE	AT RUN START		T ₂ Rej. MP16	Σ BHABHA	MH	E _{BEAM}	REMARKS		
NSD	MIP	TOF	BP [V]					TOF [V]								
"	"	"	"	0.97	2.96	56.23	IBM	0.79	0.45	50 58	19	3	23,330			
"	"	"	"	0.99	0.00	56.23	"	0.45	0.11	43 60	0	0	"	Beams dumped		
ON	ON	ON	"	0.93	3.12	59.35	"	0.85	0.45	50 53	20	0	"			
"	"	"	"	0.5	0.31	59.66	"	0.45	0.15	51 50	2	1	4			
"	"	"	"	0.4	0.16	54.82	"	0.4	0.15	51 56	1	0	"	Beams dumped		
"	"	"	"	0.49	2.46	62.78	"	0.7	0.3	50 58	19	0	"			
"	"	"	"	0.54	0.78	63.56	"	0.45	0.1	44 63	5	0	"	PETRA frequency changed after run 16502 so 16503 may be at a different energy, although nominal energy the same.		
"	"	"	"	0.28	0.31	0.31	"	0.4	0.1	50 56	2	0	23.330			
"	"	"	"	0.93	3.43	3.74	"	0.81	0.44	48 57	22	3	"			
"	"	"	"	0.60	2.65	6.39	"	0.6	0.2	52 59	17	2	"	beams dumped		
"	"	"	"	1.22	4.52	10.91	"	.86	.65	58 58	29	0	4	part of beam lost then dumped		
"	"	"	"	0.90	3.47	14.34	"	0.9	0.6	57 58	22	2	"			
"	"	"	"	0.73	2.03	16.37	"	.58	.23	51 59	13	0	"			
"	"	"	"	0.71	0.00	16.37	"	.56	.13	56 57	0	0	4	beams dumped		
"	"	"	"	1.38	1.09	17.56	"	.85	.60	55 57	7	0	11	beams lost		
"	"	"	"	1.19	0.78	18.24	"	.8	.65	46 54	5	1	"			
"	"	"	"	2.12	0.00	18.24	"	-	-	29 63	0	0	"	BEAMS LOST		
"	"	"	"	0.75	2.96	21.20	"	0.75	0.62	48 53	19	1	4			
"	"	"	"	0.48	0.31	22.57	"	0.62	0.40	51 54	2	0	"			
"	"	"	"	0.13	0.00	21.57	"	0.55	0.49	49 54	0	0	"	beams dumped		
"	"	"	"	0.82	3.12	24.63	"	.8	.8	48 48	20	4	"	beam lost		
"	"	"	"	0.75	3.74	27.37	"	.8	.65	47 56	24	7	"			
"	"	"	"	0.48	0.93	28.30	"	.60	.25	49 57	6	7	"			
"	"	"	"	0.30	0.00	28.30	"	-	-	0 0	0	0	"	beams dumped		
"	"	"	"	0.53	2.65	30.95	"	.9	.9	51 53	17	0	"			
"	"	"	"	0.35	1.25	32.20	"	0.53	0.29	50 53	8	0	"	beams dumped - short break!		
16522	"	9:41	10:52	3.94	3.96	22.5	3748	8002	4232	975	219	4468	6306	882	1618	
16523	"	10:58	12:04	2.48	2.62	9.4	3921	8001	3602	1020	95.6	4954	5606	867	1213	
16524	"	12:04	12:43	1.83	1.98	6.7	2331	4304	1776	606	41	2909	2710	472	466	
16525	"	12:44	12:54	1.54	1.69	7.1	570	1097	468	148	11	751	689	130	187	
16526	"	14:00	15:06	3.91	3.85	26.1	3937	8002	3860	1025	267	4107	7051	734	1606	
16527	"	15:06	16:15	2.56	2.49	9.0	4091	8002	3228	1065	95.5	4790	5770	721	1028	
16528	"	16:16	16:23	1.84	1.83	8.2	399	749	297	104	8	470	497	65	100	
16529	"	16:56	17:59	3.88	3.87	19.2	3756	8002	3751	977	188	4278	6584	765	1467	
16530	"	17:59	18:41	2.63	2.57	12.2	2445	5451	2505	637	78	3328	3791	607	881	

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T# REJ $\times 10^6$	T# ACC. SUM	T# ARESUM	T# BTLZ	T# IT17
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14:16 Run 16503 at nominal energy 23.330, possible error due to frequency change. We are now to accumulate another 240 nb⁻¹ (60 per exp) at a nominal energy of 23.330.

16:00 SPITZER & J. WAGNER ON SHIFT

19:58 NO LUMINOSITY FOR 1ST 15 MINUTES OF NEW FILL. M-J CALLS; THEY DON'T HAVE ANY EITHER. HOWEVER, WE WERE GETTING TRIGGERS, & LUMI MONITOR TAGG SCALERS ARE VERY HIGH. PHONE PKR & THEY SAY THEY WILL CORRECT. OK NOW.

1984 MAR 28 00°. Duendell Petersen.

- 3⁰⁰ The 'incredibly preliminary' value of R has now reached 10.14 ± 1.6
- 7⁰⁰ ID trip
- 7²⁰ ZDAS READOUT ERROR 46 - MP-16 out of sequence YY=0
- 7³⁰ " " " 33 missing LAM branch 5 crate 3: ID ring 1

8:00 Heinzelmann and Bowdery on shift
R is still high!
New fill planned for 8:45 at the same energy

44 Multi-hadronic events at this energy for 95 nb⁻¹
HOWEVER: At least 10 of these are NOT MH events (we have scanned the hardcopies made at the Nord and 10 events are clearly misidentified, some ~~mainly~~ due to noisy LG blocks)

10:10 HV-Box gave a LG-HV-box error but suddenly it cleared itself.
10:12 LG HV alarm again. A power supply is fluctuating. Kobayashi will come.
10:14 And again. Clears itself after 1/2 minute.

11:20 Takeshita found the LG supply in order. Apparently there is an occasional problem with a 1MΩ resistor which is sometimes only 400K!
LG thresholds checked.

12:00 Synchrotron interlock problem. New filling delayed. Continue with existing one.

16:00 Yamada + Becker

18:45 Magnet power failure. Imag went down to 0. PETRA keeps running!
~~ea~~ We could not raise the current again. Manual trial didn't work either. Group K people will come.

19:05 Mag. power ~~supply~~ fixed. They say "nothing was wrong".

19:15 The run 16531 started.

19:25 ID trip. due to the magnet interlock. But mag. current was "on".

19:30 Beams dumped.

Somehow Mark-J forgot to urge us. So we took an initiative to propose a new fill.

21:00 ZDAS READOUT ERROR 33: branch 5 crate 3 I.D. Ring 1

21:36 Beams lost

23:20 A funny alarm: A very short HV alarm? The speaker bawailed for some time. All HV's were on including the ID HV. It recovered after 220 sec.

24:00 Bartow & Krehl

29/03/84 0:20 Ask for new fill as beam currents and luminosity disgustingly low.

7:30 After new fill: oddly fluctuating deadtime = 10% - 60%.
we asked PKR to watch meter.

Several times μ Late missing = 11;

2:08 ZDAS Readout error 33 Missing LAM Branch 5 crate 3 ID Ring 1

ca 2:00 A visit to PKR: shift crew there - 3 people for DORIS and PETRA, 2 of them lying in the armchairs and sleeping.

ca 3:20 High ToF rate, high background. Complaint at PKR helped. They just touched the Q value a bit.

4:16 Histogramming percentage reduced to 25%.

Permanently Muon Gate 11 missing.

Frustrating background seems to be caused by long single-event-time, up to a second/event. What is the computer doing? The experts should watch the white lamp. The deadtime really moves between 8% and 60%.

Since I had no better idea, I tried to reload the ZDAS.

Stop Run, then EX → Message NSO Job Timeout.

RT ZDAS etc. → NSO cannot be started!

Reload from beginning → All worked fine, but everything as it was, high deadtime in spite of low TOF current, 0.3 μ V;

6:00 Histograms checked

AT RUN START I+ I- DEAD TIME (%) TIME RECORDS IN RECORDS OUT ALL x 10^6 T₁ REJ. x 10^6 T₁ ACC. SUM T₁ BIT 2 T₁ BIT 2 T₂ BIT 17

Forward INT. LUMI (N.B)

RUN	DATE	START	STOP	I+	I-	DEAD TIME (%)	TIME (sec)	RECORDS IN	RECORDS OUT	ALL x 10 ⁶	T ₁ REJ. x 10 ⁶	T ₁ ACC. SUM	T ₁ BIT 2 E ₁ >6GeV	T ₁ BIT 2 2.T.E ₄ >2TR
16531	28/3/84	19 ⁴⁵	19 ³²	1.83	1.84	7.3	816	1621	707	213	16	1064	1046	7203
16532	"	19 ⁵⁸	21 ⁰²	4.09	4.12	15.2	3813	8002	3626	992	151	4364	6285	748
16533	"	21 ⁰³	21 ³⁶	2.64	2.70	8.4	1948	3956	1653	507	42	2453	2794	393
16534	"	22 ⁰⁴	23 ⁰⁷	4.04	4.07	16.6	3284	8002	3858	984	163	4411	6353	840
16535	"	23 ⁰⁸	01 ¹¹	2.65	2.77	9.3	3709	8002	3505	965	90	4848	5230	913
16536	29/3/84	0:10	0:20	1.95	2.09	7.4	487	1087	469	127	9	726	599	130
16537	"	1:20	2:22	3.89	3.96	22.3	3643	8001	4022	948	211	4409	6127	901
16538	"	2:21	3:23	2.53	2.77	13.6	3652	8002	3984	950	728	4771	6173	915
16539	"	3:25	3:38	1.84	2.09	24.3	797	1862	982	207	50	1106	1447	232
16540	29/3/84	4:08	4:42	3.85	3.90	30.2	1932	4302	2320	502	152	2350	3586	506
16541	"	4:48	5:26	2.89	3.06	16.0	2215	5100	2576	576	92	3116	3675	624
16542	"	6:17	7:18	3.69	3.77	28.8	3552	8000	4384	925	267	4246	6552	812
16543	"	7:18	8:13	1.85	2.10	13.2	3248	7403	3597	845	112	4431	5272	813
16544	"	8:14	8:27	1.84	2.09	8.9	713	1676	810	186	17	1030	1006	185
16545	"	10:20	10:41	2.28	3.21	49.1	1232	2644	1606	320	158	1390	2337	311
16546	"	11:04	11:36	2.05	2.95	33.0	1666	3586	1865	434	144	1764	3436	313
16547	"	1												
16548	"	18:15	18:30	1.75	1.94	7.1	868	1710	775	225	159	1080	1134	165
16549	"	18:59	19:55	4.01	4.17	15.3	3321	8002	5837	863	132	4376	6532	814
16550	"	19:55	20:58	2.72	2.86	8.2	3742	8002	5308	974	795	4782	5479	756
16551	"	20:58	21:31	1.98	2.11	6.9	1915	3954	2501	498	347	2382	2426	353
16552	"	22:06	22:19	3.97	3.98	16.3	761	2021	1594	198	323	1025	1703	191
16553	30/3/84	0:14	0:17	3.86	3.90	9.8	3736	8002	5838	972	95.1	4248	6552	665
16554	"	1:18	1:35	2.59	2.69	7.3	2726	4203	2657	571	47.7	2616	2916	381
16555	"	2:34	03:30	3.94	3.97	10.4	3572	8002	6089	877	91.6	4052	6271	742
16556	"	03:30	04:34	2.73	2.80	8.1	3793	8001	5373	987	79.9	4719	5607	790
16557	"	04:36	04:55	4.98	2.06	7.4	1158	2277	946	301	22.3	1428	1559	216
16558	"	05:21	06:10	3.94	3.98	14.8	2105	6148	2766	756	111.6	3263	4993	584
16559	"	8:25	9:27	3.66	3.70	13.7	3655	8002	3816	951	130.4	4259	5787	684
16560	"	9:27	10:36	2.50	2.56	7.4	4124	8001	3410	1073	79.7	4881	5164	725
16561	"	10:36	10:47	1.82	1.89	6.0	608	1085	428	158	9.5	722	625	124
16562	"	13:14	14:21	3.70	3.70	10.2	4007	8002	3582	1043	106.4	4588	6125	673
16563	"	14:21	15:02	2.32	2.49	6.8	2407	4284	1857	626	58.3	2709	2962	415
16563	"	15:28	16:35	3.93	3.82	9.6	3983	8002	3519	1035	99.7	4606	6105	747

NSD	MIP	TDF	<L>	SLdt Bhabha RUN	SLdt EXP.	IBM TAPE	BP (V)	TOF (V)	T ₂ Rej. MP/NSD	Σ BHA	MH	E _{beam}	Remarks
ON	ON	ON	0.33	0.16	11.54	IBM	0.45	0.1	57 60	1	0	23.345	Beams dumped.
"	"	"	1.06	3.59	15.13	"	0.85	0.6	45 59	23	28	"	"
"	"	"	0.65	2.65	17.48	"	0.6	0.2	49 59	17	0	"	Beams lost
"	"	"	1.07	2.65	20.43	"	0.9	0.65	46 56	17	0	"	"
"	"	"	0.59	3.12	23.55	"	0.6	0.3	42 57	20	0	"	"
"	"	"	0.45	0	23.55	"	0.5	0.1	45 58	0	0	"	Beams Dumped.
"	"	"	0.95	3.43	26.98	"	0.9	0.55	44 56	22	0	"	"
"	"	"	0.58	2.87	29.79	IBM	0.6	0.3	50 55	18	2	"	"
"	"	"	0.37	0.37	30.10	"	0.5	0.45	57 58	2	7	"	Beams dumped
"	"	"	0.95	3.24	33.84	"	0.97	0.63	48 54	24	0	"	"
"	"	"	0.93	1.72	35.56	"	0.6	0.3	49 55	11	0	"	Beams Lost.
"	"	"	0.83	4.21	39.77	"	0.8	0.6	45 51	27	0	"	"
"	"	"	0.52	1.40	41.17	"	0.6	0.3	46 53	9	3	"	"
"	"	"	0.40	0.16	41.33	"	0.43	0.15	38 54	1	0	"	BEAMS DUMPED
"	"	"	0.53	0.47	41.80	"	0.75	0.8	49 50	3	0	"	LG HT Alarm stopped it.
"	"	"	0.49	0.62	42.42	"	"	"	50 50	4	0	"	Stop for HV repair
"	"	"	~	2.5		"	.6	.2				"	Hard crash.
"	"	"	0.37	0.31	~45.1	"	0.8	0.4	48 55	2	0	"	Beams dumped.
"	"	"	1.30	4.21	49.3	"	0.8	0.4	46 7	27	2	"	PATR off.
"	"	"	0.62	3.28	52.58	"	0.65	0.25	44 1	21	0	"	"
"	"	"	0.45	1.09	53.67	"	0.5	0.12	39 0	7	0	"	beams dumped.
"	"	"	1.82	1.56	1.56	"	0.9	0.6	46 0	10	1	23.360	beams lost
"	"	"	1.17	4.37	5.93	"	0.9	0.55	45 0	28	2	"	one of the HB is ok, the other one is not ok
"	"	"	0.62	1.25	7.18	"	0.6	0.2	45 0	8	0	"	beams dumped
"	"	"	1.24	3.44	10.62	"	0.87	0.6	40 0	22	1	"	"
"	"	"	0.67	2.81	13.43	"	0.7	0.3	44 0	18	0	"	"
"	"	"	0.49	0.94	14.37	"	0.55	0.15	50 58	6	1	"	PATR ON
"	"	"	0.89	3.75	18.12	"	0.87	0.55	45 60	24	1	"	beams lost
"	"	"	1.07	3.59	21.71	"	0.8	0.25	38 56	23	1	"	"
"	"	"	0.59	2.34	24.05	"	0.58	0.17	42 56	15	0	"	"
"	"	"	0.39	0.78	24.83	"	0.5	0.10	47 66	5	0	"	beam lost
"	"	"	0.90	2.34	27.17	"	0.74	0.34	47 60	15	1	"	"
"	"	"	0.45	1.87	29.04	"	0.49	0.16	50 58	12	0	"	beams dumped
"	"	"	1.02	3.75	32.79	"	0.74	0.45	47 57	24	0	"	"

6:45 JDAS error 33 - Missing LAM band 5 crate 3 happened twice

7:11 JDAS error 33 band 3 crate 2, followed by "no tagged" message. Pause and continue cures this. After pause got readout error 45 - MPI6 analysis incomplete YY=1

8:00 Clean & Misalablon 8³⁰ short break, longer than IKR thinks

10:30 Bad dead time due to unsymmetric beams. No new fill possible for at least an hour, we try to live with it

10:50 Sudden LG HV alarm. There is no overload, after several attempts to start up, it suddenly works. What happened?

11:15 Inverter debator crank current trip - pause - reset - continue

11:20 Takeshita checks the HV: The HV of one Endcap is now 300 V below nominal and sparking. These channels could in principle be moved to the free area on BP unit. Build out Distributor 21, find burned card inside. Takahashi, Kobayashi, Matsumura hard at work. Luckily there is also a "Korze Unterbrechung"

11:57 Finally beams again, but we are not yet ready with LG HV repair.

16:00 Taking advantage of this break, all layer 2-5 (mechanics) in chambers are now read out at the L1 end only (L2's removed). This disables Z readout and should improve multi-hit capability. - see JADE minutes for details. AB/TC/PH. This mod. applies from run 16547.

16:00 JADE down due to lead glass power supplies.

17:07 It's fixed - start run.

17:00 Dead time is much better. - only ~7%.

18:00 B. Narosha finally appears on shift after group meeting. Notice on Color-TV FAMP On. Start wondering who to ask for consequences. When wondering Nord hangs up on level 14. Restart. Peculiar message on typewriter during Stand up procedure. Start up again, Now ok.

Run 16548 started.

Mark E	63.3	73.5
Cello	~55	61.2
Tasso	43	54.
Fade	45	53.
		<u>244.</u>

21.11⁴ Olson says: crash probably caused by Famp being on. Now it's off.

18:30 Asked for new fill.

18:58 Filling ready

Forward INT. LUM (N.B)

19:05 Deadtime ~ 40-50% on racks it is oscillating between 25 and 50%. Distributions and TOF and BP rate look ok. So I start experimenting with analysis flags. PATK does it. Deadtime goes down to ~10%. Very reproducible. The effect of PATR on and off diminishes slowly. At the beginning 2nd run after new filling only a few %. But I leave it off anyway (and corresponding Rejection flags 16 and 17).

21:20 Asked for new fill at new energy.

22:20 beams lost. Synchrotron can't deliver positions.

30.03.84 000 Ball, Bethe on shift

00:32 Run 16553 in progress + we capture one of the events needed by Howard, with "double record" and approx 3/4 of ring 1 not drawn. Saved on file IDMISS1. Was there a reward??

01:18 Starting run 16554 - H.V. read error LG PS-U. 15. LG/BP HV CONTR: NO RESPONSE LG. H.V. 15 is on - nothing looks unusual in LG HV racks or LG histograms.

02:34 New fill ready.

04:36 Near end of fill - switch PATR back on

04:50 Request new fill.

7:00 Short break, at least $\frac{2}{3}$ hours. Run down magnet \rightarrow 3000 A

8:00 Hellenbrand, Matsumura

During runs 16560 and 16561 DL8's 170 (171?) ~~partially~~ not working from time to time

locking under control terminal and colour TV: success: 3 pencils, 5 ballpoint pens, 1 screwdriver, 3 rubbers (which type?), some loose connectors and a lot of rubbish

16:00 B. Zorn & Takeshita

19:32 JDAS Readout error 33: B+S cr3 - ID ring 1

21:04 Petra has difficulty in filling e⁺ beam so we continue to run with very low luminosity until they can refill.

AT RUN START
 RUN DATE START STOP I+ I- DEAD TIME (%) TIME RECORDS IN RECORDS OUT ALL x10⁶ T₁ REJ x10⁶ T₁ ACC SUM T₂ ACC SUM T₁ BIT2 E₁>65EV T₂ BIT2 2T. E₄>72TR

38 RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (sec)	RECORDS IN	RECORDS OUT	ALL x10 ⁶	T ₁ REJ x10 ⁶	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ BIT2 E ₁ >65EV	T ₂ BIT2 2T. E ₄ >72TR
				I+	I-										
16565	30/3/84	16:35	17:41	2.54	2.64	6.9	3903	7150	2521	1015	70	4694	4703	708	798
16566	"	18:10	18:21	4.01	3.97	13.7	687	1474	886	179	24	744	1250	137	258
16567	"	18:46	19:50	4.04	4.01	12.0	3834	8002	3635	997	119	4444	6232	786	1301
16568	"	19:50	21:04	2.65	2.72	8.3	4396	8002	3574	1143	95	5113	5465	814	993
16569	"	21:04	21:28	1.84	1.93	6.3	1361	2400	962	354	22	1580	1543	238	284
16570	"	21:53	22:13	4.03	3.97	17.4	1252	2671	1253	325	56	1349	2230	256	550
16571	"	27:44	23:54	4.09	4.02	11.4	3839	8001	3515	999	113	4607	6020	786	1286
16572	"	23:55	0:36	2.35	2.41	7.2	2435	4595	1844	634	46	2890	3132	416	576
16573	31/3/84	1:02	2:13	3.98	3.99	18	3686	8001	3944	959	168	4643	6035	819	1563
16574	"	2:40	3:42	4.05	4.08	13.4	3713	8001	3758	966	130	4546	6063	780	1411
16575	"	3:44	4:34	2.57	2.63	9	2988	6027	2595	778	66	3792	4046	604	864
16576	"	5:26 5:46	5:46 5:46	3.96	3.96	13	3754	8002	3991	977	125	4682	5916	858	1494
16577	"	6:30	7:15	2.27	2.32	8	2668	5399	2487	674	55	3509	3197	576	849
16578	"	7:18	7:25	1.73	1.80	6.5	380	739	312	97	6	510	416	74	88
16579	"	7:54	9:05	3.51	3.59	11.4	3708	7753	3735	965	110	4657	5509	802	1208
16580	"	9:48	10:46	3.33	3.38	17.2	3442	8002	4234	896	172	4737	6177	888	1884
16581	"	10:46	11:20	2.22	2.26	12.2	1984	4468	2238	516	63	2755	3340	470	973
16582	"	11:50 12:49	12:49 13:08	3.40	3.35	16.8	3552	8002	4067	924	155	4698	6240	916	5411
16583	"	12:49	13:08	2.06	2.02	8.6	749	1545	675	195	17	964	1089	173	288
16584	"	14:08	14:43	3.04	3.05	15.1	1902	4181	2153	495	75	2513	3143	425	880
16585	"	15:15	15:17	3.32	3.23	12.8	76	251	132	20	25	145	130	25	44
16586	"	15:42	16:27	3.17	3.18	19.6	5842 → 3139 →	2614	→	680	133	3326	4658	622	1416
16587	"	17:11	18:09	3.39	3.39	23.4	3474	8002	4144	904	211	4259	5868	765	1680
16588	"	18:10	18:45	2.10	2.06	11.6	2060	4724	2270	536	62	2825	3148	510	805
16589	"	19:30	←				NO EVENTS								
16590	"	19:39	19:51	3.04	3.01	34.1	692	1753	963	180	61	744	1044	149	321
16591	"	21:54	22:26	2.39	2.42	10.3	1682	3704	1827	437	45	366	2616	366	736
16592	"	22:53	23:54	3.35	3.35	24.6	3517	8002	4321	915	225	4583	6311	898	2008
16593	"	23:54	0:35	2.25	2.15	12.1	2277	5075	2513	592	71	3103	3742	629	1046
16594	1/4/84	1:31	1:39	3:26	3:26	34.8	488	1093	634	197	44	607	884	146	292
16595	"	2:51	2:50	2.20	2.18	22.0	3515	8001	4600	916	256	4637	6358	999	2218
16596	"	3:50	4:00	2.13	2.07	15.3	510	1191	590	132	20	724	864	125	286
16597	"	4:28	4:40	2.89	2.83	49.6	681	1491	881	177	75	800	1259	155	454
16598-99	Errors, lost due to hangup in Colom TV,														
16600	"	4:43	4:45	2.81	2.75	23.6	93	325	271	24	5.7	121	182	18	56

Forward INT. LUMI (N/B)

ON/OFF			<L>	SLdt ISHABHA RUN	SLdt EXP	IBM TAPE	AT RUN START		T ₂ REJ FRACT. HP16 NSO	Σ BHARMA	MH	E _{BEAM}	REMARKS
NSO	HIP	TOP					BP [V]	TOP [V]					
ON	ON	ON	.50	141	34.20	IBM	0.52	0.17	44 62	9	0	23.360	beam dumped
"	"	"	1.45	1.00	35.00	"	0.76	0.46	45 55	2	0	"	beams lost
"	"	"	.90	3.44	39.44	"	0.82	0.68	46 48	14	0	"	
"	"	"	.44	1.94	41.38	"	.58	.21	50 47	12	0	"	problems with e+ refill we keep firing.
"	"	"	0.24	0.31	41.69	"	"	"	51 61	2	0	"	beams dumped
"	"	"	1.16	1.45	43.14	"	0.81	0.52	41 54	8	0	"	beam lost
"	"	"	.75	2.89	46.03	"	.82	.58	43 57	18	1	"	at the biggest energy shifted
"	"	"	0.45	1.10	47.13	"	"	"	49 61	6	1	"	beams dumped
"	"	"	0.79	3.12	56.25	"	.8	.6	47 55	20	1	"	
"	"	"	1.04	2.97	53.22	"	0.8	0.2	46 58	19	1	"	
"	"	"	0.61	2.34	55.56	"	"	"	48 59	15	1	"	beams lost
"	"	"	0.85	2.03	57.59	"	.7	.5	47 55	13	3	"	
"	"	"	0.44	0.47	58.06	"	.5	.2	52 58	3	1	"	
"	"	"	0.38	0.16	0.16	"	"	"	52 58	1	0	23-375	
"	"	"	0.81	2.97	3.13	"	.65	.35	47 58	19	1	"	
"	"	"	0.70	3.91	7.04	"	0.8	0.4	50 55	25	0	"	
"	"	"	0.76	1.09	8.13	"	0.52	0.22	52 55	7	0	"	
"	"	"	0.77	2.19	10.32	"	0.7	0.45	50 54	14	2	"	
"	"	"	0.31	0.16	10.48	"	0.5	0.2	50 56	1	0	"	
"	"	"	0.66	2.97	13.45	"	0.6	0.35	50 55	19	0	"	
"	"	"	0.70	0.16	13.61	"	0.65	0.4	34 54	1	1	"	Beam lost
"	"	"	0.75	2.03	15.64	"	0.57	0.35	49 54	13	1	"	Beam lost
"	"	"	0.63	2.97	18.61	"	0.65	0.45	39 53	19	1	"	
"	"	"	0.36	2.19	20.80	"	0.45	0.15	43 55	14	1	"	Beams dumped
"	"	"					0.70	0.45					Stopped due to DTS readout error
"	"	"	0.59	0.47	21.27	"	0.7	0.45	9 50	3	0	"	Trouble with DLS
"	"	"	0.40	0.94	22.21	"	0.7	0.45	52 43	6	1	"	Beams dumped
"	"	"	0.62	2.97	25.18	"	0.70	0.50	49 52	19	0	"	
"	"	"	0.40	1.09	26.27	"	0.5	0.25	50 56	7	0	"	Beams dumped
"	"	"	0.72	0.31	26.58	"	.62	.40	49 51	2	0	"	beams lost.
"	"	"	0.57	1.88	28.56	"	.6	.4	51 49	12	1	"	
"	"	"	0.41	0.31	28.77	"	.46	.24	53 55	2	0	"	beams dumped
"	"	"	0.66	0.63	29.40	"	0.65	0.57	48 50	4	0	"	
off	off	off	0.86	0.0	29.40	"	0.55	0.3	0 0	0	0	"	Without NSO Patric

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^6$	T ₂ ACC. SUM	T ₁ ARESUM	T ₁ 9172	T ₁ 9172
				I ⁺	I ⁻										

22.43 problems in keeping the energy at 23.360 started jumping to 23.40, 23.37
we stopped taking data for about 20 minutes.

00:00 on 31/3/84 Keinzelmann & Middleton.

1:40 minor detector trip because of beam loss, pause - rest continue.

2:00 " "
2:15 " "

4:45 Histogram couldn't be displayed - attempt just gave a message like "DISPLAY BUSY - TOO QUICK - WILL WAIT 20SES"
Restarted TDAS to overcome this.

7:00	CELLO	60.5 nb ⁻¹
	MARKJ	75
	TABO	47
	JADE	59
		241

7:20 New energy 23.375 GeV/beam

8:25 ID trip (anode current). Pause/Continue.

8:00 Warming & Mashimo on shift.

8:52 ID trip (anode current). Pause/Continue.

9:05 asked for a new fill.

9:45 filling ready. start run 16580.

11:20 ask PKR for a new fill.

11:50 fill ready. start run 16582.

12:50 "Muon Gate Missing 13" Pause run 16583. Reset at crate 13. Continue run.

13:03 Beams partially lost. called PKR to ask for a new fill.
(ID tripped)

14:29 ID tripped. \leftarrow partial beam-loss

14:42 asked for a new fill.

15:15 Beams ready. start run 16585, soon beams lost. ID tripped.

16:00 Dieckmann and Bondery on shift.

Episode no. 6521; the story so far: Everything is running smoothly in the control room until suddenly...

16:27 Beam loss, ID trip. Injection begins.

18:00 Nya takes over from Bondery. 19:00 K.H. Hellenbrand comes in.

19:30 TDAS Readout error 33 - Missing LAM branch 4 crate 2. ID ring 2

Forward INT. LUM (N.B)

21:20 We get increasing number of illegal Hit counter & illegal Wire #.
It look into the wire map reveals that 16(!) DL8's are missing.
We stop Run 16590. Meanwhile Tano requests a new filling as they get only low luminosity. (20:00)
We do a Pulsed Run. Pushing, pulling and rubbing the troublesome DL8's helps, so that the Pulsed Run works ~~again~~ with all DL8's.

21:40 New Fill ready ID Trip: High Current

22:04 ID Trip

0:00 Olsson, Spitzer

0:16 ID Trip

1:39 - u - beam lost.

4:30 We have high dead time ~ 40-50% EC T1A and T1B T1Port triggers dominant. Randomly looking at scrub shows high multiplicity junk, but BP and TOF unquid. I made a test of the hypothesis that NSO Patrice is causing DT, due to large flux of track junk. Run 16600 without Patrice in NSO: No change in Dead time. But the switching off and on seems to cause an error, data taking stopped in LG Pedestal and only possible command was stop and set; R 18598-599 junk. Also p16 and Tof micron got switched off by the NSO dialogue! Had to be reset by FIS, F9.

6:52 ID trip, small beam loss

7:30 ID trip

7:55 Missing LAM branch 6 C4

8:00 Zann & Middleton.

8:05 ID trip

8:15 ID trip - beam lost. New Fill

8:50 ID trip -

8:55 2 us offset "earlier" in bunch crossing time signal, for this fill - for ~ 5 min - 10 min. during 1st part of run.

10:12 New fill ready.

10:45 "Z Chamber HV Trip" started appearing on screen sporadically \leftarrow (nice joke 1st of April)

11:43 TDAS readout error 33 - missing LAM branch 6 crate 4: ID ring 3 > R.

12:20 EC_{1,2} threshold #4 was raised from 0.360V to 0.4 GeV in order to reduce high trigger rate for EC₁ * EC₂ * E₁₀₂. The high threshold becomes effective from Run 16608. Yamada

12:40 New fill ready.

1:00 ID trip.

TDAS readout error 33 - missing LAM branch 2 crate 5: leadglass ATC's.

15:20 - ID trip.

15:57 ID trip. Beams lost.

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (SEC)	RECORDS IN	RECORDS OUT	ALL x 10 ⁶	T ₁ REZ x 10 ⁶	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ BIT 2 E ₁ > 6 GEV	T ₂ BIT 12 2T-E ₁ > 2TR
				I ⁺	I ⁻										
16601	1/4-84	4:47	4:48	2.8	2.6			43	27						
16602	"	4:49	5:44	2.71	2.64	16.5	3275	7664	4018	853	141	4690	5702	915	1762
16603	"	6:14	7:06	3.27	3.25	27.2	2930	6776	3794	762	206	3909	5439	761	1783
16604	"	7:30	8:17	3.27	3.27	42.8	2502	5580	3423	651	279	3195	4618	730	1813
16605	"	8:51	9:41	3.25	3.24	26.4	2583	5960	3287	673	178	3448	4674	707	1508
16606	"	10:13	11:13	3.24	3.27	27.3	3598	8002	4446	936	256	4576	6535	918	2108
16607	"	11:14	12:16	2.09	2.05	11.2	3681	8001	3789	959	108	4743	5889	904	1535
16608	"	12:46	13:53	3.24	3.31	14.7	3783	8002	4010	985	144	4758	6346	877	1923
16609	"	14:45	15:49	3.22	3.37	22.5	3606	8001	4232	938	211	4549	6550	945	2089
16610	"	15:50	15:57	1.83	2.05	12.4	198	500	235	46	5	312	307	46	102
16611	"	16:22	17:13	3.43	3.43	20.9	2900	6171	3147	745	157	3444	5079	670	1538
16612	"	17:48	18:49	3.28	3.28	19.5	3609	8002	4110	939	182	4577	6530	939	2113
16613	"	18:49	19:57	2.12	2.11	12.9	3570	8007	4067	913	117	4992	6082	1012	1954
16614	"	19:57	20:32	1.21	1.25	7.6	1596	3100	1447	415	31	2084	2113	319	856
16615	"	22:31	22:56	3.50	3.45	36.2	1139	2500	1430	297	107	1332	2207	272	803
16616	"	23:31	23:42	3.19	3.19	35.9	627	1467	881	163	59	790	1194	172	465
16617	2/4-84	0:11	0:12	2.61	3.20										
16618	"	0:53	1:02	3.09	3.05	41.0	480	1047	626	125	51	545	909	130	342
16619	"	1:31	1:48	3.20	3.20	41.4	907	1978	1150	236	98	996	1702	231	659
16620	"	2:11	2:54	3.21	3.22	34.6	2574	5647	3198	670	232	3032	4946	627	1737
16621	"	3:22	4:02	3.22	3.20	29.4	2323	5022	2850	606	239	2616	4438	567	1597
16622	"	4:29	5:24	3.23	3.21	32.1	3241	7155	3971	844	271	3919	6061	894	2157
16623	"	6:10	6:15	3.23	3.25	44.4	212	521	301	55	24	256	396	49	168
16624	"	07:30	08:02	3.30	3.32	49.1	1756	3756	2347	457	225	7928	3520	432	1438
16625	"	08:39	09:38	3.09	3.10	29.0	3509	8002	5004	914	265	4237	6890	885	2314
16626	"	09:38	09:57	2.10	2.10	13.9	715	1583	775	186	26	886	1239	170	372
16627	"	10:15	10:29	3.77	3.77	52.0	774	1642	997	201	105	732	1360	771	489
16628	"	11:09	12:04	2.90	2.92	11.2	3405	6671	3247	808	40	4025	5010	726	1395
16629	"	12:29	13:27	3.73	3.71	14.9	3490	8002	5305	908	135	4352	6090	677	1674
16630	"	13:28	14:06	2.33	2.28	8.0	2281	4622	2970	594	47	2834	3428	480	826
16631	"	14:44	15:21	3.86	3.86	16.5	1568	4148	3273	408	67	2419	3687	438	1236
16632	"	17:38	18:05	3.17	3.20	25.9	1646	4384	3584	428	111	2205	3951	460	1362
16633	"	18:41	19:33	3.34	3.37	18.0	2989	8002	6306	769	139	4220	7064	916	2487
16634	"	19:34	20:27	2.35	2.41	11.5	3118	7829	5708	811	93	4525	6370	888	2099

Forward INT. LUMI (VNB)

ON/OFF	NTO	MIP	TOF	⟨L⟩	JLdt BARRA RUN	JLdt EXP.	IBH/TAPE	AT RUN START		T ₁ RET. PRACT. MPIL NTO	Σ PHOTON	MH	E _{BEAM}	REMARKS
								RP [V]	TOF [V]					
on	on	on				29.40					0	0	23,375	Hang up in ZDAS
"	"	"	0.53	2.66	32.06		0.46	0.23	51 53	17	1	"		Beams dumped.
"	"	"	0.60	2.19	34.25		0.6	0.45	50 51	14	2	"		"
"	"	"	0.41	1.41	35.66		0.65	0.5	51 48	9	2	"		beams dumped.
"	"	"	0.52	2.50	38.16		0.65	0.5	49 51	16	1	"		beams lost. ^{propulse problem} at start of run.
"	"	"	0.54	2.97	41.13		0.67	0.53	50 52	19	2	"		beam
"	"	"	0.37	0.94	42.07		0.49	0.21	51 56	6	0	"		beams dumped.
"	"	"	0.42	1.25	43.32		0.91	0.52	52 54	8	0	"		beam dumped
"	"	"	0.64	1.25	44.57		0.71	0.49	50 54	8	1	"		"
"	"	"	0.39	0.16	44.73		0.5	0.22	46 55	1	1	"		Beams lost
"	"	"	0.69	1.88	46.61		0.6	0.4	49 54	12	1	"		Beams dumped after 50% loss
"	"	"	0.73	2.82	49.43		0.6	0.4	50 54	18	1	"		"
"	"	"	0.23	0.78	50.21		0.5	0.2	53 54	5	1	"		"
"	"	"	0.14	0.00	50.21		0.30	0.15	54 55	0	0	"		Beams finally lost.
"	"	"	0.76	0.63	50.84		0.70	0.45	50 51	4	0	"		Beams dumped
"	"	"	0.66	0.47	51.31		0.65	0.47	47 46	3	0	"		Beams dumped after ~70% beam loss
"	"	"	?	0	51.39		0.45	0.55		0	0	"		very short run, beams lost
"	"	"	0.51	0.31	51.62		0.5	0.55	50 50	2	0	"		beams lost
"	"	"	0.50	0.63	52.25		0.6	0.5	47 51	4	1	"		beams lost
"	"	"	0.53	0.78	53.03		0.65	0.5	50 52	5	2	"		beams lost
"	"	"	0.55	0.94	53.97		0.6	0.5	49 50	6	0	"		beams lost
"	"	"	0.44	1.88	55.85		0.65	0.5	49 51	12	0	"		beams lost
"	"	"	0.65	0	55.85		0.65	0.55	39 53	0	0	"		beam lost
"	"	"	0.25	0.37	56.16				51 45	2	0	"		Beams dumped
"	"	"	0.59	1.57	1.57		0.75	0.60	48 37	10	2	23390		PHOTON for part of the time.
"	"	"	0.40	0.16	1.73				47 52	1	0	"		Transputer trip
"	"	"	0.79	0.78	2.51		0.85	0.85	37 46	5	1	"		DC8-Test →
"	"	"	0.41	0.95	3.46		0.70	0.40	50 54	6	0	"		Beams dumped
"	"	"	0.86	3.92	7.38		0.78	0.54	48 16	25	1	"		"
"	"	"	0.48	0.63	8.07		0.55	0.20	51 0	4	0	"		Beams dumped
"	"	"	1.24	1.88	9.89		0.80	0.53	47 0	12	0	"		Beams lost completely
"	"	"	0.63	0.94	10.83		0.80	0.50	48 0	6	0	"		Beams lost
"	"	"	0.84	3.13	13.96		0.82	0.57	49 0	20	1	"		"
"	"	"	0.46	1.88	15.84		0.61	0.30	50 0	12	0	"		beams dumped

16:00 Kawamoto and Bowdery on shift
PKR very considerably lost the beams so we could start our shift with a fresh collection of electrons and positions!

18:00 Nje takes over from Bowdery, as usual.

18:49 Run 16613 started

18:51 ID trip. - partial beam loss - beams drop from ~2.00 → 1.60 nA - phone PKR and ask for new fill - but they say position injection is impossible for 1-2 hours. <L> down to ~ 0.4 × 10³⁰.

19:20 Occasional "JDAS Readout Error 33 - Missing lam branch 6 crate # : ID ring 3 > pi"
(ie ~2 per hour!)

19:55 ID trip - run paused - partial beam loss, I_{eff} ~ 1.0 nA! Still no news from PKR. <L> ~ 0.15 × 10³⁰.

20:00 ID trip again - partial beam loss - I_e ~ 0.8 nA. PKR say another 2 hours - problem is with synchronization.

20:20 " " " " " " " " I_e ~ 0.6 nA.

- we continue running!

20:30 "... meanwhile... Gosh folks, the ID has tripped again! This time we stop run and wait for new fill. (beams lost altogether)

22:00 "injection"

22:30 Start run 16615

22:45 ID trip - partial beam loss - just when I was about to kill the last tank too!

#ID-trips spec. C increases exponentially. The inner detector is not happy about that. There are two possibilities for the next time: (while writing this, next trip due to partial beam loss):

- 1.) Petra stops losing beams
- 2.) We will stop.

22:55 3rd trip during 10 minutes. No data taking any more for this run... S.B. asked PKR for a new fill. good

23:10 MARK-J 63 nA, cello 53.8, TASSO 45.4 JADE 5.1
total 213 nA

23:40 Yet another ID trip. - beams almost totally lost. run 16616 stopped.

2.4 000 Meier + Menke on shift

0:4 Run start ID trip after 40 triggers, 50% of beams lost
1:02 ID trip caused by beam loss

6:20 Luminosities: Tasso = 50 nA, Cello = 62, Mj = 93, Jade = 56 E₁ = 241.6 GeV

7:30 Tagg MFR 63 Failed → reset

7:41 ID trip because of heavy beam loss → Limit = 0.12 × 10³⁰

8:00 H. Mills & H. Junge on shift 2nd April '84

8:39 New fill at new energy 23.390 GeV. Dead time observations - fluctuates between 15% and 60%. If PATREC is OFF and similar if ON. DT seems to be due currently to conditions. PATREC is ∴ ON. We have a very high raw trigger rate - 5.5 Hz and the MIPROC-16 is not rejecting much.

09:05 JDAS READOUT ERROR 33 - Missing CAM branch 6 crate 4 : ID. Ring 3 No problem with LAM TEST program

DL8 problems: DL8 # 99 (wires 792-793) has a right bit missing in the timing and DL8 # 109 (wires 872-873) has a lower bit missing in the timing maps.

Cleaning of contacts makes the situation worse: DL8 # 99 - second of wires missing (in wire map) and DL8 # 109 missing completely! Run 16627. Clean contacts of # 99 again and exchange # 109 → ok in Run # 16628

12:54 High dead time at run start could be removed by switching off Patt. recognition. So we leave it off for time being (until shutdown starts). B.N.

15:11 Beams lost because of faulty transmitter.

16:00 S. Catright, J. Nje on shift

17:39 JDAS err 33 - Missing LAM br 6 cr 4 ID ring 3 > π

18:00 "JDAS error 33 - Missing LAM branch 3 crate 2 : Muon chambers" - once

18:04 Beams lost - and "JETCH HIGH CURRENT... PART 93" message comes up, but ID didn't trip! - has this been changed? Run stopped and HV down.

19:28 Silent ID trip - no apparent cause. Restarted from control room - OK. No alarms or apparent problems in subsector.

19:47 JDAS err 33 - Missing LAM br 6 cr 4

20:55 JDAS err 33 " " br 2 cr 5 LG Adcs

Forward INT. LUMI (VNB)

RUN	DATE	START	STOP	AT RUN START		LEAD TIME (%)	TIME (sec)	RECORDS IN	RECORDS OUT	ALL x10 ⁶	T ₁ RES x10 ⁶	T ₂ ACC. SUM	T ₁ BIT 2 E ₁ > 6 GeV	T ₂ BIT 17 2T ₁ E ₁ > 2T ₂	
				I ⁺	I ⁻										
16635	2/4/84	20:52	21:46	3.41	3.38	14.6	3694	8002	6033	789	115	4418	6816	356	2359
16636	"	21:46	21:53	2.03	2.08	8.5	116	316	210	30	2	189	185	24	862
16637	"	22 ²²	28 ¹¹	3.40	3.43	19.5	2888	8002	6307	781	147	4348	6786	1022	2481
16638	"	23 ³⁰	28 ³⁰	2.41	2.45	12.2	1131	2759	2017	294	36	1575	2220	311	795
16639	3-4-84	0:04	0:23	3.25	3.38	26.2	1130	3212	2592	296	78	1594	2860	341	1033
16640	"	1:20	1:36	3.26	3.27	46.3	921	2522	2212	240	111	1056	2275	222	670
16641	"	2:05	2:34	3.38	3.42	51.2	1635	4538	3962	426	218	2099	4678	364	1035
16642	"	3:45	4:16	3.23	3.33	52.5	1830	5250	4724	476	250	2407	5466	359	1009
16643	"	4:43	5:31	3.23	3.21	31.1	2888	8002	6709	752	234	4065	7526	782	1911
16644	"	5:32	5:40	2.32	2.33	15.2	438	1232	936	114	17	687	997	144	346
16645	"	6:04	6:51	3.32	3.26	30.9	2796	8002	6654	728	225	3718	6671	827	2049
16646	"	6:52	7:06	2.43	2.40	13.8	778	2170	1668	202	28	1182	1763	274	606
16647	"	23:44	0:33	2.83	3.26	23.1	2965	8002	6395	771	178	4202	7245	685	2341
16648	4-4-84	0:34	0:38						397						
16649	"	0:41	1:05	1.93	2.27	12.1	1407	3628	2752	365	44	2036	3006	428	1006
16650	"	01:30	02:18	3.23	3.41	19.3	2924	8002	6330	761	147	4244	7174	935	2608
16651	"	02:19	03:02	2.27	2.42	11.4	2533	6433	2 ^{SEC} 0	659	75	3676	5359	765	1811
16652	"	03:26	04:20	3.21	3.42	15.1	3173	8002	6013	825	108	4397	6976	876	2181
16653	"	04:20	4:47	2.23	2.40	9.8	1592	3739	2664	414	40	2210	3012	423	943
16654	"	05:11	05:58	3.23	3.42	23.3	2798	8002	6540	728	169	4177	7247	1005	2760
16655	"	05:59	06:20	2.31	2.44	15.2	1270	3554	2750	331	50	1998	2939	423	1111
16656	"	6:47	7:14	3.10	3.32	21.0	1613	4442	3685	419	88	2375	3833	605	1576
16657	"	23:23	23:27	1.42	2.32	9.5	196	504	380	50	4	256	359	21	150
16658	05/04/84	00:05	1:03	3.18	3.50	10.9	3434	8002	5827	893	97	4664	6470	847	1928
16659	"	1:03	01:45	2.06	2.18	8.3	695	1412	959	181	15	847	1090	140	299
16660	"	10:42	11:02	2.72	2.96	32.2	1042	2882	2406	271	87	1557	2611	359	1117
16661	"	11:39	12:30	2.19	3.09	18.5	2975	8001	5275	774	143	4769	6380	829	2342
16662	"	12:30	12:44	1.32	2.02	9.5	767	1718	1079	200	19	1103	1404	192	477
16663	"	13:24	14:21	2.73	2.80	11.5	3427	8002	4888	892	103	4688	6577	886	2118
16664	"	14:22	14:30	1.58	1.75	8.3	433	947	513	113	9.4	599	672	106	194
16665	"	21:31	21:52	3.30	3.43	34	716	2599	1764	186	63	1857	1403	190	504
16666	"	21:55	22:28	1.85	2.05	11.8	2004	6274	4310	521	61	4574	3435	456	1055
16667	"	23:12	23:32	3.14	3.18	25.7	1174	3794	2568	305	78	2479	2547	359	954
16668	06/04/84	00:10	00:40	3.17	3.24	21.9	1133	3494	2428	294	64	2350	2246	338	877

Forward INT. LUMI (N.B)

ON / OFF			<L>	SLDt BRAGHA RUN	SLDt EXP	IBM/TAPE	AT RUN START		T ₂ RES REACT		Σ BRAGHA	MH	E _{BEAM}	REMARKS
NSD	MIP	TOF					BP EVJ	TOP EVJ	MM6	NSD				
ON	ON	ON	0.67	1.57	15.24 17.41	IBM	0.80	0.55	50	0	10	1	23.390	the alleged MH is a beam-gate.
"	"	"	0.28	0.00!	17.41	"	0.51	0.25	42	0	0	0	"	Beams dumped after partial beam loss
"	"	"	0.84	3.60	21.01	"	0.75	0.55	49	0	23	0	"	
"	"	"	0.47	0.00!	21.01	"	0.60	0.32	49	0	0!	0	"	Beam lost
"	"	"	0.91	1.10	22.11	"	0.8	0.6	46	0	7	1	"	BEAM LOST +) no MH
"	"	"	0.64	0.47	22.58	"	0.92	0.68	39	0	3	0	"	Beam lost
"	"	"	0.49	1.10	23.68	"	0.95	0.75	50	0	7	0	"	Beams lost
"	"	"	0.58	0.47	24.15	"	0.95	0.75	50	0	3	0	"	Beams lost
"	"	"	0.55	1.57	25.72	"	0.95	0.75	50	0	10	0	"	
"	"	"	0.62	0.16	25.88	"	0.65	0.33	49	0	1	0	"	Beam lost
"	"	"	0.67	1.72	27.60	"	0.95	0.75	38	0	11	0	"	
"	"	"	0.60	0.63	28.23	"	0.70	0.35	48	0	4	0	"	Beams dumped
"	"	"	0.62	1.25	29.48	"	0.60	0.30	50		8	1	4	
"	"	"	0.41	0.		"						1	4	
"	"	"	0.49	0.47	29.95	"	0.50	0.30	50	0	3	0	"	beams dumped
"	"	"	0.82	3.29	33.24	"	0.75	0.50	50	0	21	2	"	
"	"	"	0.47	1.72	34.96	"	0.57	0.31	51	0	11	1	"	beams dumped.
"	"	"	0.73	1.72	36.68	"	0.75	0.50	51	0	11	0	"	
"	"	"	0.42	0.31	36.99	"	0.55	0.27	52	0	2	1	"	beams dumped
"	"	"	0.79	2.35	39.34	"	0.75	0.60	50	0	15	2	"	
"	"	"	0.51	1.25	40.59	"	0.57	0.35	50	0	8	0	"	
"	"	"	0.90	1.41	42.00	"	0.7	0.5	49	0	9	3	"	LG power supply probl.
"	"	"	0.54	0.00	42.00	"	.35	.20	44	0	0	0	"	beam dumped
"	"	"	0.90	3.60	45.60	IBM	0.65	0.40	50	0	23	3	"	
"	"	"	0.48	0.63	46.23	"	0.47	0.16	52	0	4	0	"	beams lost
"	"	"	0.51	0.31	46.54	"	0.63	0.39	52	0	24	0	"	beams lost
"	"	"	0.43	0.94	47.48	"	0.65	0.38	52	27	6	1	"	
"	"	"	0.26	0.00	47.48	"			55	33	0	2	"	
"	"	"	0.53	1.72	49.20	"	0.60	0.30	52	30	11	1	"	
"	"	"	0.30	0	49.20	"	0.36	0.17	53	34	0	1	"	Beams lost.
"	"	"	0.53	0.38	49.58	"			52	27	1	0	"	
"	"	"	0.39	1.57	51.15	"			54	33	10	0	"	Beams dumped
"	"	"	0.73	0.63	51.78	"			51	26	4	0	"	Beams lost
"	"	"	0.35	0.63	52.41	"	0.4	0.3	52	28	4	0	"	stop the run

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^4$	T ₂ ACC. SUM	T ₁ ACC. SUM	T ₁ INT. LUMI	T ₂ INT. LUMI
				I ⁺	I ⁻										

- 21⁰⁰ ID trip - slight loss of beam (~3mA → ~2.6 mA)
- 21⁴⁶ ID Trip - partial beam loss (2.0 → 1.5 mA)
- 22²² JDA5 err 33: missing LAM for 6 or 4 (third time this shift)
- 23¹⁶ " " " " " " " fourth
- 23³⁰ PETRA loses e⁺ beam and PKR don't even notice until we tell them!

3. April 1984

- 0⁰⁰ St. Wagner and H. Rieseberg on shift. New fill ready, start Run 16639
- 0²³ Beams lost
- 1¹⁵ New fill ready. This time dead time fluctuates 20% to 80%!
- 1³⁶ Beams lost
- 2⁰² New fill ready. Start Run 16641. Again dead time is high as trigger rate is up to 17 Hz. After about 20 min trigger rate is ~5 Hz. But then:
- 2³³ Partial loss of beam. Beam dumps.
- 3¹⁰ New fill ready
- 3¹² 40% of beam lost.
- 3⁴⁰ New fill ready, Run 16642 started. High Background in the Tagging. Triggers TAG6-E(s) and TAG6-1TB6-1 track only
- 4¹⁶ Beams lost
- 4⁴⁰ New fill ready. Situation is even worse. We phone PKR and ask them to reduce our dead time. They are able to reduce the background considerably!
- 5¹⁷ JDA5 ERROR 33 - MISSING LAM B6 C4 (AGAIN 5 MINUTES LATER). In total we have had on our shift till now 7 errors of this kind and 5 magnet fluctuations.
- 5⁴⁰ Beam loss - All beam losses of this night are due to transmitter trips.
- 6⁰⁰ New fill, Run 16645. PKR manages to reduce background. ID - problem. Illegal numbers in 19.4, wires 1360-1375. Wire # 1372 follows # 1359 and other strange things.
- 6⁵² Run 16646 started. HV Mainframe 15 no response.
- 7⁰⁰ Stop for polarization measurements, Restart 23⁰⁰. Magnet down and off. Cello 35 nb⁻¹ Tasso 26 nb⁻¹ Mark J 36 nb⁻¹ Jade 28 nb⁻¹ at E_b = 23.390 GeV. According to Mr. Ketz in the next days always from 7 to 23^h ^{should be} are machine shifts.

ID 19.4 : DL8 contacts cleaned → 02 in test run at 7⁵⁵

8:00 Takelitz, Spitzer

Tests on PATRCH. As stated earlier the change in machine conditions causes PATRCH to take a long time on a few events. During the shutdown tests will be made on new algorithms but in the mean time a lower cut-off on the number of hits in the inner two rings is suggested. This was originally 400. During next daytime running I will try with a lower value (like 250). HELT - its already setup for that.

- 16h Krehbiel & Haidt on shift
- 23h Switch on magnet
- 23²⁴ Run 16647 started at E_b = 23.350 GeV

4th. April 1984

00⁰⁰ McCann & Naroska on shift

- 0:00 High dead time + fluctuating: could be improved by adjusting Q-value a bit in PKR. Now 10-15%.
- 0:30 End run 16647 ^{not} run summary printed. ~~to~~ occupied. By what? Restart Nord → Notice that type write is switched off. Who does such things?
 ← Try reading SDAS Ops manual "NO run summary"!
- 03:00 For second time this shift, have RUN SUMMARY PRINTING, but it doesn't ^{and then not} come off on the Gould. The last time, we stopped and re-started the NORD. This time, tried exiting from SDAS and log on again, but to no avail. So print run-summ^s on line printer for entry of numbers into log-book. Fault cleared by switching Gould OFF and ON again. Even more queer happenings: The run summary says 'φ RECORDS OUT'. BUT data well sent to IBM (in principle) and the IBM column on the TV console say '4799'. SOMEONE WILL HAVE TO CHECK IF ANY DATA DID GO TO IBM.

6.40 New filling. Clear radio Co.
 When we switch on the HV, LG doesn't come on.
 Power supply Fluke 8 shows Overcurrent.
 Switch on and off → sense kring. Then it doesn't come on at all any more.
 Switch on disregard and start data taking.
 Decide not to call Tokyo expert because this is last run for this morning.

7.30 Lumis: Tasso Cello Jade Mark J
 40.1 48.1 42.00 66.2

Switch off for polarization measurements. Magnet off.

08.00 4/4/84 Raine Meinke & Fred Loebliger

Polarization measurements till 23.00.

Note when running! I have put the Nord-50 T₂ rejection via PATREC back ON with the change that it is performed for fewer events i.e. those with fewer 10 hits. Note that anyway dead times are high. If PATREC is believed really to cause trouble again turn off via

- F10 N50-DIALOG
- F3 ANALYSIS FLAGS
- 6 ↓ to turn off PATREC
- 7 ↓ to exit
- F4 REDUCTION FLAGS
- F16 } to turn off rej flags
- F17 }

Clearly I'd prefer this not to be needed. PATREC

One of the HV cable from Power Supply No 8 (Distributor No 14) was removed.

No. 8 Banel LG Ring 13-wand-22 is dead counter. HV is OK now!

17:45 4.4.84

Mashimo, Kamamoto

16.00 Kawano, Spider

22.15 Injection Run our magnet up after adding PKR

22.25 Beam ready but we can not switch on the Taper Detector, because the "Magnet Trip Alarm" could not be reset.
 Reason was: Pulling run was left running

05/04/84 Matsumura / Funge on shift

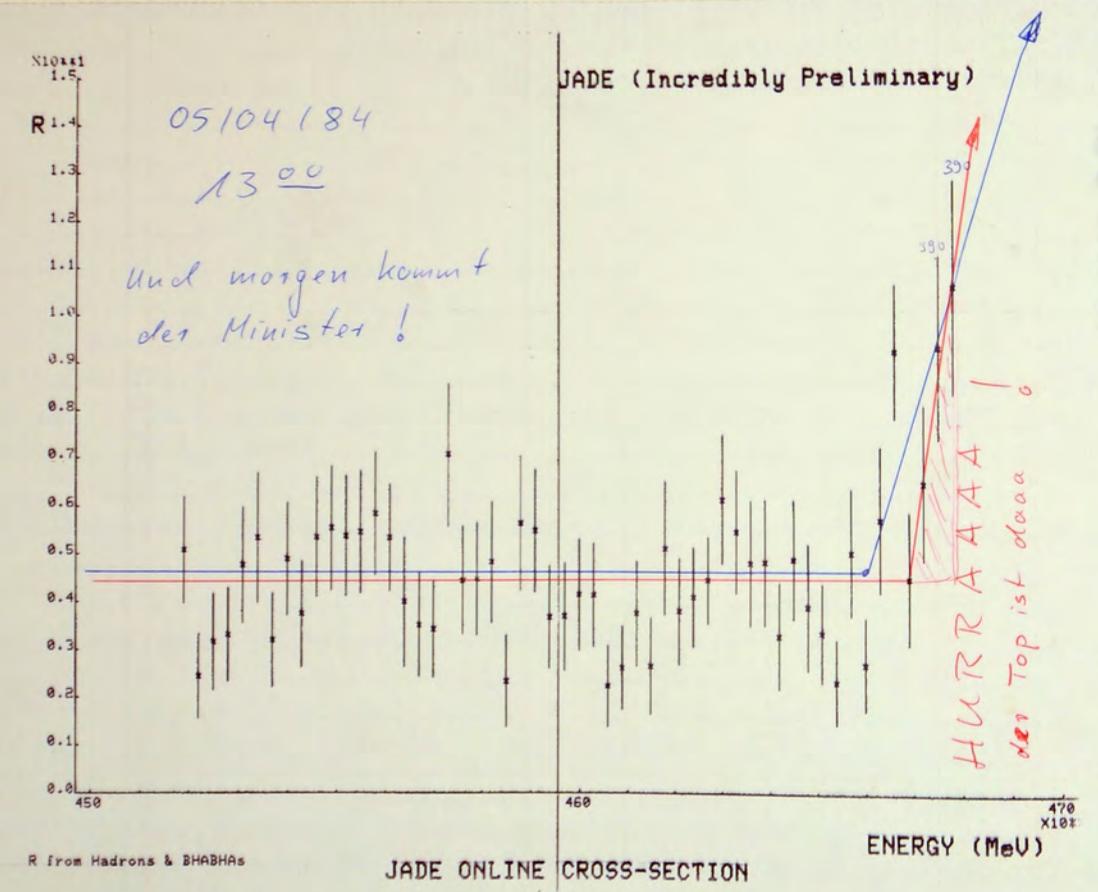
- 01:30 'short break' because of small problem with LINAC II, said PKR
- 02:30 troubles with LINAC II, so PETRA cannot get positrons
- 03:30 they have problem with the cooling water system for RF-components of LINAC II and need help of experts to locate and fix the problem
- 03:45 'Heute nacht kein Lumi-Betrieb, da der Linac 2 wegen Wasser Problemen keine Positronen liefert! we run down the magnet to 0 Amps and decided that only one of us should stay here.'
- 06:40 'Machine starts'; LINAC II is still down; experts will arrive in a few hours.
- 07:45 LINAC II problem are fixed; Injection will be started in ~ 1/2 hour;
~~PKR says polarization measurements~~
- 07:55 PKR says 'Injection', we will get Lumi soon; run up magnet to 7500 Amps.

8.00 F. Loebliger + G. Klies

- 8.00 Injection is OK.
 - 8.40 Ramping is stuck at E=16.016 because of electron problems 2249 (Siska, et al)
 - 10.20 The sick electron will be operated with reduced power, so Lumi running goes on (starts over). After completing E = 22.390, PETRA shall move up in Energy.
- The (ob-)polarisation measurements of yesterday revealed, that the PETRA beam energy is reproduced better than 3 MeV.

05/04/84 cont'd
 10.59 lost beam. life time was poor (~50 min) and background high
 11.39 RUN 16661 started - PATRCH with lower cut-off of 250ZDR1AR2 hits back in action. Dead times no different from before. We have a very high raw trigger rate (~7Hz) at start of a fill. This rate causes high DT by itself. Also endcaps often fill causing analysis of LA endcaps to take a little longer maybe. HEY

13:00



14.30 Beams lost (ID did not trip).
 14.50 Run magnet down for polarization measurements.

Message from Beate:
 After polarization measurements (which will take ≥ 2 hours) continue running at 23.390 GeV till tomorrow morning (independent of Σ from expts reaching 240nb).

Tomorrow morning (PKR will let us know when) go to 23.315 GeV & we will stay there throughout the weekend.

16:00 Heinelmann & Dredman
 20:45 Polarization measurements finished; Injection starts

6.4.84

0:00 Becker + Nozaki on shift
 0:10 Continue to take data at 23.390 GeV.
 0:13 I⁻ 3.2mA \rightarrow 1.9mA Jet chamber high current
 0:40 Twiss problems: PAUSE, ... STOP, START AGAIN - o.k. Final luminosities
 4:12
 4:42 Jet-chamber high current (5. time)
 5:03 " " " "
 5:36 " " " "
 6:14 " " " "
 6:24 " " " "

Final luminosities	
Mark J	87.7
Cello	61.8
Tasso	55.5
Jade	59.8

7:40 New energy: 23.315 call to PKR: they have order to change the energy now.

(start value of 23.314 will adjusted to 23.315)

8:00 S. Yarnade, R. Felt
 8:27 data taking stopped without any alarm or other indications / Noval crash, then OK after reloading
 11:30 HERA ceremony was reported on the PKR screen!

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL x10 ⁶	T ₁ RES x10 ⁶	T ₁ ACC SUM	T ₁ RESUM E ₁ 266eV	T ₁ BIT 2 E ₁ 766eV	T ₂ BIT 17 T ₂ EX. 22TR
				I ⁺	I ⁻										
54															
16669	06.14.84	00.41	1:50	1.57	1.70	7.5	4116	8001	4261	1070	80	5108	6035	837	1746
16670	"	1:50	1:58	0.94	1.06	6.3	437	830	407	114	7	551	557	65	151
16671	"	2:24	2:57	3.18	3.14	18.0	1951	5042	3266	507	91	2807	4303	577	1475
16672	"	3:22	4:12	3.22	3.17	15.7	2668	6665	4211	693	108	3806	5567	807	1940
16673	"														
16674	"	4:44	5:22	2.75	2.73	13.6	3091	7347	4478	803	108	4390	5828	912	1952
16675	"	6:10	6:32	3.25	3.17	14.8	661	1630	1025	172	25	947	1225	175	441
16676	"	7:00	7:02	3.30	3.21	9.3	92	272	196	23	10	145	217	30	103
16677	"	7:48													
16678	"	8:37	9:17	2.04	2.09	7.4	2352	4493	2285	567	45	2931	3201	465	885
16679	"	9:40	10:38	3.81	3.82	11	3458	8007	4673	900	100	4595	6434	897	1939
16680	"	10:38	11:44	2.32	2.40	7.7	3864	7741	4008	1006	78	4927	5466	810	1430
16681	"	12:07	13:10	3.75	3.79	9.3	3761	8002	4488	979	91	4715	6145	841	1620
16682	"	13:10	13:29	2.07	2.25	7.1	1065	2074	1000	277	20	1270	1477	193	325
16683	"	13:50	14:30	3.79	3.88	12.3	2315	4844	2702	602	74	2686	4071	507	1070
16684	"	14:52	15:55	3.92	3.94	10.1	3712	8002	4232	966	97	2242	6257	784	1399
16685	"	15:55	16:35	2.36	2.44	7.0	2322	4312	2086	604	42	799	2950	416	617
16686	"	17:06	18:23	3.74	3.86	10.0	3650	8001	4268	950	95	2251	6338	808	1601
16687	"	18:23	18:52	2.26	2.44	7.4	2588	4961	2363	674	50	3106	3529	472	832
16688	"	19:23	19:3	3.66	3.79	13.1	852	2018	1153	221	29	1017	1706	178	470
16689	"	20:07	21:08	3.91	3.98	10.3	3641	8001	4363	948	98	4447	6483	834	1628
16690	"	21:09	21:29	2.29	2.45	7.5	2368	4627	2252	615	45	920	3221	513	800
16691	"	22:26	23:23	3.85	3.99	10.4	3671	8002	4330	955	98	4478	6558	845	1623
16692	"	23:18	23:42	2.09	2.29	7.3	1393	2443	2684	362	26	1764	1855	271	417
16693	07/04/84	00:11	1:17	3.57	3.61	9.4	3860	8002	4211	1005	94	4681	6262	814	1544
16694	"	Run	STARTED	But	BEAMS	LOST	BEFORE	REVESTAL	EVENTS	FINISHED					
16695	"	01:48	2:53	3.66	3.73	9.5	3809	8001	4179	992	94	4494	6345	776	1513 192
16696	"	2:53	3:04	2.20	2.32	7.4	593	1171	547	154	11	745	809	119	
16697	"	3:36	4:43	3.45	3.53	8.3	3939	8001	4054	1025	85	4699	6165	847	1315
16698	"	04:43	4:58	1.93	2.03	6.3	787	1402	655	205	13	908	929	131	211
16699	"	5:28	6:32	3.43	3.45	8.7	3881	8001	4305	1010	87	4752	6199	746	1527
16700	"	6:33	6:40	1.97	2.06	7.2	406	796	456	106	8	507	556	80	150
16701	"	7:44	8:54	3.11	3.34	7.7	4203	8001	4143	1094	84	4869	6088	816	1450
16702	"	8:54	9:00	1.82	1.96	6.5	289	536	229	75	5	339	362	51	80

Forward INT. LUMI

ON/OFF			<L>	SLdt BHARMA RUN	SLdt Exp.	IBM/TAPE	AT RUN START		T ₂ RES FRACT AP16, NSD	Σ BHARMA	MH	E _{BEAM}	REMARKS
NSD	MIP	TOF					BP [LV]	TOF [LV]					
ON	ON	ON	0.19	0.78	53.19	IBM	0.3	0.15	55 37	5	0	23.330	
"	"	"	0.11	0.00	53.19	"	0.2	0.1	55 36	0	0	"	beam dumped
"	"	"	0.73	2.66	55.85	"	0.65	0.4	51 29	17	2	"	beams lost
"	"	"	0.63	2.82	58.67	"	0.6	0.5	51 30	18	0	"	beam dumped
"	"	"			0	"						"	beam lost
"	"	"	0.44	0.78	59.45	"	0.65	0.5	52 30	5	0	"	beam dumped
"	"	"	0.46	0.31	59.76	"	0.6	0.5	50 30	2	0	"	beam lost
"	"	"	0.64	0.06	59.82	"	0.7	0.6	50 25	0	0	"	beam lost
"	"	"		~2	~2	"	0.5	0.2				23.315	no print out / Mod crash
"	"	"	0.36	1.24	3.24	"	0.4	0.13	54 37	8	0	"	
"	"	"	0.94	4.20	7.44	"	0.7	0.4	49 33	27	1	"	
"	"	"	0.42	1.56	9.00	"			51 39	10	0	"	Beams dumped.
"	"	"	0.86	3.42	12.42	"	0.7	0.4	49 36	22	1	"	
"	"	"	0.43	0.47	12.89	"	0.45	0.14	52 38	3	0	"	Beams lost
"	"	"	0.85	0.83	13.72	"	0.7	0.4	48 36	6	0	"	Beams lost
"	"	"	0.92	3.41	17.13	"	0.8	0.4	47 39	16	1	"	
"	"	"	0.47	1.09	18.22	"			50 44	4	2	"	beam dumped
"	"	"	0.83	3.02	21.24	"	0.75	0.40	47 38	23	0	"	
"	"	"	0.41	0.93	22.17	"	0.5		50 40	6	0	"	beams dumped.
"	"	"	1.17	1.09	23.26	"	0.88	0.55	44 34	7	0	"	beams lost
"	"	"	0.98	2.53	25.79	"	0.8	0.45	48 37	15	0	"	
"	"	"	0.47	1.12	26.91	"	0.5	0.15	51 40	7	0	"	beams dumped
"	"	"	0.79	2.50	29.81	"			49 38	17	0	"	
"	"	"	0.50	0.47	30.28	"			50 38	3	0	"	BEAMS DUMPED
"	"	"	0.74	3.11	33.39	"	0.76	0.42	50 36	20	2	"	BEAMS LOST.
"	"	"			IGNORÉ	"						"	
"	"	"	0.77	3.11	36.50	"	0.78	0.47	47 37	20	2	"	
"	"	"	0.38	0.16	36.66	"			52 43	1	0	"	
"	"	"	0.67	2.80	39.40	"	0.75	0.35	49 39	18	0	"	
"	"	"	0.33	0.47	39.87	"	0.41	0.11	51 41	3	0	"	
"	"	"	0.69	2.80	42.67	"	0.73	0.38	50 38	18	0	"	
"	"	"	0.39	0.16	42.83	"	0.44	0.13	48 31	1	0	"	Beams dumped
"	"	"	0.62	2.60	45.43	"	0.64	0.30	51 39	16	0	"	
"	"	"	0.24	0.07	45.50	"			52 44	0	0	"	

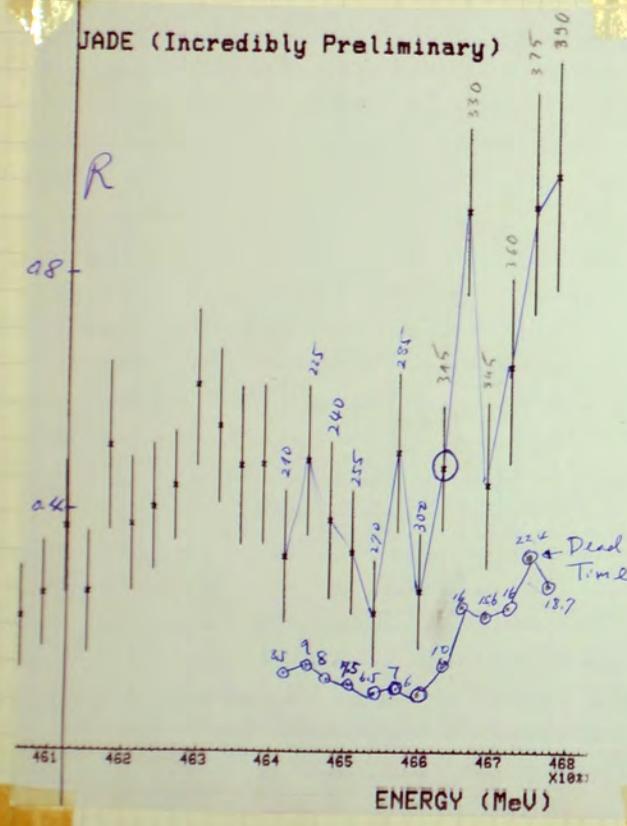
RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ REJ $\times 10^6$	T ₂ ACC. SUM	T ₁ REJ SUM	T ₁ REJ L	T ₁ REJ L
				I ⁺	I ⁻										

16^h H. MCKANN & D. HAIDI on shift
 16^h next filling at 16^h asked for

7/4/84 HEDGECOCK & MASHIMO

19^h YPARA 8 error (LQ ADC pedestal > 500). crate 3. ch 775, 769. Maybe one ADC chip is broken. This message has appeared since 5/4/84 (Run 16658). Tokyo people will repair it.
 5⁰⁰ Susan Courtinight replaces Richard Hedgecock on shift
 7⁰¹ For the first time in six fills, beam lost during ramping.
 8⁰⁰ Knies & Nozaki on shift

Just for fun we looked at the correlation between R value and dead time.



Please disregard the error message "YPARA 8 PED CRT 3 ch 769(775) > 500" at run start time.
 T. Mashimo, T. Kawamoto.
 P.S. also disregard the pronounced peaks at ch 1,7 (if exists) in "LQ hit map Endcaps".

Very clear correlation between R and dead time can be seen in the plot.

9⁰⁰ '4SPY LUN OCCUPIED' message; the LUN terminal has not been logged off by ~~her~~ some user, and we don't know his PASSWORD to do so.
 -> "WHO is logged on at the LUN terminal? - Please log off o' o' k."
 11⁴⁴ Kawanuma guessed the right password

How about reading to JDAS operators manual?

16:00 Matsumura, Meier
 17:51 Run 16712 stopped by 'down' command. The run summary of this run was not saved, but could ~~not~~ be printed with the F17, F2 commands. The run does not appear in the run-summary-directory. (??)
 18:20 We tried to start run 16713. Link to IBM is not possible although IBM computers are up. No response from the command terminal. We tried to exit via the [ESC] key and to restart JDAS. This is not possible (ERROR 91 in 34441 on LP). Following the instructions in the JDAS manual this means a broken RT-Program (JDAS in this case). We restored JDAS according to the manual. Nothing changed. Still the same error message for the same task appears - No expert is available.

18:30 By dance we found the expert J.O. logged on
 19:30 next Energy is 23.295 GeV

20⁵⁰ System Disc was found corrupt. after much testing, the last backup (C) from 15⁰⁰/3/4 was copied over to system disc. Now it seems to work. Note that all program editing since 3/4 is lost! J.O.
 21²⁰ Run 16648 going, OK!
 21.40 Run 16648 without N50-T2 rejection. This has to be switched on manually in the present JDAS version.
 21.43 This is the wrong run number. The old JDAS version starts counting from the last number on the disk! Parameters reset by the SET-EXP-PAR Command

but:
 Runs 16648' and 16649' should be deleted offline because they appear twice!
 Both runs are very short (0.16 nb⁻¹ total)

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL x10 ⁶	T ₀ REJ. x10 ⁶	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ BIT 2	T ₂ BIT 17
				I ⁺	I ⁻		SEC	IN	OUT	x10 ⁶	REJ. x10 ⁶	SUM	SUM	E ₁ > 66eV	2T.E ₁ -21TR
16703	07/04/84	9:42	10:49	3.77	3.77	8.9	3925	8001	4292	1021	91	4549	6371	743	1540
16704	"	10:49	10:59	2.11	2.10	6.9	566	1033	475	147	10	668	737	108	142
16705	"	11:20	12:25	3.79	3.80	9.2	3817	8002	4362	993	91	4607	6266	804	1455
16706	"	12:25	12:45	2.19	2.16	6.9	1191	2198	999	209	21	1406	1825	218	315
16707	"	13:07	13:33	3.84	3.88	11.3	1532	3494	1938	398	45	1868	2861	327	703
16708	"	13:35	14:18	2.86	2.88	7.6	2537	6928	2428	659	50	2922	3662	479	808
16709	"	14:44	15:49	3.60	3.64	8.7	3856	8002	4106	1004	87	4699	6215	806	1470
16710	"	15:49	16:09	2.03	2.04	6.9	1080	2049	937	281	19	1335	1385	208	277
16711	"	16:33	17:37	3.81	3.88	9.6	3776	8002	4180	983	95	4616	6161	839	1521
16712	"	17:36	17:51	2.12	2.14	7.1	782	1508	752	204	14	950	1007	145	232
2 runs with wrong run numbers 16648 + 16649 (should be deleted offline)															
16713	"	21:57	23:00	2.80	3.06	8.1	3784	7122	2967	985	80	4377	5100	609	1106
16714	"	23:30	0 ⁴⁰	3.72	3.88	9.2	4163	8002	3685	1082	100	4668	5853	765	1267
16715	8:4.84	0 ⁴⁰	0 ⁵³	2.01	2.33	6.7	745	1336	528	194	13	812	907	125	136
16716	"	1:21	2:40	3.92	4.02	12.0	4096	8002	3593	1066	128	4682	6010	741	1395
16717	"	2:40	3 ¹⁵	2.09	2.34	6.7	2042	3597	1469	531	36	2372	2393	353	450
16718	"	3:27	4 ⁴⁶	3.91	3.95	9.0	4134	8002	3485	1075	97	4741	6073	765	1290
16719	"	4 ⁴⁶	6 ⁰⁹	2.15	2.31	5.8	4909	8001	2977	1277	73	5541	5060	765	862
16720	"	6:09	6:24	1.23	1.38	4.9	739	1163	414	192	95	839	633	102	83
16721	"	8 ⁰⁰	9 ¹¹	3.84	3.88	9.0	4254	8002	3347	1107	100	4606	6186	679	3603
16722	"	9 ¹²	10 ¹⁸	2.24	2.30	6.1	3934	6542	2513	1024	62	4360	4344	647	744
16723	"	11:24	12:33	3.99	3.99	9.3	4148	8002	7837	1080	101	4570	6322	761	1274
16724	"	12:34	13:57	2.31	2.30	6.1	3764	6279	2367	980	59	4153	4244	564	696
16725	"	14:18	15:29	3.99	4.00	9.3	4218	8002	3518	1098	102	4810	6170	750	1337
16726	"	15:29	16:32	2.27	2.36	6.0	3735	6346	2479	971	58	4345	4063	671	693
16727	"	18:08	19:22	3.70	3.76	7.4	4452	8007	3502	1072	85	4938	5989	737	3676
16728	"	19:23	19:56	2.02	2.06	5.8	1968	3148	1231	571	29	2159	2083	296	343
16729	"	20:19	21:30	3.93	4.02	8.1	4202	8002	3414	1095	89	4827	6226	812	1300
16730	"	21:30	22:03	2.22	2.28	6.3	1948	3410	1317	507	32	2318	2195	341	381
16731	"	22:23	23:32	3.98	4.01	8.5	4128	8002	3425	1075	91	4869	6148	863	1234
16732	"	23:32	00:27	2.23	2.23	5.9	3264	5467	2174	849	50	3747	3534	577	564
16733	9/4/84	0 ⁴³	1 ⁵⁶	4.05	4.12	8.8	4083	8002	3543	1063	94	4897	6057	834	1265
16734	"	1:57	2:34	2.26	2.26	6.3	2165	3811	1512	563	36	2576	2489	378	438
16735	"	2:54	4:02	3.93	4.09	8.8	4094	8002	3449	1065	93	4886	5955	799	1282
16736	"	4:23	4:50	2.20	2.27	6.3	1550	2771	1112	415	26	1831	1861	255	315
16737	"	4:53	5:26	4.13	4.22	9.3	4097	8001	3535	1043	57	4951	6213	826	1313
16738	"	5:27	6:02	2.33	2.36	6.7	654	1346	535	180	12	82	826	113	163

ON/OFF			<L>	↓Ldt 3HABHA RUN	↓Ldt EXP.	IBM/TAPE	AT RUN START BP [V]	TOF [V]	T ₂ REJ. MP16 NSD	Σ 3HABHA	MH	E _{BEAM}	REMARKS
ON	ON	ON	0.70	2.96	48.46	IBM	.78	.40	48 39	19	0	23.315	
"	"	"	0.41	0.47	48.93	"			55 40	3	0	"	beams lost
"	"	"	0.73	2.49	51.42	"	0.80	0.40	48 39	16	0	"	beams dumped
"	"	"	0.33	0.78	52.20	"			51 46	5	1	"	
"	"	"	1.02	1.40	53.60	"	0.8	0.3	46 36	9	0	"	once stopped by unidentified reason
"	"	"	0.56	0.28	54.38	"	0.5	0.2	48 41	5	0	"	beams lost
"	"	"	0.63	2.65	57.03	"	0.86	0.48	50 49	17	2	"	
"	"	"	0.33	0.47	57.50	"			52 42	3	0	"	beams dumped
"	"	"	0.61	2.18	59.68	"	0.8	0.47	48 38	14	0	"	
"	"	"	0.38	0.16	59.84	"	0.5	0.13	48 39	1	0	"	beams dumped new Energy
"	"	"	0.51	1.71	1.71	"	0.65	0.25	49 58	11	1	"	
"	"	"	0.80	2.33	4.04	"	0.72	0.36	47 58	15	0	"	
"	"	"	0.38	0.29	4.33	"	0.5	0.13	50 58	0	0	"	beams lost
"	"	"	0.88	2.33	6.66	"	0.76	0.4	47 56	15	1	"	
"	"	"	0.39	1.24	7.80	"	0.46	0.1	47 52	8	0	"	beams lost
"	"	"	0.77	2.79	10.69	"	0.75	0.4	48 58	18	1	"	
"	"	"	0.24	1.09	11.78	"	0.46	0.1	50 58	7	0	"	
"	"	"	0.10	0.16	17.94	"	0.26	0.06	54 1	0	0	"	beams dumped
"	"	"	0.69	2.64	14.58	"	0.80	0.40	48 58	17	0	"	
"	"	"	0.30	1.40	25.98	"	0.47	0.1	53 63	9	0	"	Beams lost
"	"	"	0.82	2.55	18.93	"	0.8	0.45	48 58	15	1	"	
"	"	"	0.36	1.35	20.28	"	0.48	0.13	52 64	4	0	"	Beams dumped
"	"	"	0.79	3.21	23.69	"	0.8	0.43	51 57	12	0	"	
"	"	"	0.30	0.93	24.62	"	0.45	0.12	54 57	6	0	"	Beams dumped
"	"	"	0.67	3.47	28.03	"	0.65	0.25	57 58	22	2	"	
"	"	"	0.33	0.76	28.19	"	0.5	0.15	56 59	1	0	"	Beams dumped
"	"	"	0.70	3.73	31.92	"	0.75	0.40	51 56	24	3	"	
"	"	"	0.29	0.78	32.70	"			53 60	5	0	"	Beams dumped
"	"	"	0.72	4.66	37.36	"	0.72	0.35	52 57	30	1	"	
"	"	"	0.31	1.40	38.76	"	0.42	0.12	54 60	9	1	"	cosmic ray backgr. in MH.
"	"	"	0.38	1.18	41.94	"				18	0	"	
"	"	"	0.36	0.31	45.25	"			53 58	2	0	"	
"	"	"	0.68	2.79	48.04	"			50 58	18	4	"	
"	"	"	0.11	0.50	48.54	"				17	2	"	
"	"	"	0.67	2.70	51.24	"				4	0	"	beams dumped / end of run period
"	"	"	0.40	0.28	51.52	"						"	

JD-Pulsar

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^6$	T ₂ ACC. SUM	T ₁ AREA	T ₁ BPTL	T ₂ BPTL	
				I ⁺	I ⁻											

22:40 Message from PKR: There is a large vacuum leak near the Fade hall. This will be searched now.
 Called Bethke. He will come to switch on the ID. So we leave the magnet at full field.

24:00 We tried to make a cosmic run and finally succeed.
 The TOF high voltages are on and the counters running, one is missing: 39, some high voltages are to be set.
 Forward Muon Counter high voltage does not come on.
 Tagging Voltages are on and correct, but one unit cannot be read out and also the Urchiel Supervisor box claims an error.
 ID is on full voltage and looks good.
 T2 is now working since we switched on voltages and connected the gate and clear cable.

Inner detector works fine. No need to call me when switching on. In case of troubles call Hellebrand, who is on call tonight.

0:10 We ran down magnet + switch off I.D.

0:30 Like other experiments I go home too, leaving phone number of PKR. (F.S.)

0:34 We switched magnet down to '0' due to the instruction near the magnet-control.

2:15 Running up magnet
 Before that "switch off HV" on tv; PKR say they are waiting for us for a half an hour. Injection ^{to} about 2:30.
 But high voltage is down only the "DOWN" button is flashing together with an alarm signal on the second unit from left. It is not possible to reset.
 No alarm in Rickel.
 Switching off HV power supplies does not help. Switch them on again.
 Magnet has reached 7500 A, later Trip "Vorlaufdruck primär".
 Reset according to instructions but not possible to change current, the "SERVO LIMIT" lamp was on.
 After calling "Schichtwarte" works again. Servo was hanging.
 We still have the problem with the down button and alarm.
 4:05 We still have the problem with the down button and alarm.
 4:10 Magnet current is 7500 A.

Forward INT. LUMI (LNB)

"Magnet Trip" alarm sometimes comes on in the Rickel, it is possible to reset.
 Looks like no correlation with Trip.

4:50 - Lumi-Run 22 GeV TOF-Volt. $\approx 1V$ only TOF & LG are switched on. (no ID)
 5:10 - Res lost
 5:30 - Res again 22 GeV 1st Run. HV-Switching not o.k.! everything must be done by hand!
 5:50 - Res hit
 6:30 - Magnet trip - same as before, we call Schichtwarte. Servo was hanging again!
 7:20 - PKR told us that 7⁰⁰ called Lorenz, he will look in more detail to the magnet problem - our HV-Signal on/off is still on, but all Detektor inputs LG, TOF, ID are off. but this can also be caused by Interrupt Strukturlib Page 2
 \rightarrow ~~will be~~ solved by M. Froylich ^{excluded}

8:00 Ball, Mashimo
 8:10 Magnet down to 0 (Lorenz wanted check something)

8:15 Again the inner detector caused an injection veto. A cable at the inner detector protection was pulled. It is about time to design a decent protection system.
 There is no protection possible against a forgotten cable, or other forgotten things. See the note last page at 24:00. At least we reduced all faulty parts to one cable.
 For such a case the LD-people have a 24-hour service of on-call-men. I would call this already a "decent" protection system.

9:15 Magnet alleged to be OK. Have run it up to 200 A.
 9:45 PKR are putting an absorber near an X-ray foil. Then they will try to inject again.
 W. Barthel
 S. Bethke

10:30 That shield water flow alarm system is now operational. If an alarm arrives, treat it as a flow problem and call the appropriate specialist marked on the alarm panel.

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^6$	T ₁ ACC. SUM	T ₁ AVERAGE	T ₁ 9172	T ₁ 9177
				I ⁺	I ⁻										

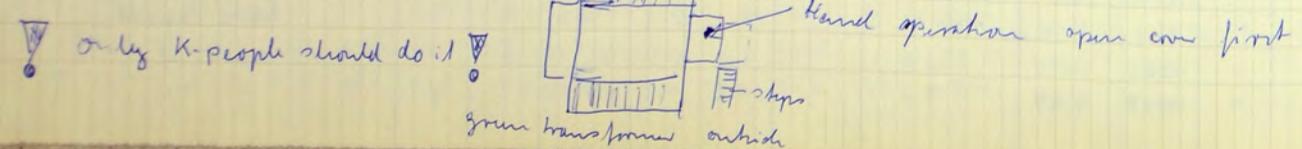
16⁰⁰ Deesmann on shift
 17⁴⁵ beams ready, $E_b = 22.007$, $I^{+,-} \sim 3$ mA
 TOF-Rate: ~ 1.5 V
 18⁰⁰ Run up I.D., mode-current per cell $\sim 3-4 \mu A$; is high, but not too dangerous.
 Not possible to start normal run, because missing (AM) BS3/3 (lumi).
 Try several test-runs without lumi-counters.
 Badly fluctuates \rightarrow I.D. mode-current alarm
 Sometimes heavy fluctuations of TOF-rate (1.3 \rightarrow 2.0). PKR doesn't know why.
 We leave off I.D.

As far as I know up to now, one should not switch on I.D. if TOF-Rate-Meter > 1.5 V
 Important: check carefully the max. range of this meter!
 Also don't switch on if TOF is fluctuating. Wait some minutes after new filling and watch.
 S. Bethke

18³⁰ e⁺-beam lost
 18⁴⁵ The missing lan error Tagg Adc turned out to be caused by a powerless crate (top of rack 9)
 20⁰⁶ Magnet Trip Vorlaufdruck Primar < ; Servo limit lamp is on; MKKA called
 3:40 Problem: One to the fast run down when the magnet tripped, the clutch driving the regulator in the big transformer got slipped. Helping the servo motor by turning a hand wheel brought the transformer back into operation.

21⁰⁰ Magnet tripped again Problem $> 80^\circ$
 It seems that the water flow is not sufficient
 I found the thermostat valve only 23% open apparently that is not enough.
 call K-people: They are busy at the 16th system. They will come later.

If the servo motor gets stuck again, tell the K-people where to find the hand wheel.



21²⁵ Lead glass trigger power failure in rack 6 bottom
 ± 15 V trip ok, but off, spanning across fall on
 ☉ gn
 ○ gn
 ☉ rd
 ○ rd
 ○ rd
 ○ rd
 next alarm according to prescription

21:45 Heintelmann
 22:15 filling ready, but on HV. Magnet trip Vorlauf Primar <, then servo limit by strike handwheel. No success. Call MKKA.
 23:05 magnet ok. (One has to pull the wheel, not to turn it. But now the wheel is loose anyway.)
 Start run: HV read error MF 54, 56, 63
 TOF TDC missing no hits for
 Trigger 3 I/P missing
 μ -crate missing 13 ✓
 chamber trip (54) 6V (V30)

8/6/84

0⁰⁰ Castmigt, Kullen
 0:44 CAMAC error during magnet reading. MUX channel not set
 0:48 Juvor detector rundown because of high TOF rate \rightarrow background optimization
 HV problems, esp mf 63 all channels giving trouble (nominal 1200-1300, read values either 20 or -16-21 kV!). MF 65 itself seems to think that everything is OK.
 Switch off E on E resolve to check next time we start a run (PETRA still BACKGROUND OPTIMISATION - has been for 30 minutes!)

1:20 PETRA LUMINOSITY RUN - TOF 1.2V - try to switch on jet chamber
 1:26 YVOLTS - Error in MF 63, no LAM (as before)
 Call Steve Wagner again

YSPY - TOF TDC no hits
 Trigger 1 I/P missing
 Trigger 3 I/P missing

RUN	DATE	START	STOP	AT RUN START	DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ REZ $\times 10^6$	T ₂ ACC. SUM	T ₁ REZ	T ₁ INT L	T ₁ INT R
				I ⁺	I ⁻							E. 2766U	E. 2766U	7.91717

1⁴⁹ Steve Wagner arrived to look at tagging problems.
 Peter finally dump beam after refusing to answer their phone for 10 minutes (allegedly "too busy")

2¹⁹ New fill, but TOF rate $> 2V$ - cannot switch on JC, Ask ALL to optimise - again have trouble contacting them.

PKR PHONE 3650 SEEMS TO BE OUT OF ORDER.
 USE 3850 INSTEAD.

2³⁰ Luminosity run again - TOF 1.4 - 1.5 V - switch on jet ch & start run

- MF 63 no LAM
- MF 63 HV read errs
- YSPY TOF no hits

T1 IP missing \rightarrow turns out to be a hole where the BP counters used to be!! \rightarrow IGNORE
 T3 IP missing

2⁴⁶ Steve concludes that the tagging voltages are set OK and the readout is faulty (suspect severed or damaged cable) \rightarrow IGNORE THESE MESSAGES for the time being at least.

3⁰⁰ YSPY - as above +
 Num digitisers missing

3¹⁴ Imm detector trip, beams lost

3²⁸ Magnet trip. Vorlauf Lampe 2; Vorlaufdruck Primär

Phone MKK1 - they say they will come in $\sim \frac{1}{2}$ hour
 MKK1 has repaired the magnet. We run up the magnet.

4³³ Run started

4³⁶ ZD soft trip. Beam look stable.
 ZD would not reset - "6 VOLTS" alarm on - reset that and ANODE CURRENT alarm came on. Reset it worked.

DEADTIME is high - The raw trigger rate is over 10Hz so high deadtime is no surprise.

Forward INT. LUM I/NB

FIXES YSPY - told to ignore T1 F/p first 24 bins (BP counters).
 YVOLTS - turned off for LC.

SPY reports:- Several T3 F/p missing (Streets 21 \rightarrow 23 Grps 5, 4, 3). Looks genuine -
 Now getting missing MU digitisers in crates T11 which have holes in wire map.

5.00 YVOLTS
 YSPY detailed error: wrong HVs for TOF and TAG. Mainframe 53 channel 13 could be reset by computer, mainframe 54 channel 5 caused the message: invalid mainfr. or channel given. This channel was set by hand to the demand value.

5.08 Two REFORM jobs submitted to LBIT

5:30 RUN 16810 ends. start next run. After 14 events the trigger box hangs up (RED LAMP) and refuses to go again. After about 2 minutes it starts by itself - sending events even when run STOPPED.

Try to start another run & in pedestal run YELLOW & RED light come on
 The CLOCK trigger works. Suspicion is that some beam threshold is too low

5.45 We ask for a new fill

6:15 Magnet trip

TEST-RUNS (ZDAS) altered. The readout pattern and trigger source are now deployed and one of the questions removed. To TRG SRCE question press RETURN to get the default. (H)

6.32 Beams lost whilst magnet raising.

7.15 New fill. Start run - trigger box hangs up after pedestal events (STOP LAMP). This with 4 mA per beam. Sometimes it starts by itself after several minutes. Other times it won't even do the pedestal run, IF it does pedestal run the trigger box RED lamp flashes alternately with the white one. Sometimes after the run has been stopped it sends a few hundred trigger after about a minute.

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^4$	T ₁ ACC. SUM	T ₁ AREA	T ₁ 2172	T ₁ 2172
				I ⁺	I ⁻										

Phoned Herr Kriebel. He says it may be computer - difficult to understand how it suddenly starts doing this.
 Bench marker - one module has flashing RED light - no obvious explanation of this - who should we call??

7:50 Magnet trips AGAIN
 Reloaded several tasks (YPARA, ZITONX, VOLTS)
 L strange thing was - at moment that events start/after a minor delay, the system console prints YVOLTS error message. Could YVOLTS be jamming?

8:00 Barkel & Bowdery
 8:05 Beams lost

9:30 Total power failure at DESY. We follow the instructions given in the JDAS manual. (TASSO not affected somehow)

The power failure occurred, when the magnet was powered to 7500 A. We watched the temperature increase for about 10 min, then switched on Notkühlung, cooling the magnet directly with well water. The temperature increase was monitored by observing the inner diameter pressure and checked manually at the ends of the magnet coil and the water pipes.

The reason for the power failure was a wrong operation at a major power supply station on the Desy site, which affected the 60V safety line.

12:00 According to PKR it is unlikely that anything may happen before 14:00. Thus we leave the counting house.

The flat lead-wire cable from the tapping HV power supply to the counting house has been inspected visually on its way through the interlock. No damage was found.

12:40 Interlock gebrochen für He-Ledsude Beg.
 13:13 Freier called. magnet water now ok.
 15:10 Ledsub finished. Interlock may be set again.
 15:30 Interlock set → ok Beg ID-NWL-17 : 10^{-8} mbar, ID-NWR-17 : 2×10^{-8} mbar

16:00 Helst + Komannig

Forward INT. LUN 1/NB

16:59 CHECKED CABLE BETWEEN MFRG1 & MFRG3 (TAGGING SYSTEM H.U.). THERE ARE TWO OPEN LINES (SAME BRAIDED PAIR), BUT NO OBVIOUS BREAKS. I WILL MAKE A NEW CABLE. MFRG3 HAS BEEN TAKEN OUT OF VVOLTS UNTIL THE CABLE IS REPAIRED. JRW

18:00 The magnet is not operational, because the cooling water is still pumped through an air exchange unit for cleaning instead through the magnet. Intention is to keep it going this way over Phinipke according to W. Barkel

19:40 2 x 3 mA at 22 GeV, try to switch ToF and LG-HV on, problems with ToF

X cannot even switch in if control box is on "disregard" and Lery unit on "local" seems that somebody worked at back of control unit and didn't restore everything. Try to get experts at DESY

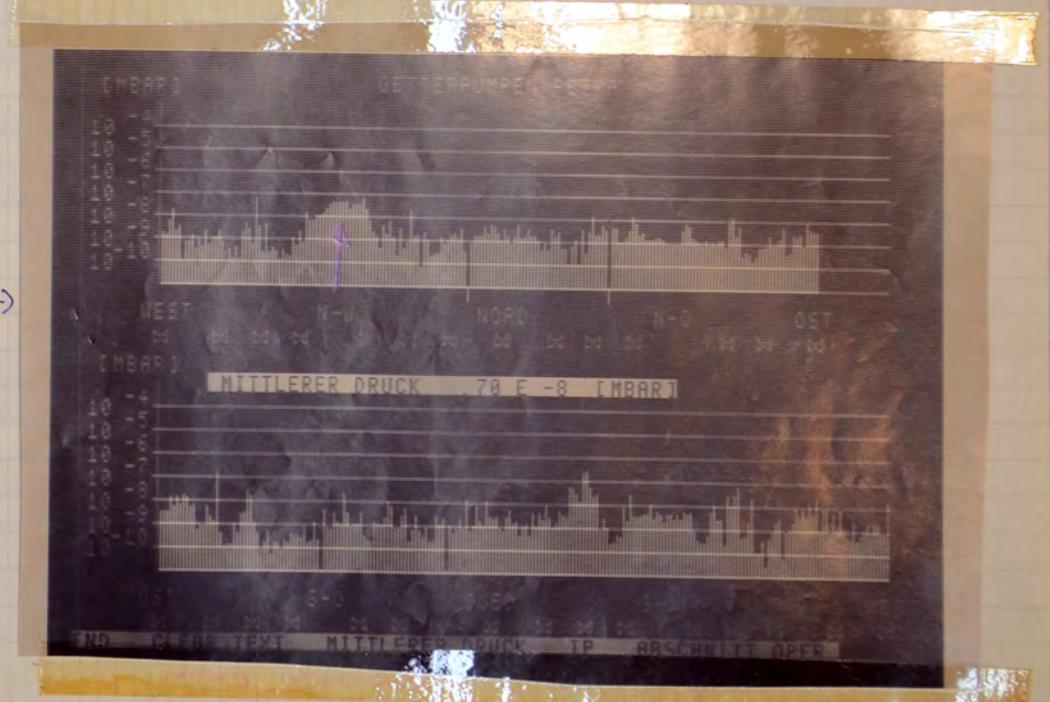
20:10 no experts on site, since there is shut down in 1^R don't call them

20:19 The vacuum in our interaction region is still bad. It is probably the work of those who built the beam pipe chamber.
No! of those, who installed the collimators!
 22 GeV 2 x 3 mA } →

according to Kriebel is it not much different if beam is off.

20:40 beam lost

X switch off high voltage without sound X
 "Title Phinipke" appears on screen



RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^4$	T ₂ ACC. SUM	T ₁ AREA	T ₁ INT L	T ₂ INT L	
				I ⁺	I ⁻											

21⁰⁰ switched off all JLP, 25V (VV30) down, 6V (VV30) down, Zehv off, Schenckler 2 → 1, Water of the main coil (2 pump) switched off, heat shield stays on.

(we switched the pumps off after connecting W. Bartel since the water got obviously pumped through magnet and was 5°C hot)

- 9.6.84 11⁰⁰ check temperatures, everything ok W. Bartel
- 19³⁰ " " " " S. Bethke
- 10.6.84 13⁰⁰ " " " " W. Bartel

19³⁰ CUT FOUND IN CABLE BETWEEN MFR 61 & MFR 63 (TAGGING SYSTEM H.V. SUPPLIES). THIS HAS BEEN REPAIRED. MFR 63 SHOULD BE ~~THE~~ RESTORED IN YVOLTS PROGRAM. JR. WAGNER

- 12.6.84 8⁰⁰ Uehbiel & Tateshita
- 8⁰⁰ Machine "Anlauf" on TV.
- 8¹⁵ Larson of MKK will come sometime this morning to switch on the magnet
- 9⁰⁰ People from the MKK-water group will come and check the conductivity of the magnet water
- 9⁰⁰ Run 16814 ~ 16824 : Leadglass calibration data by U. Bartel
- 9:36 magnet is ok. so we raised it up to 1000A. T. Tateshita

11:40 The startup of YVOLTS has been changed from immediately after the run start, to one minute after. It is hoped that this cures the jamming of the system console at run start. *Here*

Warning: The temperature alarm system for the beam pipe etc has been paralyzed for test purposes. W. Bartel

Tagging Voltage cannot be made to come on on run start. But it can be read out thanks to Stewes efforts. I go to find a Lancaster person.

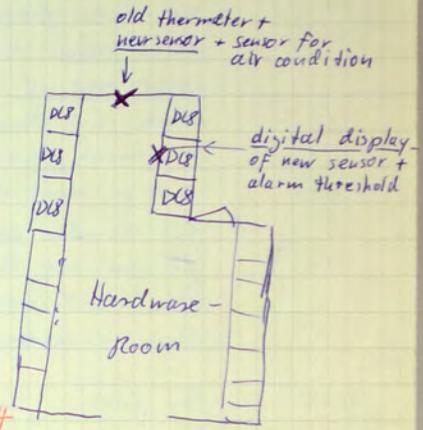
Forward INT. LUMI (N.B.)

16⁰⁰ DL8 - Temperature control and alarm now finished: electronic sensor installed beneath the old analog thermometer.

It should show the correct temperature, that is also used for switching the air condition. In fact, it shows ~ 1°C less than the analog thermometer.

The default temperature should be ~ 16°C, at the time the new display + sensor show ~ 15°. Internal alarm threshold set to 19°C (if T > 19°C, the bell + lamp underneath the PETRA-TV will start alarming).

In case of alarm, call MKK immediately, if raising to more than ~ 23°C, probably all DL8's have to be switched off and ID-people called. S. Bethke



16²⁵ DL8's debugged + working. Some single V34-channels remain to be changed. Do this after coffee! S.B.

- 16.00 A. Wagner & J. Ueber on shift
- 19.30 PKR says there were no problems all afternoon because of trouble with PIA, but now they start setting up the positron injection
- 22.30 Situation unchanged: PKR still trying to inject, but no finite I₊ or I₋ visible on T.V. screen.

13.6.84 00:00 Ball, Bondary.

- 00:50 Beams ready. Try to switch on & get going! ToF rate 11.6 V ± 0.1 V. I.D. comes on OK. Last run w/o output. AC2099 no response. - reload. Start run 16825 - IBM link error, then I.D. fast trip. 1/2 electrons lost. String of H.V. errors from tagging system. Ask CEMO if this fill can be dumped - we have I = 1.18, I = 2.8 mA. They agree

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^4$	T ₂ ACC. SUM	T ₁ AERUM	T ₁ RITZ	T ₂ RITZ
				I ⁺	I ⁻								EXPRES	7.9172	7.9172

03:07 New fill ready - start run 16826.
 Logging mainframes persuaded to come on only by removing H.V. gate, only MFR 63 comes on properly.
 DLS 61 missing ← fixed? (wackelkontakt?)
 no data from u-gate 11, although it's not missing
 dead-time $\sim 60\%$, trigger rate 11 Hz, dominated by 2T.E(4) & 2TBG-NS $\times < 7$ TOF. 2 track triggers
 L&BP MFR 15 no response.
 check L-G thresholds - all look OK.
 JDAS errors 53+47, but everything carries on running.

03:30 I.D. trip reset OK.
 get chamber anode currents are high 10 → 2.5. L-G endcaps look very noisy.
 get chamber looks noisy. Is it just dirty beams? bad vacuum?
 Ask PKR to optimise → \bar{c} beam lost, I.D. trip, PETRA transmitter failure.
 Standard histograms for run 16826 in folder.

06:55 New fill. Try test run. TOF rate lower $\sim 1.2V$. Deadtime still $\leq 70\%$.
 Try removing 2T.E(4) trigger - very little effect.
 Try turning off N-50 PATREC + reducing histogramming fraction to 30% - very little effect.
 Start run 16827 to IBM & ask PKR to optimise + pay attention to our deadtime meter.
 Unions error message from ~~graph~~ event display before drawing each event.
 "#10 Illegal NHITS"
 DLS 61 missing again.
 TOF rate and deadtime do not seem to be correlated.

13/09 H. Kroll & D. Schmidt on shift

8¹¹ FO trip

8¹⁰ During the night shift there was no high voltage on the tagging system. St. Wagner called.
 Vacuum $\sim 10^{-7}$ torr (in interaction region), usual $\sim 10^{-8}$ torr. ⇒ bad events

Close collimators NWR = 7.5 mm NWL = 7.2 mm
 The TOF-rate decreased by $\sim 25\%$ the dead time got somewhat better
 -50% instead of $\sim 70\%$

Hellbrand called - Hen Riesberg comes & calls Hellbrand that he does not need to come.
 DLS #61 (wires 488-495) was for the hit counter the bit 256 on. 0% in Run 16829 started at 9.18 PM
 Histogram #23 (jets Mean A+B A-) extends over channel 1536 (= last wire).



Forward INT. LUMI (N.B)

9²⁰ HV Gate 61 again on

ATTENTION: AS LONG AS THE REMOTE CONTROL OF THE TAGGING SYSTEM DOES NOT WORK REMEMBER TO SWITCH OFF BEFORE BEAMS ARE DUMPED. YOU CAN USE THE COMPUTER OR WALK OVER THERE!

9⁴⁵ HV Gate 56 channel 15 now set to 2475 V
 10¹⁵ Disc transfer error when run ended. As precaution reloaded word
 10¹⁵ Trigger rate is so high (7Hz), so we changed threshold of EC1(4) and EC2(4). But it does not help. Many events come from Beam-Gas events. Threshold was set an old one. 400 mV → 500 mV.
 real

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^6$	T ₂ ACC. SUM	T ₁ RESUM E, 266EV	T ₁ BIT 2 E, 266EV	T ₂ BIT 17
				I ⁺	I ⁻										

Twice the Nord-50 went busy - Memory out of range - same place with new old version!

11:05 beams lost

13:00 The magnetic tape refuses to rewind. Hence it is not usable for data taking. Contacted Herr Plasbender - he will try to obtain info but he knows nothing about it. (HEN)

14:40 the well-known Maryland Mag Tape Expert diagnoses the slipping upper spindle and this is fixed. Lo ana Behold - it works!

16:00 Hellmbrand, Skard on shift.

16:33 TOF-RATE may cause now soft I.D.-Trip (similar to BP-current before), if Rate is too high!
Threshold currently set to 2V (see TOF-Rate Meter near main-TV)

IF somebody has the feeling this threshold being too low or high, please complain to:
~~Wolff~~ Bethke, Rieseberg, or Dieckmann

Also a new meter has been connected: I.D.-current. It shows the mean current / cell. It should not be more than 3 μ A during running!

Upto now, there is no automatic soft trip if this threshold is crossed; this will come soon. Please at run start write the value of the display into the run-table in this book (instead of the BP-current).

~~Wolff~~

S. Bethke

YRUNSM updated - displays extra N50 information (HEN)

18:10 Filling ready TOF RATE 0.65 / ID current 2.2 μ A
tried to start RUN 76835

Y PARA 15: TOF1 WRONG RESPONSE on system console + RUN STOP

18:15 soft ID trip beams lost

There is no acoustic signal if TV tells us to switch on or off
Turned off the TOF-MIPROC. This "fixed" the problem noted above, the HV
(Y PARA 15 error)

Forward INT. LUMI (N.B)

19:25 started RUN 76836

several soft ID trips one fast trip

20:17 Magnet trip "Vorlaufdruck primär <" the same as on 6/6/84 see page 67

Alarm reset

magnet raised to 7200 A manually, changed to computer control, tried to raise to 7500 A, but magnet did not react
Current magnet setting = 7500 amps } maybe the magnet does not react, because these two values do not differ WRONG! ^{not so}
New magnet current : 7500 }
switched from "operate" to "Reset, Run down" on the magnet control box for about $\frac{1}{2}$ sec

afterwards it was possible to steer the magnet via computer

20:35 raised magnet to 7500 A

20:40 continued RUN 76836

20:45 SWITCH OFF THE HIGH-VOLTAGE very silent

14/6/84

0:00 Ollson & Mashimo on shift.

0:35 Purf. beam loss, ID trip. Cello calls, saying LINAC II has problem and there will be no e⁺ before morning.

⇒ After this run no lumi before morning.

Interchanged the 2 #C9099, and reloaded. Now they work both. Bad contact? J.O.

2:30 Beam again, LINAC problem not so serious.

3:31 soft ID trip, Beams lost.

8:00 Ranche + Uomamiya
no beams until early afternoon. (PKR)
magnet: run down to 500 amp.

9:30 I pulled out all loose cables from electronics for obvious reasons. B.N.

11:01 Magnet has 'walked' up to ~1300 Amps

11:04 magnet: 7500 amp

11:20 COSMIC-run run stopped during the LG pedestal run (after event written)
remove a cable (for "NO BEAM RUN STOP") → works
on Krehbuel's box

YVOLTS complains about Power supply LG 15: No response, meaning no Q. Test program is ok However, and YVOLTS also produces a reading of nr 15. This program(s) needs an overhaul by experts.

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	TO REJ $\times 10^6$	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ BIT 2 E:7696V	T ₂ BIT 17 2T: E ₄ > 20V
				I ⁺	I ⁻										
16852	15/6/84	8:46	8:50	2.03	1.87	9.3	197	490	310	51.4	4.8	233	411	53	121
16853	"	10:28	10:32	4.10	4.02	50.4	212	597	485	55.3	27.9	197	724	59	212
16854	"	11:08	11:32	4.00	3.97	52.7	1417	3772	3053	369.2	134.6	1240	4382	421	1356
16855	"	12:13	12:25	3.90	3.86	52.8	665	1700	1363	17.3	91.4	578	1901	191	335
16856	"	13:34	13:51	4.04	4.03	52.5	967	2534	2057	251.7	119.6	844	2988	260	854
16857	"	14:51	15:42	3.94	3.92	44.7	2406	6973	5891	756	338	1843	8457	830/130	1500
16860	"	15:52	16:32	3.03	2.63	18.3	2364	5367	3938	615	113	1567	6545	784	1876
16861	"	17:24	18:28	4.00	3.84	40.1	3413	8001	6637	889	357	2086	10084	1071	2481
16862	"	18:30	18:32	3.18	2.74	18.7	88	305	275	23	4	103	251	58	4
16863	"	20:12	20:32	3.62	4.18	45.3	1051	2900	2775	273	124	762	3485	408	20
16864	"	20:36	20:48	3.32	3.78	43.1	715	1987	1880	186	80	544	2326	314	13
16865	"	22:21	22:43	4.23	4.40	48.0	555	1501	1429	145	70	367	2055	206	6
16866	"	22:46	22:59	3.75	3.78	45.8	775	2116	1998	202	92	555	2582	297	10
16867	"	23:08	23:12	3.47	3.47	40.2	201	627	586	53	21	176	663	87	5
16868	"	23:14	00:01	3.40	3.40	29.9	2841	8002	7427	740	221	2350	9347	1300	52
16869	16/06/84	00:02	00:15	2.96	2.94	20.5	758	2089	1934	197	41	673	2291	357	18
16870	"	00:52	01:42	4.04	4.09	44.9	2885	8002	7584	750	337	2173	9396	1243	64
16871	"	01:43	02:17	3.41	3.40	32.8	1782	5736	5341	576	169	1703	6625	948	47
16872	"	03:07	03:55	3.93	4.10	36.5	2882	8002	7515	750	293	2226	9547	1215	57
16873	"	03:56	04:05	3.31	3.35	30.8	531	1558	1439	138	43	436	1779	216	7
16874	"	5:24	5:41	3.52	3.84	26	1014	2719	2521	264	69	801	3197	424	18
16875	"	5:43	5:47	3.31	3.56	21	221	685	632	58	12	201	722	112	7
16876	"	7:46	7:52	3.86	3.86	39	16	86	81	4	16	16	61	10	1
16877	"	7:52	8:32	3.75	3.71	25.0	2044	7339	6886	532	132	1750	7314	960	26
16878	"	9:04	9:19	4.01	3.98	21.7	804	3653	3484	209	45.6	819	3870	460	108
16880	"	9:23	9:27	3.67	3.57	18.8	776	1019	969	58.9	11.1	240	951	133	6
16881	"	9:59	10:30	4.01	3.98	18.7	1901	8002	7632	494	92	1798	8159	1042	51
16882	"	10:31	11:02	3.50	3.37	17.7	1664	6390	5119	433	76.6	1510	6167	837	28
16883	"	11:51	12:13	4.01	4.02	16.9	1312	4296	3645	342	57.8	1203	5149	655	20
16884	"	12:15	12:38	3.55	3.43	16.5	1332	4052	3205	347	57.1	1180	4695	653	18
16885	"	12:39	13:04	3.23	3.04	13.2	888	3532	2628	339	45	1100	3973	588	20
16886	"	13:58	14:41	4.06	4.01	16.0	2590	8001	6869	673	10.8	2275	9524	141	6
16887	"	14:41	15:10	3.44	3.14	14.4	1691	4313	3235	440	63	1498	4529	798	24
16888	"	17:52	18:45	3.82	3.75	16.0	2986	8001	6804	777	124	2486	9868	1263	57
16889	"	18:45	19:44	3.12	3.00	10.4	3530	8002	5951	918	95	2855	8633	1462	64

Forward INT. LUMI (N.B)

N50 on/off	MIP on/off	TOF on/off	<L>	SL dt Blakka Run	SL dt Blakka Exp	IBM/TAPE	at run ID [AA]	start TOF [V]	T ₂ rec. Foot. Sum	Σ Blakka	Σ MH	E-beam	Remarks
on	on	on	0.21	0.0	8.91	IBM	1.0	0.5	43	0	0	23.285	beams lost
"	"	"	0.52	0.16	9.07	"	2.7	0.85	48	1	1	"	beams lost
"	"	"	0.37	0.62	7.69	"	2.7	0.85	45	4	0	"	beams lost
"	"	"	0.37	0.31	10.00	"	2.3	0.75	44	3	0	"	beams lost
"	"	"	0.42	0.78	10.78	"	2.8	0.75	46	5	0	"	beams lost
-	-	-	0.48	1.55	12.33	"	2.6	0.75	45	10	0	-	Remark: Norms 16858, 16859
"	"	"	0.45	1.86	14.19	"	2.2	0.5	44	12	0	"	Beams lost
"	"	"	0.49	2.02	16.21	"	2.4	0.65	44	13	1	"	
"	"	"	0.66	0.16	16.37	"			29	1	0	"	Beams lost
"	"	"	0.64	0.78	17.15	"	2.5	0.75	41/16	5	0	"	change of trigger - see page 83
"	"	"	0.61	0.93	18.08	"	2.4	0.75	41/15	6	0	"	Beams lost
"	"	"	0.43	0.93	19.01	"	2.8	0.8	48/21	6	0	"	Norm 50 hang up
"	"	"	0.38	0.16	19.17	"	2.6	0.8	42/15	1	0	"	" " "
"	"	"	0.47	0.16	19.33	"	2.4	0.7	37/18	1	0	"	" " "
"	"	"	0.37	1.24	20.57	"	2.3	0.7	42/16	8	1	"	
"	"	"	0.42	1.90	21.97	"	"	"	41/15	9	0	"	Beams lost
"	"	"	0.45	2.48	24.45	"	2.5	0.9	40/16	16	1	"	
"	"	"	0.43	1.71	26.16	"	2.2	0.7	42/16	11	1	"	Beams lost
"	"	"	0.47	1.40	27.56	"	2.5	0.9	42/16	9	0	"	
"	"	"	0.43	0.16	29.72	"	2.2	0.7	40/14	1	0	"	Beams lost
"	"	"	0.64	0.62	28.34	"	2.4	0.8	43/16	4	1	"	
"	"	"	0.65	0.16	28.50	"	2.3	0.7	36/12	1	0	"	Beams lost
"	"	"	0.66	0.00	28.50	"	2.3	0.9	10/7	0	0	"	
"	"	"	0.56	1.09	29.59	"	2.3	0.8	27/9	7	1	"	beams lost
"	"	"	0.61	0.47	30.06	"	2.4	1.8	30	3	0	"	N50 died
"	"	"	0.63	0.31	30.37	"	?	?	22	2	0	"	beams lost
"	"	"	0.59	2.02	32.39	"	2.2	0.9	27	13	1	"	Z VERTX OUT
"	"	"	0.45	1.71	34.10	"	?	?	23	11	0	"	beams lost
"	"	"	0.66	1.55	35.65	"	2.2	0.9	43	10	1	"	N50 died
"	"	"	0.55	1.55	37.20	"	2.2	0.7	41	10	0	"	ID drip
"	"	"	0.61	1.55	38.75	"	2.1	0.5	41	10	1	"	beams lost
"	"	"	1.02	4.19	42.94	"	2.6	0.75	27/2	27/2	4	"	{2TB6 cell out
"	"	"	0.79	1.09	44.03	"	?	?	40	7	0	"	beams lost. {ZVERT IN
"	"	"	0.97	4.19	48.22	"	3.0	0.7	46	27	0	"	Z VERTX OUT
"	"	"	0.63	2.64	50.86	"	0.8	0.5	42	17	4	"	

RUN	DATE	START	STOP	AT RUN START	DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^6$	T ₂ ACC SUM	T ₁ RESUM E, 2000V	T ₁ 917 L E, 2000V	T ₂ 917 L
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82

Run 16857

15⁰⁰

Trigger #14 Sept \otimes TOF switched off after consulting JEO.

JEO agrees to take this trigger out temporarily; when we have better vacuum we should reactivate this trigger.

15²⁰

Slow ID-trip reason unknown.

To increase the energy threshold $E(1)$ will not ~~solve~~ solve our problems. Taking out Trigger #2 completely decreases the rate by $\approx 1\%$, there is no big effect on the dead time either, could be 30% (hard to estimate).

Most our events are beam gas, what we need is a 2-trigger.

15⁴⁰

Hang up: Nord 50 busy
Arithmetic overflow
Memory out of range
Last test addr. 164246
" memory - 431030
" data 260100227
B P by 1 077140
B Q by 2 10000

ok after 2 times aborting +

16⁰⁰ T. Kawamoto and H. Rieseberg on shift

16³³ Beams lost, "Smooth" Run ~~ended~~ # 16860 ended

Lowest timing bit missing in one of the DL8s 14.3 (wires 1184-1199). Contacts cleaned.

17⁰⁵ J. Olsson stops Nord to exchange Serial highway branch driver. (DL8 test and ID preter was not possible in the last two days)

83

Forward INT. LUMI (N.B.)

17²⁰ New follis ready $I^+ = 4.0, I^- = 3.8$

Start Run 16861, Trigger rate 6 Hz, Dead time $\sim 40\%$, Fluctuates between 60 and 20%.

17²⁸ JDAS Readout Error 53: System crate Watchdog flag on PARM = 000001 (pd)
" 47 MP-16 start pulse missing on T2 crate off line

twice

Stop - continue cures the problem

Funny error: DL8 # 3 (wires 24-31) missing for the first ^(~5) minutes of the run, then ok without action.

~17⁴⁰ The two JDAS Readout Errors # 53 and 47 occur again

Further trigger studies:

~ 1 hour after restart 40-50% deadtime.

I changed the trigger 2TOF, 2tracks, $E(4) \rightarrow 2TOF \cdot 2tracks \cdot B(3)$
2eV 2eV threshold

Then deadtime $\sim 25\%$.

Switch off Patrec then 20%.

18³⁰ Beams lost.

Probably this is too drastic?
I talked to Yamada and he says it's alright, we should leave it. B.N.

Top counter 8 (7 on printout) has fluctuating HV.

I decreased voltage by 50V and installed an amperemeter.

Please watch it.

I changed trigger to trigger only on +Z side of counter. B.N.

19²⁵ Beams lost during switch-on procedure

20¹⁰ New fill ready

20³⁰ NSO crash

20⁵⁰ Beams lost.

The change of the trigger reduced the dead time only very little. We also reduced the histo generating (during the run) from 20 to 10%: No effect.

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ REJ $\times 10^6$	T ₂ ACC SUM	T ₁ AVERAGE	T ₁ B172	T ₂ B172	
				I ⁺	I ⁻											

84

15.6.84

22¹⁵ New fill ready with $I^+ = 4.2$, $I^- = 4.4$ mA
 Though TOF rate is high we start Run 16865. Several soft ID trips

22⁴³ and 22⁵⁹ NORD 50 crashes stop the runs

At the second time: NSO cannot be started Internal Device for NSO batch occupied.
 We try several times, and again ABORT-NSO, start NSO EXIT no help → same error. Reload Nord.
 23¹² NSO crash

Then smooth running at $I^{\pm} < 3.5$ mA, dead time $\approx 25\%$, Trigger rate < 5.5 Hz

16/06/84 Ambrus / Zangl on shift

0.15 TOF TDC no hits: 13

Trigger 1 input missing: 37

Trigger 1 output missing: 45

YVOLTS: TOF-MFR=53 CHAN=13 HV=0.278 SHOULD BE=2.670 (no chance to reset because of lost beams)

0.57 YVOLTS: TOF-MFR=53 CHAN=13 HV=3.000 SHOULD BE=2.670 → HV of CHAN.13 set to 2.670

01:53 JAS READOUT ERROR 02: - AC2099 TOF-1 Q,X missing stn = 8 subadr. = 3

" " " " " " " " " 0

02:30 Start break because of faintly LS211 for input control

04:05 beams lost. Problems with power supply for Gtupile. 5:20 NF ready

5:47 Missing LAM branch 4 rate 3 → exchange DL8 position #62. Where is the TH (Test unit)??

7:50 No Triggers arriving followed by JAS err 53 and 47. → stop run start new run

8:00 B.Narveska, F.Nyze

8:11 ID trip.

I investigated dead time: The A triggers had little effect I studied NSO analysis:

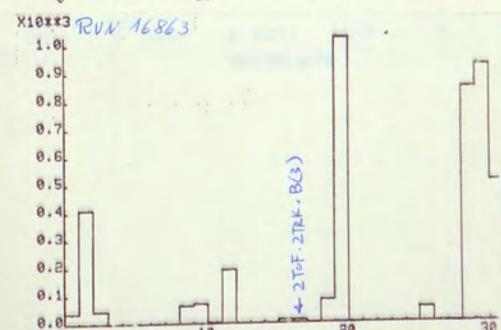
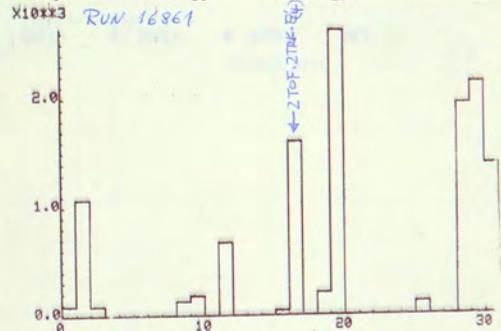
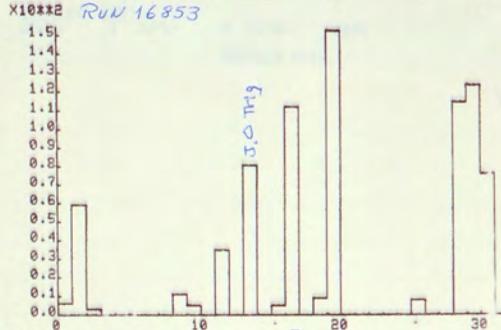
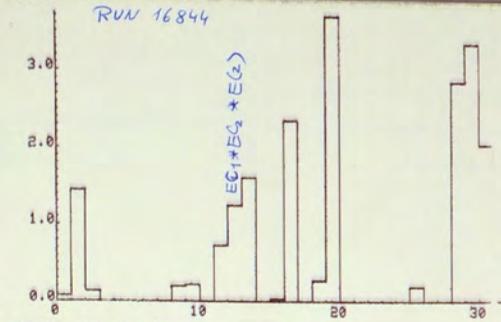
The huge fluctuations in dead time are certainly caused by the Z-Vortex analysis. I leave it off for this run.

Even Pakce on does not give this effect of high fluctuation.

8:30 beams lost.

Forward INT. LUMI (N.B)

85



EVENTS* 2803 UNFL* 0 OUF* 0 HITS* 4299 TRIGGER BITS

NSO stopped
 Run out of range at 163745
 /204 235 100 13 LDR 54, 0013, 10,00, I
 tr. overflow

Last ram ref ad . 2744272

BP Reg. 1 77140
 100000

Break Cond. set / STORE REF)

9.26 beams lost

No z-analysis, no Pakce has an effect of having ~ 20% deadtime only, even at run-start. W. Bartel was here, he doesn't like it too much because we now write events to the IBM disks.

So NSO software experts will have to think hard. What about? (what there is more than one? (or even one?))

10.30 Missing TOF TDC #6 was just bad contact.

10.45 JAS NO ERROR 33
 Miss LAM B2 CR5 L6 ADC

11.30 Found wire #497-551 missing since run 16877-16882.

CAU ID expert.
 He told us to erase the contacts.
 Change Power supply for TOF cath. R
 11.52 New run, ID ok.

12⁰⁰ DAS readout error 62 - AC2099 TOF-1, QX Missing stn = 8, subaddr = 0
 12.12 NSO - Mem out of range at 101757

12.30 Called PKR to enquire whether they can do anything to increase the luminosity. They can't, but they will telephone P. Zenebe to ask what to do.

14.45 From run 16887 on pulled out trigger 2TRG coll and changed 2TRG_{NS} to 2TRG_{NS} C6 TOF in order to reduce rate. It does indeed reduce the raw trigger rate, but the rate to IBT almost unaffected. Switch back Z-Vortex ~~off~~ analysis, total rejection rate does not change. Events to IBT still ~2Hz, maybe 0.1 lower than before. Occasionally a bad event comes, then DT up to 40%.

15.30 Looking at events, I noticed that more often than not the Z-Vortex trigger did not coincide with NSO. They were rarely the same sign. Can't find H. Mills to enquire. Please check!
 ↘ This is nothing new! (HBT)

16⁰⁰ Cartwright + Meinke on shift

16⁴⁵ Beams have been lost since at the very end of injection, when final energy had already been reached.

17¹² Magnet read error: "MUX CHANNEL NOT SET"

17⁵⁰ RETRA still says INJECTION but conditions have been stable for 10 minutes and TOF is ~0.7V
 → switch on E start a run. JC current 3μA - high but stable. Deadtime 15%.

17⁵² Z-VORTEX OFF at start of run. Switch back on to observe effect on deadtime

17⁵⁸ Finally get switch on HV - we've only been running for nearly 10 minutes!

18⁰⁰ Investigate effect of Z-VORTEX ON/OFF. As above, rate is 16M 10% lower with ZV ON. However, mean deadtime up from 15 to 23% (largely result of occasional drops to 80%). So leave [Z-V OFF].

18¹⁰ JC soft trip. Comes back on OK. JC current 2.6μA, TOF 0.6V. Deadtime 10%.

Immediately soft trip, DAS readout error 33: missing LAM branch 2 and 5 LG ADC's

19²¹ Magnet fluctuation. Meter says 7520A - OK

19⁴⁵ JC soft trip. back OK.

22⁰⁰ "background optimization" increased TOF-rate by a factor 10! Complained to PKR.

22³⁵ "Mem crate 8 (at 11) missing" message remains on screen for several minutes. Reset crate.

22⁴³ JC soft trip.

23²⁰ NSO hangup, as advertised in JABE-meeting. Advertised remedy works

We have a perfectly respectable looking Z-ping marked NSO REJECT EVENT 11.

We'd like to know why it was rejected!

[Rechecked that ~~there~~ no tracks from Vtx in R-PH]

Forward
INT. LUMI
(/NB)

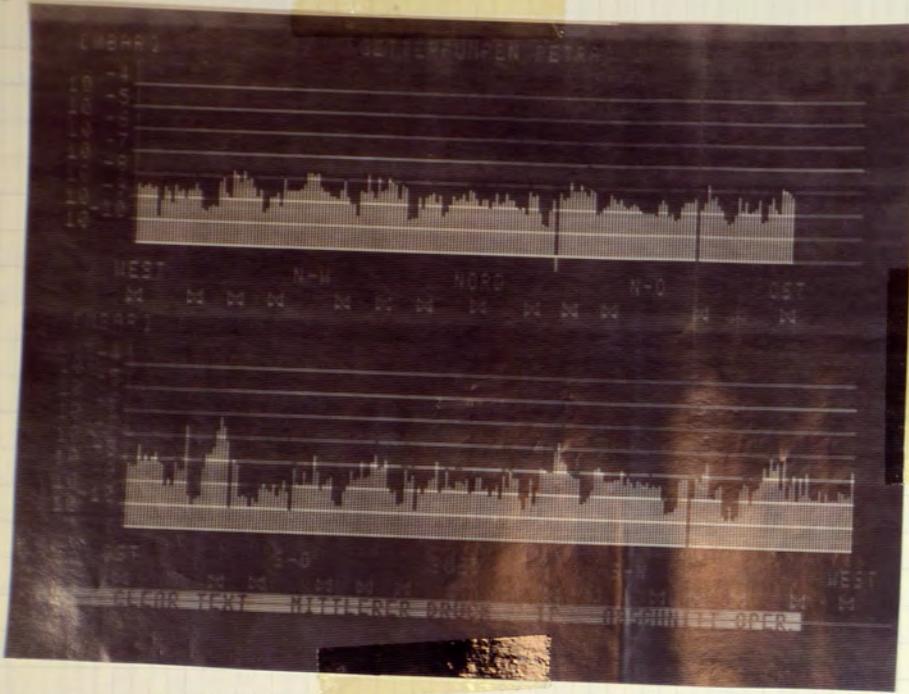
RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^6$	T ₁ ACC SUM	T ₁ RESUM E ₁ > 20GeV	T ₁ 2 E ₁ > 20GeV	T ₁ 17
				I ⁺	I ⁻										
16890	16/6/84	19:45	20:07	2.64	2.50	7.6	1103	2026	1308	287	22	833	2017	402	13
16891	"	22:35	23:23	3.81	3.92	13.9	2719	7097	5793	707	98	2341	7971	1176	56
16892	"	23:25	00:25	3.28	3.32	10.6	3445	8002	5545	946	96.4	2980	8261	1521	56
16898	17/6/84	00:42	00:50	2.20	2.70	2.4	115	339	228	29.9	2.22	88	217	47	2
16899	"	00:53	01:05	2.67	2.67	8.2	586	1172	757	152	12.6	445	1209	229	8
16900	"	10:32	11:21	4.52	4.09	11.5	3511	8002	6553	913	105	2743	5071	1361	48
16901	"	11:36	12:45	3.57	3.07	9.0	4139	8002	7809	1107	87	2992	8458	1464	59
16902	"	12:45	13:19	3.01	2.55	46.1	1943	2000	1247	506	238	811	2009	410	10
16903	"	14:23	15:18	4.16	4.13	12.4	3310	8002	6148	861	107	2835	8784	1502	59
16904	"	15:25	16:23	3.32	3.21	9.6	3843	8001	5461	999	96	3055	8213	1601	49
16905	"	16:23	16:58	2.80	2.71	8.3	2094	4193	2685	545	45	1712	4123	850	26
16906	"	21:22	22:24	4.06	4.10	11.4	3272	7966	6306	852	97	2808	8728	1460	71
16907	"	22:26	23:50	3.15	3.16	8.2	4295	8002	5304	1118	92	3127	8337	1536	62
16909	"	23:56	0:09	1.32	1.50	4.3	694	780	429	177	7.6	387	737	172	3
16909	18:6/84	1:26	2:30	3.98	3.95	10.7	3787	8002	6062	935	105	2711	8705	1300	60
16910	"	2:30	3:44	3.15	2.99	9.5	4451	8002	5115	1158	110	3209	7895	1614	55
16911	"	3:45	4:18	2.59	2.48	6.4	1955	3085	1901	509	33	1442	2948	699	30
16912	"	5:06	5:13	3.80	3.90	13.6	168	386	291	44	6	124	401	70	1
16913	"	5:44	6:27	3.30	3.53	9.0	4115	8002	5658	1071	96	3081	8132	1532	63
16917	"	8:45	9:03	4.7	4.7	16.9	1064	2632	2165	277	46	924	2872	489	29
16918	"	10:52	10:54	4.0	4.0	11.9	108	283	251	28	3	90	303	45	8
16919	"	10:59	11:19	3.75	3.75	10.5	3456	2248	1827	287	30	710	2746	397	17
16920	"	11:32	12:05	3.20	3.23	7.9	4390	8002	5243	1740	90	3070	8142	1463	51
16921	"	12:45	12:57	2.49	2.47	6.3	627	989	592	163	10	429	942	231	6 (?)
16922	"	13:49	13:51	3.90	3.87	17.3	75	202	145	20	2	57	202	27	1
16923	"	13:56	15:06	3.57	3.63	9.2	8001	8001	5437	1043	95	2938	8292	1446	62
16924	"	15:07	15:43	2.65	2.64	6.9	2138	3671	2786	556	38	1570	3554	748	22
16925	"	dummy													
16926	"	15:49	16:21	2.35	2.36	11.1	2090	3767	2017	544	60.5	1471	3367	602	13
16927	"	17:53	19:09	3.91	3.93	9.4	3948	8001	5638	1022	96.5	2980	8774	1477	64
16928	"	19:09	20:25	2.92	2.95	8.9	4396	8002	5273	1144	102	3409	7846	1621	42
16929	"	20:25	21:36	2.45	2.50	7.0	4360	6724	4253	1134	79	3137	6576	1403	32
16930	"	22:42	23:40	4.07	3.75	15.0	3406	8001	6009	887	137	2798	8976	1378	41
16931	"	23:40	0:19	3.38	3.18	13.6	3852	8002	5893	1001	136	3152	7882	1523	44

Forward INT. LUMI (LUMS)

ON/OFF	NSD	MIP	TOF	<L>	SLIDE ENHANC RUN	SLIDE EXP	IEM/TAPE	AT RUN START		T ₂ RET FRACT %	Σ ENHANC	MH	E _{BEAM}	REMARKS
								ID MA	TOF V					
ON	ON	ON	ON	0.56	0.78	51.64	IBM	1.8	0.4	43	5	0	23.285	Beams dumped
"	"	"	"	0.84	2.79	54.43	"	2.6	0.7	48	18	4	"	Word SO crash.
"	"	"	"	0.63	3.75	58.16	"	2.2	0.5	41	24	2	"	see noteleaf, 16893 - 16897 no data
ON	OFF	OFF	OFF	0.41	0.00	58.46	"	2.0	0.5	-4	0	0	"	"
ON	ON	ON	ON	0.46	1.09	59.25	"	2.0	0.5	42	7	0	"	Beams lost.
ON	ON	ON	ON	0.99	5.90	65.12	"	2.6	0.8	45	38	2	4	
"	"	"	"	0.81	3.41	68.53	"	2.2	0.4	43	22	3	4	
"	"	"	"	0.35	1.55	70.08	"	1.0	0.3	44	10	1	"	beams lost; TOF is very high
"	"	"	"	0.78	4.81	74.89	"	2.6	0.75	43	31	2	"	
"	"	"	"	0.59	3.26	78.15	"	2.0	0.5	42	21	2	"	
"	"	"	"	0.45	1.24	79.39	"	1.8	0.4	42	8	0	4	BEAMS LOST
"	"	"	"	0.69	5.12	84.51	"	2.5	0.75	43	33	3	"	
"	"	"	"	0.49	3.26	87.72	"	2.1	0.55	44	21	1	"	
"	"	"	"	0.19	0.16	87.93	"	0.8	0.15	51/49	1	0	"	Beams Lost
"	"	"	"	0.7	4.97	92.90	"	2.2	0.65	41	32	1	"	
"	"	"	"	0.47	4.35	97.25	"	2.0	0.4	42	28	0	"	
"	"	"	"	0.34	0.93	98.18	"	1.75	0.3	47	6	0	"	Beams dumped
"	"	"	"	0.57	0.16	98.34	"	2.4	0.66	40	1	0	"	"Noed-50 busy"
"	"	"	"	0.60	4.50	102.84	"	2.2	0.58	42	29	1	"	"Hudson" was a cosmic
"	"	"	"	0.77	1.86	104.70	"	2.6	0.60	43/	12	0	"	Beams lost.
"	"	"	"	0	0		"	2.6	0.60	47%	0	0	"	450 busy No lumi
"	"	"	"	0	0		"	2.3	0.55	46%	0	0	"	No lumi
"	"	"	"	0.56	4.50	109.20	"	2.1	0.40	42%	29	2	"	
"	"	"	"	0.44	0.47	109.67	"	1.8	0.28	44	8	0	"	Beams lost.
"	"	"	"	0.95	0.00		"	2.4	0.60	36	0	0	"	450 busy
"	"	"	"	0.62	3.26	112.93	"	2.2	0.4	42	19	1	"	
"	"	"	"	0.56	3.57	115.50	"	1.8	0.82	44	23	0	"	450 busy
"	"	"	"	1.6	0.25		"	1.6	0.25	4			"	
ON	ON	ON	ON	0.47	7.86	117.76	IBM	1.6	0.25	53	12	0	23.285	beams lost.
"	"	"	"	0.96	5.12	122.48	"	2.4	0.60	42	33	2	"	
"	"	"	"	0.71	5.28	127.76	"	1.9	0.38	44	34	1	"	
"	"	"	"	0.52	2.26	130.02	"	1.7	0.31	48	17	1	"	beams dumped
"	"	"	"	0.84	4.19	134.21	"	2.8	0.66	45	27	0	"	
"	"	"	"	0.67	4.97	139.18	"	2.0	0.45	41	32	1	"	

↓ 2786 in case

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES. $\times 10^6$	T ₂ ACC. SUM	T ₁ RESUM	T ₁ INTL	T ₁ INTL
				I ⁺	I ⁻								E ₁ RESUM	E ₁ INTL	



18.6. '84 10⁰⁰
no beam since
~ 1^h.

10²⁰ "Injection." No. 50 problem, no trigger due to NSO busy.
started run

10⁴⁶ Run started (#16918)

11⁰⁰ we have no lumi! looked for the HV which was ok. there are no lumi triggers at all, but also no blabla events. when we found out, that it must be due to the beam, suddenly lumi appears. we asked at PKR for the reason. they forgot to switch off the beam separators.

12⁵⁷ Cello rig to say they want to dump the fill. Before they get a chance Petra does it for them - beams lost.

13⁵⁰ No triggers "NO. 50 BUSY"
Run stopped.
ABORT - NSO

The following message then appeared on the console terminal.

Forward INT. LUMI (NSO)

MEMORY OUT OF RANGE AT: 163745
163745 / 204235 40013 LDR 54, 0013, 10, 00, I
ARITHMETIC OVERFLOW
MEMORY OUT OF RANGE DATE 18/6/84
LAST START ADDRESS 163745
LAST MEMORY REFERENCE ADDRESS 0000 2744 272
LAST DATA TO/FROM MEMORY 004225 60044
BREAK POINT REGISTER 1 (BP) 077140
" " " 2 (BP) 100000
BREAK CONDITION SET
/ STORE REFERENCE/

01150321211
14000 121211
all other numbers agree except these two in another NSO busy.

I hope this is of use to someone since it took a long time to write it down!!

- 16:00 Greenham / Felst (Hill, a machine takes, starts in for Felst for first 15 mins)
- 16:14 7-spy detected error
Trigger 1 input missing: 37
Trigger 1 input missing: 45
TOF TDC no hits: 13
Reset HV manual 53 chans. 13

16⁵⁰ Cello pinned, during beam time there will be no beam from P on 19-6-84 am - 16 00 pm
there in PETRA since the machine group wants to work on some early windows

17⁴⁰ Beams ready, start run, but magnets crash down after few minutes due to Wolfram tube problem

- 18:00 Magnet run back up, 10 HV up, run continued.
- 18:08 JOAS Readout error 73 - Missing LAM branch 3 mode 2: Mum checks. Occasional IBM busy messages in run 16927
- 21:22 TOF TDC no hits: 13.
Trigger 1 input missing: 77
Trigger 1 input missing: 45
- 21:40 Shut had while PKR for power supply
- 22:40 Run 16930 started. At run start deadtime ~30%, high trigger rate largely due to L cell track triggers. Situation improves rapidly as run progresses.

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL x10 ⁶	T _# RES. x10 ⁶	T ₂ ACC. SUM	T ₁ RESUM E, 20000	T ₁ 9172 E, 20000	T ₁ 9172
				I ⁺	I ⁻										

- 94
- 23.16 JDAS Readout error 44 - DMA timeout branch 5 crate 7 : 1. D. Ring 1
 CARC CARF WCR MAR MODE DMACOST PIOCOST ISR IUR WDOG
 01207060 007060 002344 0556312 121002 010100 140204 0 20 0
- 23.20 JDAS Readout error 33 - Missing LAM branch 4 crate 3 : 1D. Ring 2
 19.06.84
- 0:00 Dierlmann & Talloshita
 0:12 ID HV was down slowly twice.
 0:20 Missing LAM branch 4 crate 3 : 2D. Ring 2 : many times -AD pushed a DL8 (most left one) then it became d11
 1:00 JDAS READ OUT ERROR 44: DMA TIME OUT branch 4/crate 3/1: 2D Ring 2
 CARC CARF WCR MAR MODE DMACOST PIOCOST ISR IUR WDOG
 01003060 003060 002600 0531451 121002 010100 140240 000000 000020 000000
- 1:11 ID HV slowly down and magnet. (Voltage down primar <) was also down, and the magnet was not controlled by computer at first. We raised it by manually. We stopped Run 16932.
- 1:30-50 JDAS READ OUT ERROR 44: DMA TIMEOUT branch 2 crate 7 LG
 3 2 Main chgrp.
 2 2 Trigger T₁ & T₂
- 7:30 Short break started. We decreased the magnet current.
- 8:00 Olsson + Yamada on dummy-shift
- 16:00 Hoshino + Bethke on shift
 Break extended to 17:00
 17:00 Run up magnet, PKR will start to inject

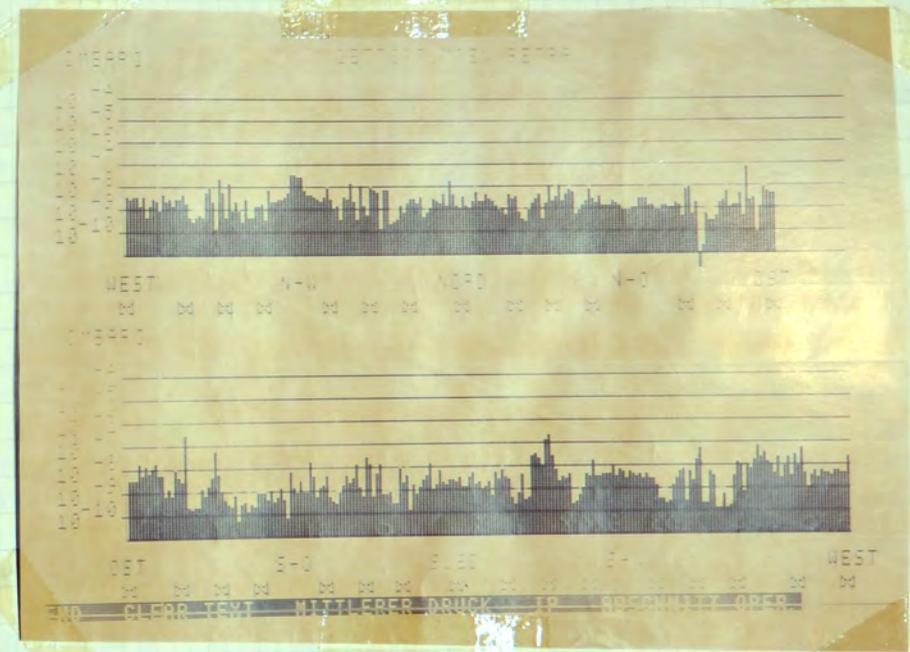
Nord-50 problems - during day attempted to get better monitoring diagnostics for the Nord-50, however this did not work satisfactorily. Restored Old version of ZDAS etc. For non-understood reasons the AB-N50 and reload do not work. THUS, if the NORD-50 goes BUSY, try the AB-50 command to start a new run - if ZDAS abends when trying to reload the N50 you will have to log on as RT as restart ZDAS again. (HEM)

- 18:25 Started run, write to tape because IBM down!
 18:55 HV MFR 53, ch. 13 (TOF) wrong. Reset via ZDAS. → printer: "all channels are reset". fine!
 19:05 IBM up. Start new run

Forward INT. LUMI (VNB)

- 95
- 21:50 start run 16946. Soon: several HV-wrong. (MFR 53, TOF + MFR 61, TAG 6). No Lumi. We try to reset, but than → beams lost!
 23:06 New fill ready. Just switched an HV of 1D, as we got 1D-anode-current alarm (part trip). Strange, because chamber was not counting at all. Same time: beams lost.
 23:49 After changing the magnet-current by computer and reaching the end-value, the computer says always 10-16 A less than the display of the current in the magnet box!

20.6.84
24:00 Bartel & Warming on the graveyard shift



20.6.84 0:30
 no beam

Petra has vacuum problems. During the day a HF-window has been exchanged. As soon as the energy exceeds ~ 20 gev, outpacing starts and the RF-transmitters are automatically switched off.

- 1:30 start new run, discover: no trigger bit 1 (lumi), at the same time HV-check reports error, all tagging HV's down,

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (SEC)	RECORDS IN	RECORDS OUT	ALL x10 ⁶	TOP REJ. x10 ⁶	T1 ACC SUM	T2 ACC SUM	T1 BITZ F1 > 66V	T2 BITZ 2T. Fx 22V	
				I ⁺	I ⁻											
96																
16932	19/6/84	0:49	1:08	2.85	2.72	9.8	1083	2208	1438	281	28	936	2020	442	12	
16933	"	1:23	2:45	2.63	2.53	7.9	4909	8062	5765	1276	101	3697	7565	1695	41	
16934	"	2:46	3:10	2.22	2.16	6.0	1444	2134	1261	375	22	1034	2028	479	8	
16935	JUNL RUNS															
16936	"	4:08	4:09	4.15	4.12	32.8	59	239	211	15	5	56	125	25	0	
16937	"	4:11	5:05	4.06	4.03	17.3	3257	8002	6109	846	146	2915	8450	1476	41	
16938	"	5:05	6:07	3.22	3.24	10.6	3636	8002	5569	944	100	3174	7897	1548	54	
16939	"	6:07	7:22	2.67	2.73	7.8	4481	8001	5153	1075	91	3562	7577	1617	33	
16940	"	7:22	7:29	2.19	2.31	6.4	396	675	416	103	7	311	580	130	1	
16941	"	7:22	7:29	2.19	2.31	6.4	396	675	416	103	7	311	580	130	1	
16942	"	throw away; had computer problems														
16943	"	7:15	18:20	3.23	3.23	8.6	754	536	348	65	5.6	180	516	81	1	
16944	"	18:24	19:06	3.15	3.11	7.0	2449	4094	2596	637	44	1573	4087	761	79	
16945	"	19:06	20:01	2.49	2.49	5.6	3248	4378	2647	846	49	2016	4300	904	29	
16946	"	21:53	21:57	3.75	3.73	14.1	714	549	407	55	7	166	537	95	2	
16947	20/6	01:24	02:05	3.77	3.61	21.4	2142	5185	3902	557	119	1677	5555	923	42	
16948	"	02:08	03:16	2.94	2.80	8.2	7246	4039	2899	4899	1051	86	2854	7767	1447	45
16949	"	6:37	6:56	3.34	3.25	38.8	945	2848	2100	246	95	-679	3813	251	10	
16950	"	6:59	7:30	2.68	3.06	17.4	1425	3171	2635	371	64	1025	4135	482	18	
16951	21/6/84	2:55	3:51	4.23	4.24	29.1	3139	8002	6350	816	237	2986	8601	746	49	
16952	"	3:59	4:05	3.41	3.37	31.5	271	676	560	41	22	258	7315	152	5	
16953	"	5:32	6:38	4.30	3.90	42.2	3061	8002	6664	786	336	3246	8468	1999	82	
16954	"	6:40	6:54	3.87	3.49	49.8	828	2133	1826	215	107	751	2252	466	27	
16955	"	7:14	8:01	3.67	3.30	44.4	2003	5248	4388	520	231	2009	5545	1752	49	
16956	"	7:19	7:32	4.14	4.15	25.7	735	1910	1421	791	48	657	1794	344	20	
16957	"							29	28							
16958	"	13:46	14:37	4.14	4.14	23.5	2578	6610	5226	671	157	2500	7345	1513	62	
16959	"	17:09	17:17	4.28	4.26	56.7	504	1305	1090	131	74	472	1408	287	82	
16960	"	17:21	17:43	4.14	4.17	25.5	1155	5114	4968	300	78	1623	6312	983	237	
16961	"	18:25	18:43	4.77	4.83	39.1	346	1688	1568	90	35	476	2299	265	75	
16962	"	18:44	18:47	4.59	4.65	40.7	115	632	605	30	12	148	804	88	29	
16963	"	18:48	19:22	4.55	4.61	36.7	1704	8002	7128	444	163	2311	10452	1407	347	
16964	"	19:22	19:28	4.23	4.29	30.8	337	1652	1341	88	27	493	1822	303	76	
16965	"	19:30	20:00	4.16	4.23	26.1	1817	8002	6446	473	123	2524	9476	1511	65	
16966	"	20:01	20:37	3.89	3.96	19.0	2165	8002	6246	563	107	2739	9533	1598	53	

Forward INT. LUN (N.B.)

ON/OFF	NSD	MIP	TOF	<L>	Slot BHABH RUN	Slot Exp.	IBW/TAPE	AT RUN START		T2 REJ. FRACT.	Σ BHABH	MH	Fbeam	Remarks
								ID (uA)	TOF (V)					
ON	ON	ON	ON	0.62	0.78	139.96	TBM	1.7	0.36	40	5	0	23285	
"	"	"	"	0.56	5.43	145.39	"	—	—	46	35	1	"	
"	"	"	"	0.54	1.24	146.63	"	1.3	0.28	49	8	0	"	Beams dumped
ON	ON	ON	ON	0.81	0.16	146.79	TBM	2.4	0.75	-30	1	0	"	
"	"	"	"	1.20	7.14	154.13	"	2.4	0.65	+42	46	0	"	
"	"	"	"	0.83	5.43	159.56	"	2.0	0.5	42	35	1	"	
"	"	"	"	0.64	3.73	163.29	"	1.8	0.4	44	24	0	"	
"	"	"	"	0.56	0.31	163.60	"	1.4	0.3	42	2	0	"	
"	OFF	OFF	OFF	—	—	—	"	2.0	0.4	—	—	—	"	
ON	ON	ON	ON	0.9	0.0	163.60	"	2.0	0.4	38	0	0	"	
"	"	"	"	0.76	2.77	165.77	TAPE	2.0	0.36	42	14	1	"	Tape FH 192
"	"	"	"	0.50	2.79	168.56	TBM	1.6	0.26	47	18	0	"	
"	"	"	"	-0-	0.62	169.78	"	2.4	0.49	39	4	0	"	beams lost
"	"	"	"	0.74	3.10	172.88	"	2.2	0.55	39	20	0	"	
"	"	"	"	0.61	4.50	177.38	"	?	?	45	29	0	"	beams lost
"	"	"	"	0.59	0.62	178.00	"	2.5	0.50	58	4	0	"	
"	"	"	"	0.40	0.47	178.47	"	?	?	50	3	0	"	beams lost
"	"	"	"	0.69	3.72	182.19	"	1.7	0.8	44	27	1	21,935	
"	"	"	"	0.49	0.28	182.47	"	1.8	1.0	71	2	0	"	beams lost
"	"	"	"	0.49	2.48	184.95	"	1.8	1.3	47	18	1	"	
"	"	"	"	0.40	0.28	6.46	"	2.0	1.4	44	2	0	"	Stop, NSD problem
"	"	"	"	0.35	1.24	8.00	"	2.2	1.4	45	9	1	"	beams lost
"	"	"	"	0.79	0.41	8.41	"	1.9	1.4	43	3	0	"	beams lost
"	"	"	"				"		1.5				"	Run summary lost
ON	ON	ON	ON	0.77	2.75	11.16	"		2.4	47	20	2	"	beams lost
"	"	"	"	0.47	0.28	11.44	"	2.1	1.5	44	2	1	"	Stopped to try to fix dentline!
"	"	"	"	0.67	2.07	18.51	"	2.0	1.5	47	15	0	"	Z-vertex off. After that time, beams lost
"	"	"	"	0.87	0.55	14.06	"	3.0	1.5	50	4	2	"	NSD - SD hangup
"	"	"	"	0.57	0.14	14.20	"	3.0	1.3	45	1	0	"	"
"	"	"	"	0.73	1.79	15.99	"	3.0	1.3	47	13	2	"	"
"	"	"	"	0.84	0.55	16.54	"	1.8	0.9	39	4	0	"	NSD - SD hangup
"	"	"	"	0.94	0.58	17.12	"	1.8	0.7	44	26	0	"	"
"	"	"	"	0.99	2.48	19.60	"	1.6	0.7	47	18	0	"	"

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T# REZ $\times 10^6$	T# ACC. SUM	T# AVERAGE	T# BIT 2	T# BIT 17
				I+	I-										

20.6.84

2:07 Nord 50 busy memory out of range
 last start adr. 163745 last mem 00740526062 last data 24700400001
 BP1 077140 BQ2 100000

3:20 ~~beam summary 16948 measure monitor in IT accept sum.~~

4:20 Magnet trip Volant drunk too small

6:58 Nord 50 busy memory out of range at 163745
 last mem ref. adr. 00002744272 last data 00422560044
 BP1 077140 BQ2 100000

7:00 Please update the trigger bit histogram: what is trigger bit 11?

7:45 ID-trip

Run 16950 has 2908 non existing LG blocks on
 NORD-error? HEM should look at it.
 sta. histograms ok. not Nord Error - its just true - there are ADCs readout for which the blocks do not exist - & these have signals! (HEM)

8:00 Rieseberg & Ramcke on shift

"short break": Investigation on a transmitter.

8:20 Magnet \rightarrow 2000 A

8:47 "Cavity Eintragspfeaster defekt", Restart ca 15:00
 Magnet \rightarrow 1000 A "Reset down" was necessary since no response on 'raise' or 'lower' command.

Reason for the malfunctioning of the Gould plotter: Oil in the humidifier!

~11:30 Jan Olsson implemented the new data taking system for the ID. (test version).

! Please call him before the start of the next run night, don't call me! J.O.
 Old version is installed for the

15:20 Petra Magnets to 1.838 GeV

16:00 Hedgcock, Felt on shift

screen zap restart at 15:00, phoned PKR they say it takes another hour still

18:00 All's quiet.....

Magnet had 'sleepwalked' to ~1380 A. I reset by hand to 500 A

20.6.84

19:00 Z-chamber Camac Coaks connected up to Branch 3, C4.5. Terminator of Branch 3 now in Coak 5. Readout is not active. IP Out of the fans in C4.5 should not stand being turned on for long time (they are new, not field proven!), then just move the terminator back down to crak 3 again. J.O., R.H

19:20 There are severe problems with the magnet current of the synchrotron, Experts are working but haven't found out yet what. Short break \rightarrow break on screen

21:00 MAGNET WALKED up to 1306 - RESET BY HAND. THEN CHECKED BY CHANGES BY computer.
 OK. ok

21:25 PKR ASK FOR MAGNET TO BE RUN UP. SET TO 7500

23:26 after 3x beam loss around 20 GeV "short break" appears at the screen
 run magnet down to 3000 A

21.6.84

0:00 Becker, Nye

21/6/84

2:10 Petra is running at 21.935 GeV - Couo says they have problem of some kind, and cannot go any higher. Therefore we will run at this energy all night. It may not matter anyway, since the beams only have a lifetime \sim 5 mins!

2:45 Magnet run up to 7500 A (we forgot to do it before start of injection!)

2:56 HV read error: Frame 15 - acknowledge err. - we ignored it - see p90

3:23 ID Trip.

4:00 High Vetch currents - slow id trip

4:10 beams lost, short break.

5:48 LSPY error: Trigger 3 I/P missing: ST28 GP4

6:30 High backgrounds (TOP rate \sim 1.5 V) - PKR try to reduce them but still several slow id trips.

6:56 "NORD50 busy" error

Stop run 16954, Restart (Appendix I)
 Printer: "Inernal divide for N50 buffer occupied"

Restart NORD

N.B: Aborted NSD \rightarrow "BATCH ... ABORTED" \rightarrow STARTED new run \rightarrow "NSD CANNOT BE STARTED"
 so re-started ZDAS - still NO NSD \rightarrow Restart Nord - OK.

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T# REZ $\times 10^6$	T ₁ ACC. SUM	T ₁ ARESUM	T ₁ BITL	T ₂ BITL
				I ⁺	I ⁻										

21/6/84
7³⁰ Mainframe 53 Channel 13 - needed resetting (2nd time this shift.)

8⁰⁰ Kado & Takeda

- 8.30 beams lost / short break
- 9.00 I phoned CELLO and they say "Injection will start soon"; so I leave the magnet current at 7500 amp.
- 9.15 magnet trip! "Vorlaufdruck primär <"
- 9.25 alarm reset; current raised to 700 amps manually, then to 7500 amps by computer-controll. meanwhile TV says "INJECTION"
- 10.10 now fill ready; high background \rightarrow TOF rate 4-5V!
- PHR tries background optimization
- 10.31 ID trip
- The inner detector run stop cable was OUT - hence ID trip did not stop run.
- 10.34 partial beam loss / beams dumped

11:50 high temp. in hardware-rooms. $T > 19.5^\circ$. HKK3 phoned, somebody will come. compressor #3 has "Störung". Switching makes it work only for few minutes.
 \rightarrow Probably it's too hot for running with 2 compressors, we need \cong additional COOLING POWER FOR VX-CHAMBER FADC'S \cong 2)
 We switched off FADC's; temperature goes slowly down (2 compressors working). Please do not switch on FADC's until cooling power problem is cleared up.

People having crates in hardware room should carefully close all holes between crates. A lot of warm air comes back, especially in racks # 18 \rightarrow 22 (FADC, system-crate ...). 2)

13²² New ZREAD version installed. If any problem, call J. Olsson immediately. done! (MORO hang up after 28 events)
 (N6957) N6958 del version in again - S. Bethe

- 1) The FADC-electronics has ~ 6 KW power; this was calculated in early 1983 and taken into account for the extension of the air-cooling system (third compressor).
- 2) These holes are for the installation of two fast-clear fan-out's; meanwhile we closed them.

14.45 air-condition repaired, FADC's switched on again.
 Temperature in hardware-room: 16.5°C

(HK)

Forward INT. LHM (LNB)

21. 6. 84

- 15.20 "Short break" since 40 minutes; no beam before 16.00. \rightarrow magnet current to 500 amps.
- 15.30 electron pick-up unit has malfunction and needs repair / exchanged by spare-unit.

16⁰⁰ Cartwright & Weber

- 16⁰⁵ Injection. Magnet \rightarrow 7500A
- 16⁴⁵ Background still too high + switch on ID (TOF ~ 2.5 V)
- 17⁰⁷ TOF ~ 1.5 V Switch on ID Anode current 2 μ A. START RUN. Deadtime $\sim 50\%$
 [Bente Nardien reports from PKR that the PETRA file for 22 GeV is not well corrected because we have not done much running at this energy \Rightarrow corrections have to be done by hand]
- 17¹⁷ ID soft trip
- 17²⁰ Run 16959 terminated. Deadtime 60%
 Z-vertex analysis switched OFF \rightarrow Then deadtime $\sim 20\%$
- 17²⁷ ID soft trip
- 17³⁵ Rate of data transfer to IBM > 4 Hz!
 Bente & Krehbiel did something to the trigger, took out TBG collim trigger.
 Rate now $3\frac{1}{2}$ Hz

Problems with μ -ch gas system
 Switching on fans in hall causes pressure in hall to go down (fans are very efficient!) This aggravates all leaks in the μ -chambers. Result - no gas returned to gas hut. Panic amongst gas people.
 This can be avoided by:
 (a) not switching on fans
 (b) leaving the door open to try to equalize the pressure.
 even if Z-ch + μ -chambers were perfectly gas-tight, a pressure drop in the Hall would still produce exactly this effect. A box 5m x 30cm x 2cm made of 1 mm thick pcb is a very poor pressure vessel!

18⁴⁴ NOC-50 Busy
 18⁴⁷ ditto
 18⁵¹ ID soft trip
 19⁰⁰ Deadtime 35-40% Rate to IBM $4\frac{1}{2}$ Hz
 Gus Weber leaves to consult PKR.
 19⁰⁵ ID soft trip
 19¹⁶ JBA's REABOUT ERROR 44 DMA TIMEOUT branch 5 case 1 = ID Run 1

CARC	CARF	WCR	MAR	MODE	DMACOST	PIOCOST	ISR	IVR	Wdog
01201060	001060	002270	0526303	121002	010100	140204	000000	000020	000000

21.6.84

1929 NORD-50 BUSY
 1933 VOLTS - MF 53 channel 13 voltage wrong, reset.
 Main cable 4 missing \Rightarrow reset.

Scale of TOF-meter at PKR changed to correspond to their notes (Webb)

20⁴⁴ T1 input missing 37 } YSPY
 T1 input missing 45 }
 Mainframe 53 channel 13 reset again.

20⁵⁰ Deadtime down to 15% so try switching z-vote back in
 Result \rightarrow deadtime 40%
 Then 1d soft trip so maybe it wasn't the z-vote causing the deadtime!
 After reset of inner detector deadtime with z-vote in is 20% with frequent excursions up to 60%
 \rightarrow switch z-vote OFF again.

21¹⁴ No triggers (level 5)
 JVAS readout error 33 missing LAM br 2 or 5 LG ADC's } almost simultaneously
 1d soft trip.

After getting 1d in again, everything works.

21³⁸ JVAS readout error 33 - missing LAM br 2 or 3 TOF1 counter

21⁴⁷ Genuine hadronic event!
 21⁴⁸ 1d soft trip

22⁰⁰ VOLTS still complains sporadically about LG "power supply/mainframe" 15,
 22⁵⁰ reset 53 13 again. More complaints about 15.

Forward INT. LUMI (L/NB)

22/6/84

0⁰⁰ Helen Brandt, Felt on shift
 0²⁵ Filling ready, background situation improved considerably compared to previous filling
 number of random hits in TO (synchrotron radiation) is down by more than a factor 2 down
 in comparison to 23.285 GeV. Specific luminosity incredibly low $10^{28} \text{ cm}^{-2} \text{ s}^{-1} \text{ mA}^{-2}$
 1:35 NORD 50 BUSY stopped RUN 16971 ABORT-NSO
 1:45 TRIGGER 3 INPUT MISSING: ST 28 GP4 ACKNOWLEDGED Run 19970-1
 1:55 Lumin from forward counter and lead glass counter differs by a factor of about 2
 our forward counter in comparison to the other experiments.

LUMI-MESSUNG					DATUM (START) 1984-06-22-00:49:15		DATUM (ENDE) 1984-06-22-01:04:16	
ENERGIE: 21.935 [GeV]			VORGEGEBENE MESSZEIT: 900 [Sec]					
BUNCH-STROM (START)		BUNCH-STROM (ENDE)		BUNCH-STROM (MIT.)				
[mA]		[mA]		[mA]				
E1:	P1:	E1:	P1:	E1:	P1:			
E2:	P2:	E2:	P2:	E2:	P2:			
E3:	P3:	E3:	P3:	E3:	P3:			
E4:	P4:	E4:	P4:	E4:	P4:			
PETRA-FREQUENZ: 499.6649 [MHz]			MAGNET-ENERGIE: 21.935 [GeV]					
LUMINOSITÄTEN	CELLO NO	TASSO SO	MARK J SW	JADE NW				
EREIGNISSE :	211	62	9	193				
GATE-TIME :	899	899	850	841	[Sec]			
MESS-ZEIT :	900	900	900	900	[Sec]			
LUMI :	12.18	15.24	2.85	10.76	E29 *1			
SPEZ. LUMI :	1.28	1.60	.29	1.13	E29 *2			
*1 [cm ² Sec ⁻¹]		*2 [cm ² Sec ⁻¹ mA ⁻²]		MESSUNG IST BEENDET				

Forward counters agree with other experiments. I can find nothing wrong with tagging h⁺s or electrons thresholds etc. ok
 26/6/84 JMN

2:40 JETC ILLEGAL HIT COUNTER ~ 500 } RUNs 16967 to 16973
 JETC ILLEGAL WIRE # ~ 2300 }
 \uparrow this is much to much
 ERROR in DC8 N.F. 65 camac board clean by rubber, problem possibly cured
 4⁰⁰ "Magnet read error" what does it mean?

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL x10 ⁶	T ₁ RES x10 ⁵	T ₁ ACC SUM	T ₁ BIT 2 E ₁ > 6 GeV	T ₂ BIT 17 2T • E ₄ > 2.2 Tr	
				I ⁺	I ⁻										
104															
16967	21/6/84	20:37	21:24	3.61	3.68	18.4	2464	8002	5726	641	118	2754	7945	1613	395 57
16968	"	21:25	22:16	3.31	3.37	10.7	2965	8002	5603	771	83	3000	7784	1688	334 56
16969	"	22:17	23:15	3.03	3.10	8.5	3443	7805	5097	896	76	3324	7081	1765	388 65
16970	22/6/84	01:27	1:40	4.5	4.7	12.8	2583	8001	5647	672	86	2769	7925	1576	361
16971	"	1:40	1:38	4.18	4.35	14.8	1600	5344	3837	416	62	1768	5355	935	45
16972	"	1:40	2:27	3.71	3.90	11.5	2816	8002	5592	732	84	2788	7930	1493	52
16973	"	2:27	3:34	3.34	3.53	9.0	3736	8001	5496	977	87	3433	8738	1773	59
16974	"	3:35	3:40	3.07	3.18	8.0	266	545	369	69	5	232	526	122	2
16975	"	4:26	4:43	4.66	4.74	20	898	2482	1927	23	46	889	2676	465	13
16976	"	4:46	5:00	4.50	4.58	14.9	828	2699	2093	215	32	1077	3039	556	27
16977	"	5:01	5:40	4.36	4.45	17	2309	8002	6225	600	102	2951	8704	1660	71
16978	"	5:41	6:23	4.04	4.13	16.6	2373	8001	6299	617	103	2949	8782	1647	71
16979	"	6:24	7:12	3.72	3.80	14.0	2868	8002	5860	747	104	3047	8575	1655	54
16980	"	7:17				no run									
16981	"	7:53	08:57	3.27	3.29	9.7	2369	5281	3624	617	60	2329	4900	1194	35
16982	"	09:59	10:21	4.60	4.41	18.3	1217	4597	3517	317	58	1305	4148	692	29
16983	"	10:36	10:51	4.28	4.10	20.8	836	2360	1785	218	45	910	2505	490	12
16984	"	12:19	12:29	4.67	4.67	29.3	555	2210	1763	145	39	709	2525	428	22
16985	"	12:29	13:25	4.60	4.60	30.5	2436	8002	6564	635	194	2828	9293	1620	58
16986	"	13:25	14:19	3.78	3.75	12.0	3236	8002	6284	842	101	3259	8841	1672	78
16987	"	14:20	14:50	3.32	3.25	8.9	1761	3595	2509	458	41	1632	3658	747	22
16988	"	14:53	15:33	3.72	3.66	9.7	2327	4262	2843	606	47	2066	4657	969	35
16989	"	18:29	19:35	4.27	4.22	9.6	3729	8002	5876	971	93	3479	8460	1729	61
16990	"	19:35	19:50	3.81	3.77	10.2	889	2057	1484	232	24	881	2219	432	14
16991	"	20:04	21:09	3.62	3.21	9.1	3897	8001	5632	1013	91	3627	8233	1732	54
16992	"	21:10	22:27	3.24	3.20	7.3	567	8001	5428	1204	88	4019	7793	1893	48
16993	"	22:27	22:34	2.87	2.83	6.5	308	527	355	80	5	299	447	126	3
16994	23/6/84	0:33	1:13	4.50	4.62	13.6	2355	6654	4983	672	79.5	2675	7023	1394	59
16995	"	1:14	2:05	4.73	4.27	12.9	2979	8002	5984	726	100	3183	8832	1687	59
16996	"	02:10	3:07	3.73	3.86	10.7	3439	8001	5646	895	96	3384	8502	1706	58
16997	"	03:38	04:16	3.36	3.50	8.6	4073	8002	5419	1060	91	3783	8172	1905	50
16998	"	04:17	04:46	3.01	3.14	7.7	1699	3232	2154	442	34	1540	2963	755	22
16999	"	05:34	06:06	4.02	4.19	11.9	1688	3938	3008	439	52	1641	4218	820	35
17000	"	06:14	07:13	3.72	3.92	11.7	3190	8002	5984	830	97	3374	7824	1731	63

Forward INT. LUM (1/NB)

ON / OFF			<L>	SLde RHAGNA RUN	SLde EXP	IBM / TAFE	AT RUN START		T ₂ RES FRACT	Σ CHARGES	MH	E _{beam}	REMARKS
NSD	MEP	TOF					ID MA	TOF V					
ON	ON	ON	0.90	2.86	22.46 ^{19.60}	IBM	1.6	0.6	36	28	5	21.935	Z-vertex OFF At least 3 of the "MH" were junker At least 2 read MH events. Also written to TAFE PIZBUB FOR H MILLS Beams dumped
"	"	"	0.84	3.58	26.04	"	1.4	0.5	38	26	7	"	
"	"	"	0.60	3.72	29.76	"	1.1	0.4	39	27	2	"	
ON	ON	ON	1.06	6.20	35.96	IBM	1.6	0.6	36	45	1	21.935	
"	"	"	0.88	2.75	38.71	"	1.4	0.5	36	20	3	"	NSD BUSY
"	"	"	0.80	3.03	41.74	"	1.3	0.45	37	22	6	"	
"	"	"	0.68	3.58	45.32	"	1.1	0.40	47	26	4	"	
"	"	"	0.62	0.16	45.48	"	1.0	0.36	48	2	0	"	
"	"	"	1.40	1.93	47.41	"	1.8	0.6	44	14	0	"	Z-vertex on dead time 18% Mind so busy
"	"	"	1.42	1.65	49.06	"	1.6	0.6	47	12	2	"	Z-vertex off + Mind so busy
"	"	"	1.19	3.89	54.05	"	1.5	0.7	47	29	3	"	
"	"	"	0.88	4.41	58.46	"	1.4	0.65	45	32	5	"	
"	"	"	0.68	3.44	61.90	"	1.2	0.45	45	25	3	"	Word Pansy up level 14
"	"	"					1.0	0.40					
"	"	"	0.57	1.38	63.28	"	1.0	0.40	43	10	3	"	Beams dumped
"	"	"	1.35	2.34	65.62	"	2.0	1.0	24	17	4	"	run stopped for delay - E ₈ Z-vertex on - LEAVE IT ON KEYS!!
"	"	"	1.30	2.62	68.27	"	1.6		45	19	0	21.950	
"	"	"	0.64	0.28	2.90	"	1.8	1.2	43	2	1	"	
"	"	"	1.30	5.10	8.00	"	1.8	1.2	46	37	4	"	
"	"	"	1.24	5.93	13.93	"	1.3	0.5	49	43	3	"	
"	"	"	0.92	2.76	16.69	"	1.1	0.4	50	20	0	"	
"	"	"	0.92	3.77	19.86	"	1.0	0.35	51	23	1	"	Beams lost
"	"	"	1.54	11.17	31.03	"	1.3	0.6	49	81	3	"	
"	"	"	1.25	2.90	33.93	"	1.2	0.4	49	21	0	"	
"	"	"	1.13	8.14	42.07	"	1.2	0.4	50	59	3	"	
"	"	"	0.86	8.96	51.03	"	1.0	0.3	52	65	7	"	
"	"	"	0.95	0.69	51.72	"	0.9	0.28	55	5	0	"	Beams lost
"	"	"	1.74	5.93	57.65	"	1.7	1.0	45	43	5	"	stopped because of NSD busy
"	"	"	1.36	7.31	64.96	"	1.5	0.6	47	53	4	"	
"	"	"	1.18	6.07	71.03	"	1.35	0.5	48	44	0	"	
"	"	"	0.99	5.62	76.55	"	1.2	0.4	51	40	4	"	
"	"	"	0.87	2.90	79.40	"	1.1	0.38	46	21	2	"	BEAMS DUMPED.
"	"	"	1.60	4.14	83.54	"	2.0	0.52	48	30	1	"	run stopped FOR ENERGY CHANGE.
"	"	"	1.28	6.77	6.77	"	1.3	0.5	43	49	4	21.965	

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ REZ $\times 10^6$	T ₂ ACC. SUM	T ₁ AREA	T ₁ BIT 2	T ₂ BIT 17
				I ⁺	I ⁻										

106 22.6.84
 6:45 Again JETC ILLEGAL HIT COUNTER } since RUN 16978
 JETC ILLEGAL WIRE # } faulty part not yet located

7:50 Work heavy up, level 14, no lights flashing, reloaded, OK

8:00 Jung & Warming on shift
 8:10 Magnet trip "Vordruck Braunwasser L" reset alarm, run up magnet current +

8:45 YSPY detected error TOFTDC no hit 13
 Trigger 1 input wiring 37 } histograms look ok, but it is
 Trigger 1 output wiring 45 } possible that TDC has died shortly before
 the end of the run.

→ not TDC dead, but HV tripped, channel reset manual at run start, OK

10:03 VOLTS reports wrong voltages in mainframe 53: all voltages too low by about a factor 2
 we check HV with TOFHV-program → all OK, dead HV at power supply → all OK.

10:05 Hans Riebeling discovers bad DL8 #123 looks like readout error (missing bit)

NORD-50

Will people not keep turning the Z-vertex analysis OFF on - it makes it very difficult to keep track of online analysis if this is done and any effects on deadtime are purely coincidental as has been proved by numerous checks. Furthermore it causes more confusion for subsequent shifts - where no more Beam-gas events are classified due to no Z-vertex analysis. IF this continues I will install a password on the options. A very high raw trigger rate will cause deadtime trouble whatever we do.

New version of N50PAR (the Nord-50 analysis program) installed. This has some of the ranges of beam pickup histograms altered so as to restore the histograms of some pickups that moved (as requested by Hans Riebeling).

- Affected histograms:-
- 9 "OLD BEAM PICKUP"
 - 10 "POSITRON FANOUT"
 - 78 "ELECTRON (NIMUNIT)"

HEM

22.6.84

These are the histograms affected by HISTOGRAM % :-

- JETCHAMBER (wire map, mean hits/wire etc)
- LEAD GLASS (hit map ---)
- COUNTERS (TOFA FWD TOF hit map & Pickup hist.)

12:50 4) YSPY DETECTED ERR : Forward TOF no hits : 0 1 7 25 30 31 ← low stats?
 Histogram : 0 1 really no hits ; call expert

12:54 ID-Trip because of partially beam loss caused by 'SENDERAUSFALL', but major part of beams saved → 13:05 CONTINUE

16:00 Kuhlén & Takahita

From run 16988

FOR the WEEKEND - review MONDAY

We are troubled at this energy by high data rates and associated deadtimes. This problem is far worse now than it was at 1 GeV higher running a few days ago. Beam orbits and out-gassing believed to be the cause. With say a raw trigger rate of 8 Hz we would get a high deadtime even with the dummy version of the N50 program - and no monitoring of course. At a raw trigger rate of 2-3 Hz the system is perfectly happy.

One thing that takes a lot of time is killing histograms - particularly those with "MEAN". Currently the % is set at 10% - which now affects the JETC, LG & counter histograms (latter nowhere) and this results in poor FWD TOF stats - hence FOR THE MOMENT YSPY does not check the FWD TOFS. Experiments have been made with the Z-vertex routine (which up to this running period apparently gave no trouble. It is not true that the Z-vertex routine takes a lot of time on events with no tracks - in fact the opposite can be true. The time taken in ZVERTEX is roughly proportional to the number of hits in R1 & R2 - often one sees R1 full of synchrotron radiation hits so these events may be the cause (but no proof). Tests are being carried out on IBM (no success yet). Another possible cause of high N50 cputime are LG events where many leadglass blocks are on (about 10-25% of them) It is possible that the LG analysis takes a long time on these events - again no real proof.

Until more evidence (or better beams) we will run over the weekend with

- HISTOGRAMS 10%
- Z-VERTEX OFF
- PATT-REC ON

Please do NOT ALTER.

(No FWD TOF checking in YSPY)
NOTE:- No events will be classed as BEAM-GAS
 This currently works on T2arc events with $\tau_{tot} \leq 250$ R1+R2 hits and so at fill start does not do much - towards fill end it is quite effective.
 HEM/BN (she agrees!)

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ REZ $\times 10^6$	T ₂ ACC SUM	T ₁ AVERAGE	T ₁ BITLE	T ₁ BIT 17
				I ⁺	I ⁻										

22.06.84
 20:00 NSD BUSY: ABORT-NSD — But we could not start Run because of "NSD cannot be started"
 so we exit from ZDAS and login again — but it did not help
 We finally reloaded N-10, This helped.
 20:10 Trigger 3 VP missing ST29 CR4.
 20:26 YSPY: TOF-TDC no hits: 24
 20:45 ZDAS Readout error 33 - Missing LAM branch 2 crate 3 TOF1 counters
 21:29 YSPY: TOF-TDC no hits: 37
 21:40 " " " 46
 21:43 " " " 67
 21:58 " " " 7, 24, 66
 22:07 " " " 24, 27, 29, 66, 71
 22:30 Magnet current cannot be read: YMAQNE error

23.06.84 Hedgecock & Krehbiel on shift.

0:33 New fill ready, run started. HV Read Error MER 15.
 7:74 NSD busy. After >Abort-NSD Messages on LUNG: Memory out of Range, Arithmetic overflow, etc.
 02:00 Block standard histograms. Nothing untoward indicated.
 06:30 ID Soft trip. Flickering Tof rate. Called PKR who optimised!
 06:40 ID Soft trip.
 07:20 ID Soft trip. } The machine crew is busy with DORIS

Note considerable discrepancy between Tagging Lumi and Blabha-Lumi !! Tagging-HV seems to be on.

23.06.84 Hill-Schmitt on shift

8:03 YPSY ERROR
 " TOF TDC NO HITS : 27"
 8: " " " " : 25, 67
 8:30 Celso say they going to dump beams and get a new fill — he never get it.
 11:10 "Short break"
 Celso say the reason is Transmitter problems.
 11:41 "Break"
 Restart Ca 2.00 PM.

Forward INT. LUMI (I/NB)

23.6.84
 16:00 Dietrich and Bowdery on shift

PKR are trying to inject.
 20:20 Fill ready at last. Lost almost immediately
 21:20 Ready again. This time everything works!
 21:38 Large magnet fluctuation

24.06.84
 0:00 Petersen & Takeda on shift

2:15 new fill
 2:19 Tof high current
 2:36 NSD busy restart run 2X but NSD still busy, so we restart Novd
 5:03 Tof high current
 5:22 Tof high current PKR has trouble HF power short break
 7:00 Tot labels #14 man down. HV on MER 53. Channel 43 error on 2 341 instead of 252

08:00 DIEUMANN & HEDGECOCK.

TRIGGER 1 INPUT MISSING 33 } Tot histograms look ok apart from TOF latches.
 " 1 OUTPUT " 41 } Channel 9 MISSING.

LUMI MEASUREMENT AT ENERGY CHANGE OVER THE PAST THREE ENERGY POINTS.

	21,935 (22/6)	21,950 (23/6)	21,965 (24/6)
CELLO	48	49	40
JADE	63	81	80
MARCS	74	59	66
TASSO	69	65	70
	<u>253</u>	<u>254</u>	<u>256</u>

11:02 Start new run at next energy level.
 The Teletype gives no YMAQ. CAMAC ERROR DURING MAGNET REGARDING // MUX CHANNEL NOT SET
 T1 INPUT MISSING 33 // T1 OUTPUT MISSING 41 still there.

12:15 Looked at Con-Section-Display: Got a couple of Fastscan Run Time Error Messages:
 Error 90 in 34557 at 35614 Error Number 412
 14:30 Eventually the beam lasted long enough for me to look at all the TOF signals that were causing T1 I/P 33 / O/P 41, missing. Blocked signals into and out of TDC's and into ADC's. for 34 & 76. T1 fallen disappeared during this process. After Run 17021 had been started for several minutes, TOF TDC NO HITS: 75 appeared. Latches still ok. All & STILL CONTINUES TO DO SO!

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (SEC)	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₀ REJ $\times 10^6$	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ BIT 2 E, 76 GeV	T ₂ BIT 17 2T.E. \rightarrow 2TR
				I ⁺	I ⁻										
17001	23/06/84	7:14	8:30	3.31	3.50	9.2	3871	8001	5501	1034	85	3807	7883	1848	52
17002	"	8:30	8:31	2.83	3.12	0	0	32	25	0	0	14	0	0	0
17003	"	21:20	22:53	3.27	3.44	6.1	5506	8002	5158	1433	87	3634	8176	1663	54
17004	"	22:53	0:34	2.81	2.96	6.4	6003	8001	4924	1563	85	3855	7922	1788	46
17005	24/06/84	0:34	7:41	2.41	2.53	5.0	3935	5170	3009	1024	52	2585	4722	1199	32
17006	"	2:12	2:36	4.66	4.87	13.7	487	2517	1816	257	34	1004	2555	485	22
17007	dummy														
17008	"	2:47	3:00	4.29	4.53	17.0	697	1731	1275	181	22	675	1855	342	72
17009	"	3:04	4:01	4.14	4.39	12.2	3245	8002	5899	844	103	3317	8825	1708	50
17010	"	4:01	5:01	3.70	3.93	10.2	3542	8002	5693	922	44	3501	8515	1766	56
17011	"	5:01	6:29	3.31	3.54	6.3	4461	7054	4498	1162	74	3474	6939	1687	44
17012	"	07:35	08:25	4.48	4.58	11.5	3016	8002	6066	785	90	3146	8080	1860	68
17013	"	08:25	09:16	4.07	4.14	11.6	2994	8001	5969	779	90	3037	8333	1568	89
17014	"	09:16	09:47	3.70	3.74	10.2	1792	4392	3246	466	48	1814	4285	908	35
17015	"	11:04	11:26	4.62	4.63	15.4	1275	4358	3455	331	51	1494	4642	793	27
17016	"	12:03	12:23	4.68	4.76	15.8	883	3081	2439	230	36	1012	3341	539	35
17017	"	12:29	12:31	4.47	4.51	18.3	13	129	102	3	1	37	60	25	0
17018	"	13:00	13:11	4.82	4.81	18.3	581	266	186	151	27	733	2453	403	25
17019	"	13:49	14:18	4.63	4.58	19.2	1661	6652	5383	432	83	2086	7183	1152	51
17020	"	14:14	14:22	4.34	4.22	17.4	370	297	-	-	-	-	-	-	-
17021	"	14:23	15:01	4.30	4.16	15.3	2218	7096	5529	577	88	2634	7910	1456	57
17022	"	15:57	16:38	4.58	4.62	13.2	2115	5957	4478	550	727	2096	6536	1120	60
17026	"	16:54	17:08	4.11	4.16	18.3	861	3413	2371	224	410	882	2938	568	20
17027	"	17:51	18:03	4.28	4.33	13.5	694	2730	1997	180	24	699	1925	375	11
17028	"	18:12	19:10	4.11	4.11	10.1	3451	7981	5930	898	91	3319	8569	1645	49
17029	"	19:50	20:48	4.45	4.45	11.2	3231	8002	5909	841	945	3170	8311	1569	65
17030	"	20:57	21:58	3.90	3.87	9.8	3629	8002	5719	994	92	3562	8363	1790	55
17031	"	21:58	23:09	3.99	3.47	8.6	4211	8002	5530	1055	93	3621	7943	1712	68
17032	"	23:09	23:10	3.10	3.08	6.6	40	103	68	10	7	23	72	12	1
17033	25/06/84	23:39	0:41	4.45	4.48	10.0	3581	8002	5744	932	93	3243	8628	1568	78
17034	"	0:42	1:47	3.84	3.87	8.8	3880	8002	5515	1012	89	3420	8544	1607	65
17035	"	1:47	3:02	3.50	3.54	7.3	4484	8001	5266	1167	85	3668	8043	1680	45
17036	"	3:03	3:44	3.09	3.13	6.0	2430	3648	2330	632	38	1783	3551	797	23
17037	"	4:24	4:25	4.57	4.72	10.0	65	242	184	17	17	78	162	42	1

Forward INT. LUMI (L/NB)

ON/OFF			<L>	∫ Ldt BHASHA RUN	∫ Ldt EXP	IBM / TAPE	AT RUN START		T ₂ REJ FRACT.	Σ BHASHA	M.H.	E _{BEAM}	REMARKS.
N50	MIP	TOF					ID [MA]	TOF [V]					
ON	ON	ON	.91	6.77	13.54	IBH	7.2	0.45	50	43	5	21.965	Several times ID soft trip Beam
"	"	"	0	0	13.54	"			0	0	0	"	Beams dumped
"	"	"	1.00	7.87	21.41	"			49	57	0	"	
"	"	"	0.79	5.84	27.25	"	1.0	0.25	50	64	4	"	
"	"	"	0.63	4.28	31.53	"	1.2	0.25	51	31	3	"	Beams dumped
"	"	"	2.26	3.18	34.71	"	1.8	0.65	44	23	2	"	N50 beam
"	"	"	2.51	2.62	37.33	"	1.5	0.40	41	19	2	"	N50 beam
"	"	"	1.47	8.42	46.75	"	1.4	0.46	49	51	3	"	
"	"	"	1.23	7.32	53.07	"	1.2	0.42	49	53	5	"	
"	"	"	0.70	6.77	59.84	"	1.1	0.36	49	49	2	"	Beams dumped
"	"	"	1.97	10.22	70.06	"	1.8	0.56	42	74	4	21.965	
"	"	"	1.59	5.94	76.00	"	1.9	0.66	42	43	4	---	
"	"	"	1.45	4.01	80.01	"	1.8	0.53	42	29	2	---	BEAM LOST
"	"	"	2.01	5.67	5.67	"	2.0	0.68	40	41	1	21.980	NEW ENERGY POINT. Beam lost
"	"	"	2.18	3.73	89.40	"	2.0	0.72	40	27	2	---	N50 - Busy
"	"	"	2.18	0	9.40	"	"	"	0	0	0	"	Beams lost
"	"	"	2.35	1.66	11.06	"	2.0	0.8	40	12	2	"	Beams lost
"	"	"	1.46	5.95	17.01	"	2.0	0.8	40	43	2	"	N50 BUSY. STOP Run.
"	"	"	1.82	0.14	17.15	"	-	-	30	1	0	"	"
"	"	"	1.36	6.09	23.24	"	1.5	0.6	45	44	5	---	Beam lost
"	"	"	1.28	6.22	29.46	"	2.0	0.6	43	45	3	"	
"	"	"	1.53	2.49	31.95	"	1.7	0.6	0!	18	0	---	Beam lost
"	"	"	1.68	2.07	34.02	"	1.8	0.7	-1!	15	1	---	Stop to reload N50 - considering problem
"	"	"	1.59	8.02	42.04	"	1.4	0.36	48	58	2	"	Beam lost - See page 113
"	"	"	1.85	8.30	50.30	"	1.8	0.6	44	60	4	"	
"	"	"	1.30	10.23	60.53	"	1.6	0.5	49	74	4	"	
"	"	"	1.02	7.05	67.58	"	1.5	0.5	47	51	5	"	
"	"	"	0.7	0	67.58	"			22	0	0	"	Beams dumped
"	"	"	1.39	10.65	78.23	"	1.6	0.55	47	77	3	"	
"	"	"	1.40	8.57	86.80	"	1.3	0.35	48	62	4	"	
"	"	"	0.81	6.50	93.30	"	1.2	0.30	48	47	3	"	
"	"	"	0.73	3.60	96.90	"	1.0	0.23	50	26	4?	"	Beams dumped
"	"	"	1.23	0.42	0.42	"	1.9	0.58	10	3	0	21.995	Beams lost

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^6$	T ₂ ACC. SUM	T ₁ ACC. SUM	T ₁ BIT L	T ₂ BIT L
				I ⁺	I ⁻										

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16:02 Belt, Spiba

16:38 Run 17022 terminated. "N-50 busy" warning permanently on. ABORT - N50. Try to start new run. Get normal run-start message on printer. However, after "waiting for B1 link" disappears, just get '>' on command terminal, and final JDAS has gone back to state 0. After several repeats of this, ~~restarted~~ JDAS; works.

17:07 Beam lost. I.D. trip. Looks like magnet trip at PETRA.

18:00 T₂ sig. w. fr. -3%!! Phone Howard who recommends NORD reload. Run 17027 ended. Run 17028 sig. w. fr. now 35%. So, run 17027 may be suspect. Beate coming to check TOF TDC 75. All missing ToF signals fixed by looking at them on the scope.

19:10 Beam lost. I.D. trip. End run 17028. Rate of end-cap blabba events looks too high. Take a dozen or so hard-copies as examples. Check LG envelop thresholds - O.K. Abound of "FORTRAN RUN-TIME ERROR" messages when reaching online X-section.

22:00 Magnet read errors. Magnet currents is OK. Lulol is nominal. Can't see anything obvious wrong with the DVM etc. Unable to contact CRH.

25/6/84 Schmidt and boundary on shift

4:25 New fill lost almost immediately

6:32 New fill start run 17039

7:00 DL8 136 reported missing by YSPY

7:50 JDAS ERROR 33 missing LAB7 branch 7 crate C

At 8:00 the beams will be dumped. New filling is expected late in the afternoon. The time is needed to separate a cavity window.

8:00 Kubler / Hellenbrandt on shift

10:40 magnet sleepwalk to 7200 A, set manually to 430

11:00 X8 Nr. 136 repaired

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12:20 Cross-section display fixed. The cross-section file had been overwritten by part of a run summary (it has happened before). I recovered the file by hand but runs 16963-16999 are missing - maybe will re-enter by hand. (HEM)

The run 17027 problem - IT was the MIPROC reject percentage that was "-1" not the NORD-50 - the run summary shows that the MIPROC did not reject anything because it was OFF - possibly due to previous problems. So this run is perfectly OK (just has increased b-gas/cosmics!) HEM

16:00 P. Hill + S. Komariga

JDAS Change

A new way of controlling the Nord-50 batch job has been installed. The main difference will be that anyabend messages from the Nord-50 program will be printed on the system console (so shift crew need not write the dumps down.) HEM

18:28 "Luminosity - Run" Run 17042 started.

19:30 Some of the multihadron events are junk. → This is the reason for $R \approx 9$? No hits in ID, but barrel LG counters have many hits. (monopole events) Also E.C. blabba events have many hits in barrel LG.

22:05 JDAS readout error 44 DMA TIMEOUT BRANCH 6 CRATE 2. I.D. sig 3.

26/6/84

0:00 J. Nye + G. Klies

0:30 ID trip, p⁺ beam lost

6:00 We have had a very smooth shift so far. The only "trouble" are those "SUPER SYMMETRIC LEAD GLASS EVENTS" which keep occurring, and which are counted as multihadron events. Note very low TOF rates - have PKR get it right at last?? - injection also very smooth and quick.

7:50 Sporadic "NORD 50 Busy" - comes and goes a few times, then doesn't come back.

AT RUN START
 RUN DATE START STOP I+ I- DEAD TIME (%) TIME RECORDS IN RECORDS OUT ALL x 10^6 T₁ REJ x 10^6 T₂ ACC SUM T₁ BIT 2 E, > 8 GeV T₂ BIT 17 2T, E₄, 22TR

RUN	DATE	START	STOP	RUN START		DEAD TIME (%)	TIME (sec)	RECORDS IN	RECORDS OUT	ALL x 10 ⁶	T ₀ REJ x 10 ⁶	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ BIT 2 E, > 8 GeV	T ₂ BIT 17 2T, E ₄ , 22TR
				I+	I-										
17038	25.06.84	5:28	5:31	4.81	4.82	10.8	157	470	352	41	4	154	385	23	0
17039	"	6:33	7:16	4.85	4.87	15.1	2589	8002	6061	623	102	2586	7016	1323	65
17040	"	7:17	7:38	4.52	4.45	17.8	1267	4187	3124	329	58	1262	3176	635	33
17041	"	7:40	7:51	4.30	4.33	13.7	602	2139	1582	157	21	661	1884	336	16
17042	"	18:28	20:12	3:20	3:21	4.6	6241	7079	4697	1624	74	3420	7144	1414	83
17043	"	21:06	22:51	3:55	3:34	5.3	6294	8002	4958	1638	86	3895	7573	1682	49
17044	"	22:55	0:35	2:80	2:66	4.6	6041	7181	4140	1570	72	3776	6580	1615	30
17045	26.6.84	2:25	4:00	3:17	3:79	5.8	5668	8001	5148	1473	86	3808	8059	1636	51
17046	"	4:03	4:17	2:65	3:21	5.2	792	1059	647	206	11	530	1032	217	5
17047	"	4:48	6:08	3:99	3:99	7.1	4925	8002	5258	1254	90	3708	4964	1603	61
17048	"	6:09	6:25	3:42	3:41	6.9	949	1545	986	247	17	745	1427	322	11
17049	"	6:58	8:10	4:37	4:33	8.6	4189	8001	5437	1077	92	3549	8763	1627	40
17050	"	8:11	9:36	3:42	3:57	6.4	5115	8001	5174	1331	85	3954	7845	1788	42
17051	"	9:37	11:01	2:59	3:03	5.6	4975	6763	3954	1295	71	3570	6269	1493	33
17052	"	12:23	13:01	3:69	3:59	5.8	2193	3201	1929	570	33	1525	3119	608	26
17053	"	13:04	13:30	3:44	3:34	9.0	1524	2203	1294	396	35	1040	2180	454	12
17054	"	20:57	21:54	4:41	4:47	8.8	3238	5586	3290	843	74	2359	5830	1037	42
17056	"	21:00	22:05	3:98	4:04	9.2	283	523	308	74	7	221	533	99	3
17057	"	22:49	23:07	4:53	4:63	18.6	1053	2149	1261	274	51	794	2305	356	22
17058	"	23:49	0:55	4:60	4:54	22.4	3895	8002	4774	1013	227	3018	8406	1417	366
17059	27.6.84	0:55	1:05	4:05	4:01	17.2	516	1096	619	134	23	396	1716	175	7
17060	"	1:06	1:18	3:98	3:94	15.0	706	1556	912	183	27	603	1579	301	76
17061	"	2:11	2:19	4:39	4:37	26.9	458	981	577	119	32	325	1096	160	8
17062	"	4:13	5:37	3:51	3:51	8.0	4753	8002	4413	1237	98	3557	8121	1685	45
17064	"	6:48													
17065	29.6.84	17													
17066															
17067															
17068	"	18:00	19:00	2:6	3:04	5.6	3073	4165	2296	800	44	1933	4091	857	28
17071	"	20:10	21:36	3:97	3:80	7.3	4797	8001	4722	1248	915	3668	7928	1612	47
17072	"	21:36	23:07	3:39	3:25	6.1	5256	8002	4910	1368	83	3666	7653	1575	44
17073	"	23:07	23:15	2:90	2:79	5.4	472	796	578	122	6.6	331	617	128	5
17074	"	23:17	0:15	2:86	2:75	5.2	3499	5060	3277	911	47	2266	4447	990	22
17075	30/6/84	1:03	1:36	4:39	4:45	10.1	816	2015	1616	212	21	652	1718	302	7

Forward INT. LUMI (LUM)

ON/OFF			L	Sldt Run	Sldt EXP.	IBM/ TAPE#	RUN START		T ₂ Rej Fraction (%)	Σ Balls	Σ MH	E BEAM	Remarks		
N50	MIP	TOF					ID (μA)	TOF (V)							
ON	ON	ON	2.28	0.14	0.14	10A	1.6	0.6	27	1	0	21.835	beams lost		
"	"	"	2.10	3.00	3.14	"	1.6	0.6	25	65	6	"			
"	"	"	1.72	4.15	13.29	"	1.6	0.6	25	30	0	"	Nov 50 error.		
"	"	"	1.41	2.08	15.37	"	1.6	0.55	24	15	0	"	beams clumped		
"	"	"	0.69	6.51	27.88	"			52	47	6	"	Beams dumped		
"	"	"	0.97	11.22	33.10	"	1.2	0.3	51	11	3	"			
"	"	"	0.69	9.00	42.10	"	0.9	0.2	52	65	4	"	e+ beam lost		
"	"	"	1.11	9.14	51.24	"	1.0	0.3	50	66	6	"			
"	"	"	0.91	0.69	51.93	"			52	5	0	"	beams lost		
"	"	"	1.47	10.80	62.73	"	1.4	0.3	49	78	8	"	beam		
"	"	"	1.17	2.08	64.81	"	?	?	47	15	0	"	beams lost		
"	"	"	1.41	12.05	76.86	"	1.5	0.4	48	87	1	"			
"	"	"	1.70	10.80	87.66	"	1.2	0.3	51/39	78	5	"	Zrecker analysis broken.		
"	"	"	0.93	6.92	94.58	"	1.1	0.1	53/55	50	1	"	pattern glitch. Beams Dumped		
"	"	"	1.37	3.32	97.90	"	1.2	0.32	49/54	4	2	"	Energy change.		
"	"	"	1.10	3.74	3.74	"	1.0	0.26	50/53	27	0	22.010	Beams lost High DT due to trigger box hang up		
"	"	"	1.21	5.41	9.15	"	1.2	0.4	47	39	1	"	"N50 busy" - stop, Run 17055 lost		
"	"	"	1.35	0.28	9.43	"	"	"	48	2	0	"	beams lost.		
"	"	"	1.40	1.66	11.09	"	1.6	0.45	44	12	1	"	beams lost		
"	"	"	1.52	10.58	21.77	"	1.7	0.45	43	77	2	"			
"	"	"	0.42	11.70	22.19	"	1.7	0.34	41	3	0	"	beams lost.		
"	"	"	1.27	2.50	24.69	"	1.7	0.34	43	18	0	"			
"	"	"	1.52	0.70	25.11	Forw.	1.9	0.43	43	8	0	"	magnet trip.		
"	"	"	0.94	7.35	32.46	20.10	?	?	48	53	0	"	magnet trip.		
"	"	"		Forw			2.0	0.43							
17065	29.6.84	17										22.025	1 crate missing BR3 CR3		
17066															
17067															
17068	"	18:00	19:00	2:6	3:04	5.6	3073	4165	2296	800	44	1933	4091	857	28
17071	"	20:10	21:36	3:97	3:80	7.3	4797	8001	4722	1248	915	3668	7928	1612	47
17072	"	21:36	23:07	3:39	3:25	6.1	5256	8002	4910	1368	83	3666	7653	1575	44
17073	"	23:07	23:15	2:90	2:79	5.4	472	796	578	122	6.6	331	617	128	5
17074	"	23:17	0:15	2:86	2:75	5.2	3499	5060	3277	911	47	2266	4447	990	22
17075	30/6/84	1:03	1:36	4:39	4:45	10.1	816	2015	1616	212	21	652	1718	302	7

short runs

NORD hang up.
beam lost

22040

Beams dumped
DL8 trouble

116 26.6.84
8.00 H. Mills + H. Kado on shift

Run 17050 started with Z-vertex analysis in the NSO ON
Run 17051 " " PATREC RIARZ10 hit cut raised to 400 (from 250).

Comparison of I. Luminosity @ 21.995 at end run 17051

TASSO	Cello	Mark J	JADE	
62.1	~47	~71	54.77 (ns)	94.58 (6mbks)

- 13⁰⁵ Increased energy to 22.010 GeV
- 13¹³ Trigger box "Level 5" hang up - caused the apparent high Deadtime this run.
- 13²⁰ Beams lost. Due to DESY being unavailable, there is SHORT-BREAK? until at least 4pm.
∴ Magnet \implies 500A.

Cross-section information.

The data points prior to this running period have been put into file XS-84A. The default XSECT file contains just the runs from this period. The missing runs (see page 113) have been entered by hand.

16⁰⁰ Becker & Takeda on shift
No beam ~~was~~ before 18⁰⁰, 19⁰⁰, 20⁰⁰

NOTE :- During the period we were running with the NSO Z-vertex analysis OFF, the high rate of spurious HADRONIC events was partly due to the fact that no-good Zvertex with a HADRO candidate causes the HADRONIC classification to be changed to UNIDENTIFIED.

Status PATREC **ON** (with RIARZ \leq 400 hits)
Z-vertex **ON**
Histograms **20%**

HEM

26.6.84

20⁴⁰ Magnet \rightarrow 7500 A.
20⁵⁷ Fill ready start run 17054
21⁰⁶ ID trip.
21⁵⁰ > JDAS READOUT ERROR 44 - DMATIMEOUT branch 3 crate 1 : T2/3 trigs, ID cur
CARC CARF WCR MAR MODE DMACOST PIOCOST ISR IVR WDOG
00601300 004020 000000 0531747 121002 030100 140204 0 000020 0

> JDAS READOUT ERROR 47 - HP-16 start pulse missing or T2 crate off line
no action taken, run continues.

- 21⁵¹ Run stopped due to "NORD SO BUSY"
Wanted to start a new run \rightarrow NSO cannot be started.
[RUN 17055 lost]
∴ Reload Nord.
- 22⁰⁰ Run 17056 started.

I investigated so-called "LG noisy events" during run 17054. A total of 8 events were observed by checking the events triggered by T1-bit 2 ~~or~~ T1-bit 12.
(total E) (barrel E)
1) All events ~~had~~ bit 12 and no bit 2 set.
2) 6 events were accompanied by a large number of ID junky hits
3) Each LG block had a small pulse height. 6-10 counts.

\implies This noise problem is not peculiar to LG alone.
The noise is big enough to set bit-12 (2.5 GeV threshold) but not big enough to set bit-2 (6 GeV threshold). But the rate is too low to pin down the source of the noise.
(machine noise or power supply noise around JADE?!?) H. TAKEDA

27.6.84

0⁰⁰ Hill / Kuhlen on shift
NSO BUSY - ABORT-NSO # stated new run.
1.15 DL8 \approx 59.61 no response. Komaniya came in, and the beam was lost. Waiting for a new hole wire # 456-496
fill to fix the problem.

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T# REJ $\times 10^5$	T# ACC SUM	T# BEAM E-7000	T# BTL E-7000	T# G17
				I+	I-										

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1:35 Magnet trip. We tried to raise the current by the computer and by hand, but no success. Call the magnet people.

2:00 Magnet o.k.

2:10 DL8 problem solved (bad contact ^{DL8} wire # 456-473) G. Komanya

2:15 Hole again DL8 problem was not solved!

2:19 Magnet trip again - could not read by computer on hand - Call magnet people again.

2:30 DL8 changed (wire # 456-473) Sr# 84 \rightarrow 43 S.K.

3:00 JADE READ ERROR MISSING LAM to 4 or 4 ID rig 2

Magnet trip again.

4:15 ID Soft trip Beam energy was changed to 22.028, called TASSO.

Coordinator (TASSO) does not know why PRK have changed the beam energy

4:20 DL8 problem + Missing LAM ~~was~~ hopefully cured. G.K.

4:31 Se Petra TV says energy back at 22.010

PKR say that 22.028 was the real beam energy for several minutes when one of the transmitters was off - they then changed the frequency of Petra and restored the energy to 22.010

5:40 Magnet Trip

"Niveaubehälter" empty, water in the magnet building. The magnet people try to fix the problem for the moment, but something has to be done.

6:50 We had the magnet at 7500 A, started a run with the new fill, but had to shutdown the magnet immediately because of water leakage in the magnet building. Even in the counting house you can smell that the magnet run without water.

Into & Discharge on shift

8:20 Technical people arrived to look at the water problems of the magnets.

A hose is broken in power supply in one of several parallel cooling circuits. Thus it took some time until the alarm was set. For the meantime a shunt resistor got hot. After the repair of the water leak and the replacement of other suspicious hoses the shunt will be tested first before we can resume the run. We are lucky that Pillat is back from holidays.

W. Barkel

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PLEASE TAKE FORWARD LUMI INSTEAD OF BHABHA UNTIL NEW CONSTANTS HAVE BEEN FOUND.

10:50 Magnet will not be ready until evening...

11:45 Very bad news:

A choke is broken. It has to be removed from the power supply. It has to be rebuilt or repaired and then one has to put it back into the power supply. This operation will take about 2 days.

Switch off main cooling circuit for the magnet.

JADE-shifts until Friday noon cancelled.

Switch off DL8.

JADE - shift regulation until Friday:

① During the day every 2-3 hours somebody should look at the experiment. The last inspection should be around 22⁰⁰

② During nights we will leave the experiment without supervision. PKR will have telephone numbers, whom to call in case of emergency.

W. Barkel

19.15	Temp. in Seduce-Room	15°C		
28.6	9.00	" " " " " "		
29.6	9.04	15°C	Energy	22.025
12.00	Borgmann received Goud Pelts. It is now SUPER!			47.6 nb ⁻¹ Tassolas
13.40	Magnet expected back in ~ 1 hour.			40
14.00	TDC of TOF # 76 repaired. Cold solder in input. Repaired unit reinserted.			55

14:40 3 (!!) faulty power-packs for DL8 exchanged. We have no spare any more (already 1 of 2-ch. used). EPOs does it's best, but today is Friday and they anyway don't work much next time, for they are moving.

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16⁰⁰ ~ 24⁰⁰ G. Zorn, Yamada on shift
 17⁵ Trouble with a DL8 power supply is still there. The replacement did not work either. Data taking started without the crate (BR7, CR2) for RUN 17065.
 Between 16⁰⁰ ~ 17¹⁵ CAMAC error (initialization impossible) was removed by J. Olsson, Krehbiel, B. Naroska & Diekmann. The crate controller (BR3, CR3) was broken. It was exchanged.

BOTH
Chil
 One of the DL8-Power-Packs is misconstructed! It gives $\pm 15V$ to the $\pm 24V$ -Lines of Z-Chamber.
 It is used however in a DL8-Crate with a vauwacke bridging circuit, which brings power to the proper lines. Complain at the manuf'r's!

DO NOT CHANGE THE POWER SUPPLY ~~with~~ by a normal one for DL8 without removing the bridge.

18⁰⁰ ~~Run~~ The crate 3 (BR3) power supply works again during from run 17067. One DL8 in the crate had a missing start cable. \rightarrow fixed shortly after run start. ID slow trip. \rightarrow "no trigger" error message did not come. The run stop cable of the trigger box was not in. Somebody pulled it for test & forgot to put again. NORD hang up. RUN 17067 stop.

18²⁰ ID slow trip during RUN 17068.
 19⁰⁰ ~ 20⁰⁰ During the filling Martin Krehbiel worked with TOF TDC. After his work we asked him to put all cables back. ~~made sure that~~. He did. ... But,
 20¹⁰ [New fill ready]
 YPARA error 14. TOF1 AC2099 NO response. JPAS book says: Try to reload and start AC2099. We tried to reload and restart the TOF microproc. by (F15), (F10) and then (F11) only according to our imagination since there was no description how to reload and start. After (F11) there was a question TTY PORT 0/1/2? We answered 0 only because the number was the first choice. Somehow it worked.
 If anything was wrong with what we did, please improve the instructions.

20²⁸ JPAS readout error 33 - Missing LAM br 2. cr. 3, TOF1 counters

Comparison of the E.C. Bhabha rate to the barrel Bhabha: (summing the Run Summary numbers)

Run	E.C. e^+e^-	Barrel e^+e^-	EC/B
Run 16992 ~ 17071 (present period)	2340	220	10.6 ± 0.75
Run 16482 ~ 16577 (old period, March '84)	1043	182	5.73 ± 0.46

If normalized by the Barrel e^+e^- , present EC e^+e^- is by a factor 1.85 higher than before.
 Yamada

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A temporary correction factor for the Bhabha lumi is

$$\frac{1+5.7}{1+10.6} = 0.58$$

30/6/84

00.00 Whittaker & Schneekloth on shift.

- 00.05 YSPY error - JETC DL8s giving no response - 128 - happened twice - once just before we arrived.
- 00.15 Beam dunted
- 00.03 Run 17075
- 01.20 YSPY error - JETC DL8s giving no response - 128. There is a dead section in the wire map. Tried pausing the run and switching the DL8 off and on again. Now we get
 JDAS READOUT ERROR 33 - Missing LAM branch 7 crate 5: I.D. Ring 3 < /i
 Called up
 1. Ambrus - no reply
 2. Kellenbrand - no reply.
 3. Matsumura - replied!

By telephone control we tried changing DL8 - 128. There was trouble with the address code plug. The old one was soldered in and the new one was missing we found some spares but they were 8-bit whereas the old one was 9-bit. Matsumura said he would come in. While he was on his way we found a 9-bit address code plug which was different from the one in the old DL8.
 We got a high current alarm in the ID, during test run a reset it - OK.

After some original research - the multimeter didn't work so we made a lash-up with the touch to check for open/closed circuits - we found out correspondence between the two types of coded plugs. We had just replaced the DL8 and got everything working when Matsumura arrived! Incidentally the emergency bleeder for the I.D. export is in the control room.

- 2.49 Restarted - Run 17076
- 4.00 I.D. soft trip " "
- 4.40 JPAS problem - refuses to plot histograms - locked into an unresponsive state. Function keys are not responding. Finally we get response and stopped the run - but cannot start a new one. TV screen just shows last run ended. - System console shows run started???
- 4.50 I.D. trip - high current alarm. - possibly due to beam adjustments. Reset OK.
- 5.00 JPAS still funny - Run 17080 but still 17077 ended - TV screen Refuses to do histograms and to return to main.
 Can't stop the run: >STOP
 COMMAND IS ILLEGAL IN JPAS STATE ϕ

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (SEC)	RECORDS IN	RECORDS OUT	ALL x10 ⁶	T ₁ REJ *10 ⁶	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ BIT 2 E ₁ >6GEV	T ₂ BIT 17 2T ₁ E _L >2TR
				I ⁺	I ⁻										
122															
17076	30/6/84	2:49	4:14	3.52	3.63	7.3	4950	8002	4551	1287	94	3562	8330	1621	63
17077	"	4:14	4:43	3.02	2.99	6.2	1702	2504	1425	442	27	1180	2526	541	19
17078-80	"														
17081	"	6:56	7:13	4.14	4.38	28.8	364	653	423	94	27	254	695	125	9
17082	"	7:35	7:48	3.79	4.05	10.5	554	1406	1083	144	15	465	1190	226	13
17083	"	7:56	8:47	3.64	3.90	9.8	2871	5715	3708	747	74	22780	5542	1109	47
17084	LOST														
17085	"	17:07	17:23	2.95	3.02	6.4	513	1017	798	134	8.5	392	774	191	9
17086	"	17:29	17:38	2.85	2.92	5.7	5207	7288	3980	1335	77	3615	7026	1716	57
17087	"	20:20	21:48	4.04	3.99	9.4	4437	8002	4446	1154	108	3252	8475	1634	76
17088	"	21:48	23:13	3.45	3.46	7.9	4729	8002	4515	1231	97	3629	8201	1868	64
17089	"	23:13	23:47	3.00	3.04	7.3	1819	2942	1559	473	35	1328	2914	673	25
17090	"	23:48	23:51	2.84	2.89	9.8	107	247	117	28	3	94	195	49	0
17091	"	23:52	0:39	2.82	2.87	8.9	2581	4506	2171	671	60	1705	4955	812	31
17092	1.7.84	1:58	3:08	4.17	4.24	15.2	2312	4184	2335	601	51	1699	5621	849	27
17093	"	4:10	5:30	4.28	4.32	13.9	4074	8002	4664	1079	147	3172	8924	1523	63
17094	"	5:39	7:02	3.65	3.71	8.2	4570	8001	4458	1189	97	3473	8000	1662	58
17095	"	7:02	7:30	3.19	3.26	7.1	1636	2675	1506	426	30	1238	2633	584	19
17096	"	8:23	9:35	4.08	4.31	11.8	3596	7021	4142	936	110	2940	7485	1441	49
17097	"	9:37	10:45	3.54	3.80	8.2	3402	6040	3488	886	727	2727	6007	1343	51
17099	"	10:51	11:09	2.83	3.30	6.7	1066	1698	944	278	19	802	1714	375	99
17100	"	11:48	12:07	4.64	4.42	14.8	1053	2160	1294	274	40	863	2193	411	16
17101	"	12:19	12:23	4.35	4.19	10.1	212	469	282	55	6	197	464	92	0
17102	"	13:36	14:45	4.65	4.72	27.7	3776	8000	5042	982	272	3172	8467	1586	70
17103	"	14:50	15:55	3.97	4.06	14.2	3496	6928	4186	909	129	3027	7127	1440	54
17104	"	15:56	17:25	3.47	3.58	6.5	5431	8002	4569	1335	87	3832	7714	1685	46
17105	"	17:25	17:48	2.94	3.05	5.8	1318	1960	1157	343	20	1019	837	445	8
17106	"	18:44	19:49	4.88	4.92	13.6	3570	8001	6605	929	127	3296	8300	1503	53
17107	"	19:49	20:00	4.76	4.23	12.5	604	1274	767	757	19.6	539	7248	67	4
17108	"	20:04	21:09	4.01	4.09	8.8	3069	6789	4022	954	84	3075	6790	1353	34
17109	"	22:35	23:21	2.99	3.08	5.3	2518	3509	2921	655	35	1813	3097	778	23
17110	"	23:53	1:13	4.45	4.58	8.7	4093	8001	5360	1064	92.8	3395	7748	1491	51
17111	2/7/84	1:13	2:36	3.85	3.98	7.8	4394	8001	5310	1143	89.1	3456	7375	1521	40
17112	"	2:32	3:46	3.34	3.46	5.8	4137	6121	3476	1076	62.9	3127	5716	1307	36

ON/OFF	NSO	MIP	TOF	FORWARD			IBM/TAPE	AT RUN START		T ₂ REJ FRACT.	Σ SHASHA	MH	E _{BEAM}	REMARKS
				<L>	FORWARD INT. LUMI (1/MB)	EXP.		IP [MA]	TOF [EV]					
	ON	ON	ON	0.95	4.71	8.39	IBM	1.4	4	49	60	1	22.040	
	"	"	"	0.85	1.44	9.83	"	1.2	3	50	19	0	"	JONS PROBLEM - JUNK. BEAMS DUMPED
	"	"	"	1.24	0.45	10.28	"	1.6	5.6	47	10	0	"	Stopped because no triggers.
	"	"	"	1.47	0.82	11.10	"	1.5	0.7	24	8	0	"	Stopped to replace DLR-165
	"	"	"	1.03	2.96	14.06	"	1.5	0.5	40	45	1	"	PROBLEMS WITH CARAC DLB POWER SUPPLY
	"	"	"	0.71	0.37	14.43	"	1.9	1.0	24	6	0	22.040	
	"	"	"	0.69	3.58	18.01	"	1.2	0.4	50	37	1	"	BEAMS DUMPED
	"	"	"	0.78	3.45	21.46	"	1.8	0.6	46	45	1	22.040	
	"	"	"	0.59	2.77	24.23	"	1.8	0.3	49	34	2	"	
	"	"	"	0.42	0.77	25.00	"	1.8	0.2	48	10	1	"	terminated due to ZMAG Error
	"	"	"	0.44	0.05	25.05	"	"	"	32	2	0	"	ZDAS corrupt, Reloaded
	"	"	"	0.37	0.97	26.02	"	2.2	0.5	46	10	0	"	beams dumped
	"	"	"	1.05	2.42	28.94	"	1.6	0.6	58	35	2	"	beams lost
	"	"	"	1.25	5.70	33.54	"	1.6	0.6	45	69	2	"	
	"	"	"	0.81	3.68	37.22	"	1.6	0.4	46	45	0	"	
	"	"	"	0.71	1.16	38.38	"	1.4	0.35	48	17	0	"	
	"	"	"	1.12	4.03	42.41	"	1.5	0.6	47	44	2	"	Stopped for beam energy change
	"	"	"	0.78	2.67	2.67	"	1.4	0.55	48	36	2	22.055	NSO problem
	"	"	"	0.71	0.75	3.42	"	1.2	0.6	51	8	1	"	Beams dumped
	"	"	"	1.03	1.08	4.50	"	1.6	0.56	44	9	0	"	NSO problems
	"	"	"	1.05	0.22	4.72	"	1.6	0.52	46	2	0	"	Beams lost
	"	"	"	1.57	5.92	10.64	"	1.8	0.8	45	73	1	"	
	"	"	"	1.36	4.74	15.40	"	1.8	0.82	48	59	0	"	NSO hangup.
	"	"	"	1.24	6.38	21.78	"	1.3	0.38	49	78	1	"	
	"	"	"	1.10	1.85	23.23	"	1.1	0.21	50	19	0	"	
	"	"	"	2.25	8.02	31.25	"	1.8	0.42	45	106	3	"	
	"	"	"	1.77	1.07	32.32	"	1.5	0.34	46	72	1	"	NSO hangup
	"	"	"	1.46	5.24	37.66	"	1.4	0.33	48	74	2	"	
	"	"	"	0.93	2.35	40.01	"	1.3	0.33	49	34	0	"	
	"	"	"	1.56	6.39	46.40	"	1.6	0.38	43	65	1	"	
	"	"	"	1.08	4.74	51.14	"	1.2	0.25	41	49	1	"	
	"	"	"	0.89	3.67	54.81	"	1.0	0.2	51	50	0	"	Beams dumped

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL x10 ⁶	T# RES x10 ⁶	T ₁ ACC. SUM	T ₁ AVERAGE	T ₁ RFL	T ₁ RFL	T ₁ RFL
				Z ⁺	Z ⁻											

30/6/84 -td. Reloaded the NORD just in time for a beam dump!

6:56 start run 17081

6:59 soft i.d. trip

7:10 >JDAS READOUT ERROR 44 -DMA TIMEOUT branch 3 crate 2: Main chamber
 CARC CARF WCR MAR MODE DMAOST PLOCOST ISR IVR WDOG
 0060204 002020 002042 0575736 121002 010000 140204 000000 000020 000000
 >JDAS READOUT ERROR 45 -MP-16 analysis incomplete; YY=1

7:20 soft i.d. trip. - TOF rate fluctuating,

7:25 NO TRIGGERS. PAUSE/CONTINUE - STOPPED RUN. ^{STILL NO TRIGGERS} Started new run - seems O.K.

7:40 YSPY-error - JETC DL8. giving no response 165

7:42 soft trip.

7:45 Wire map shows hole due DL8 - 165 is. - Run stopped

Replaced DL8 165.

8:00 Petersen and B. Zorn on shift

8:15 YSPY-error Jetc DL8 - 3 giving no response
 " " Jetc DL8 - 166 giving no response ^{by just touching helped}

16:00 J. WAGNER & DIECKMANN
 CONTINUING PROBLEMS WITH ^ADL8 ^{CRATE}POWER SUPPLY (B5C3).
 EXPERTS ARE HERE.

17:18 REPLACED POWER SUPPLY & START RUN 17085, BUT
 PROBLEMS WITH DL8'S IN SAME CRATE.
 The second Z-chamber DL8 power supply was taken. See Kohliel's note on page 170.
 to replace broken power supply. Same problem with the other power supply.

17:30 Wire map now ok.
 Now there is no working spare power supply left for the jet chamber DL8's !!
 If there is another power supply failure in the next time (until the others are repaired)
 we can't do anything.

20:40 BACKGROUND JUMPS → SOFT I.D. TRIP. CALL PKR,
 20:50 ANOTHER SOFT TRIP → NO OBVIOUS PROBLEMS
 THIS TIME.

21:28 ANOTHER SOFT TRIP. AND YET ANOTHER.
 REMOVE AUTO. ALARM RESET → IT'S TOF RATE,
 BUT THIS ISN'T SHOWING UP ON NEW METER IN
 CONTROL ROOM (TOF RATE STABLE AROUND 0.7)

23:12 2 MORE SOFT TRIPS, STILL TOF ALARM NOT REFLECTED
 IN METER RATE.

23:25 LUMI DOWN TO .45 x10³⁰. CALL TASSO TO FIND OUT
 IF THEY ^(LADY)SEE SIMILAR EFFECT. THEY SAY "NO, BUT
 MAYBE WE'RE GETTING MORE LUMINOSITY THAN WE
 THINK WE'RE GETTING."

23:45 Message on JDAS Console: JDAS ZMAG Error: Event longer than reserved Block
~~overflows~~ and the Run terminated
 We started Run 17090, after several minutes: message on line Printer:
 Error in opening file for Read 00034 1
 We reloaded JDAS and started Run #17091. ~~Looks~~ Looks ok.

17.84 0:00 Mashimo + Bethke

2:20 2x ID soft trip. TOF-rate ~ 0.75, sometimes higher. But now ID-current > 3.5 μA
 after running it up → soft trip again. Asked PKR to reduce background.
 Also in falling before ID-current was rising with decreasing beta-beam.

2:40 background doesn't improve. Tried for a few minutes to run without threshold for ID-current.
 Current than was ~ 3.7 μA. looked to some extent (no selection): always ~ 500-1000 hits/per
 event in ID. Ring 1 has highest currents of 4.5 μA! Also warning on Main-TV (high current)
 constantly on. Decide to stop and run down ID.

2:50 Phoned PKR again. We agreed that they try to reduce our background (which comes mainly from the
 region around the beam-pipe, so the TOF-rate is insensitive to it), but for that we have to build an ID
 again (without threshold; should not be done normally) and tell PKR the conditions while they change
 something. After 1 min. we found optimum, so that ID-current back to 1.6 μA. We can
 take data again! (But: Tasso now has worse conditions. That's life!)

⇒ Monitoring the TOF-Rate tells not always the whole truth.
 The ID-current may be too high, though the TOF-rate is still ok. In this case PKR will not
 recognize it, because they have only our TOF-rate-signal.

3:05 ID part trip, after that beam lost

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- 5:30 had 3 soft ID-trips, together with message on screen "Field high current".
Dip in wire-map cured (pushed DCS).
- 8:00 S Cartwright, B Zorn
- 8:24 Soft ID trip 2 minutes after start of run. Probably spike in TOF-rate.
- 8:30 TOF-rate has been getting steadily worse. Phone PKR - they make an instant improvement. Meantime the ID trips ^{probably} ~~probably~~ from the TOF).
- 8:40 Soft ID trip
- 9:10 " " "
- 9:26 TASSO call to say the energy will be raised in ~ 10 minutes

- 9:40 Magnet read error - "MUX channel not set"
- 9:41 JADAS readout error 33 - Missing LHM for 2 or 3 - TOF1 counter

- 9:55 Soft ID trip.

- 10:12 ID trip due to high TOF
(visible on meter this time!) Energy \rightarrow 22.088 GeV
- PETRA lost a transmitter.

- 10:28 PETRA back to 22.055 GeV. Restart ID & continue run.

- 10:34 Magnet read error - MUX channel not set.

- 10:44 NSO busy. Messages printed on system console - well done Hansel!
Start a new run & the same thing happens again immediately.
Try again & get "NSO CANNOT BE STARTED"
Third time lucky!

- 12:10 NSO hangup. Stop run, try to restart (this time I definitely remembered ABORT-NSO) but get INTERNAL DEVICE FOR NSO OCCUPIED (or something like that). This happens several times. Restart JADAS to no avail. Reload N10. Try to start run, get *** NSO cannot be started ***. Abort NSO again, try again, same again. Repeat twice. Finally (fourth attempt) get NSO = VERSION 8406 STARTED, and all is well.

- 12:20 Beams lost (just when I'd got JADAS going again!!)

Tasso	71.6	
Cello	55.8	
N3	76	22.040 GeV
Fade	40.	

(NB I think I forgot to enter AG-NSO the second time)

Forward INT. LHM (LNB)

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- 13:45 Soft ID trip - TOF (visible on meter)
- 13:50 Integrated deadtime for this run $>$ 30% - call PKR & ask if they can optimise
- 13:55 "Background optimisation" - deadtime \rightarrow 60% (Background maximisation?)
- 14:05 Two soft ID trips in quick succession, from TOF.
Deadtime 30-80%. Set check current OK (1.8 μ A)
- 14:30 "Cured" dip in ID wire-map (see opposite) has reappeared. Try giving DCS a push & clear histogram to see if it's gone away. It did.
- 14:58 Soft ID trip PETRA is still optimising, if one can believe the TV.
- 15:02 JADAS readout error 33: Missing LHM for 3 or 3 - Muen chamber
- 15:19 Soft ID trip
- 15:36 " " "
- 15:55 NSO hangup. Cured without problems this time.
- 16:00 Krekbiel, Matsumura on shift
- 16:43 ID Soft trip
- 17:00 Error message on the printer VVOLTS MPR 53 ch. 13 HV = 286 V.
Action: Reset via Reset HV as printed ~~via~~ via RESET HV
Lengthy printout, but last line says: all channels are reset.
- 20:00 Output on the Console & Output from NORDSO - Memory out-of-range: etc. ^(console) ^{see Printer} output
On TV: NSO BUSY. Action: ~~STOP~~ STOP-RUN - ABORT-NSO START-RUN \rightarrow NSO cannot be started.
but: NORDSO Version 8406 started. Next time run start: O.K.
- 20:30 Mu-conditions ~~slowly~~ improving. Run 17107 only 2 Mu crate missing.
The Muen system must have been haunted by a ghost during run 17105. If missing, it is always crate 11
- 21:00 Readout Error. JADAS 44 DMA Timeout 5/7
MP-16 analysis incomplete YY=7

Need to hangup.

Funny series of errors. Probably CAMAC task overwritten.
With the help of Takeshita (in Persa) and Olsson (on line) we managed to start the system again without knowing what was actually wrong. Essential step: Rebuilt task ~~216~~
(what was it? YMONZ, XMONZ, I do not remember, but Olsson knows). The Branch on line List of Set-CAMAC was overwritten. First word was 267 or so, ^{The program probably} ~~it~~ asked for a crate to be on-line which physically cannot exist - crate 8??)

RUN	DATE	START	STOP	AT RUN START	DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T# RES $\times 10^6$	T# ACC SUM	T# ACC SUM	T# ACC SUM	T# ACC SUM
-----	------	-------	------	--------------	---------------	------	------------	-------------	-------------------	----------------------	------------	------------	------------	------------

00:00 2nd July 1984

Ball, Yamada

Run #110 in progress.

- 00:15 DLS 68 missing - just a contact problem.
- 02:20 DLS 68 missing again. - polish contacts - OK again.
- 03:24 Tasso has 76nb, all other crats ~ 55nb⁻¹
- 03:45 HV: down
- 04:17 New fill ready. New energy 22.070 GeV
- 4:21 soft ID trip.
- 5:00 " " "
- 6:00 DLS 15 missing - polish contacts - OK.
- 6:11 soft ID trip
- 7:11 Beams dumped.
- 7:45 New fill ready.
- 7:51 soft ID trip. TOF rate over 10V!
- 8:00 Ambers & Taloshita
- 8:03 soft ID TRIP.
- 8:09 " " "
- 8:15 " " "
- 8:16 Beam lost.
- 8:48 Tasso phoned us. Two windows of crystal are too hot so the machine will stop till this afternoon. ~~down~~ down the magnet O.A.

16:00 System regeneration done on NORD 3.0.

L	22.055 GeV
Tasso	75
Jade	55
Cello	56.6
M-J	86.3

- 16:00 Nye, Weber
- 18:30 "injection" sign on T.V-Monitor; set magnet to 7500 amps.
- 19:15 start run with new fill
- 19:17 I.D. Trip (soft) - reset;
- 19:22 Stop run 17117 to reset magnet which reads ~ 15 amps too high: lower by 10 amps and then reset to 7500 amps; start new run; magnet again: 7509 amps, ^{highly} high
- 19:29 Notice that tagging HV is off. stop run 17118, turn on H.V. and start run
- 19:36 soft I.D. trip during run 17119
- 19:38 " " " " " "
- 19:44 "magnet fluctuation"; reading in hardware room 7515 amps.
- 19:51 soft I.D. trip - run 17119
- 19:59 " " " " " "

NOT HV. NIM POWER SUPPLY TRIPPED IN HARDWARE ROOM. - NO TAGG OR LUMI DATA

Forward INT. LUMI (L/NB)

2.7.84

- 20:20 Modified alarm-input (TOF-rate) for soft ID-trip: 22µF on input, w/ rising time ~ 0.01µs. Hopefully the soft-trip rate will be decreased. (S.D.)
- 20:41 Magnet amps too high (7518) - YMAGNE says out by more than 20 amps
- 20:47 Soft ID trip
- 21:20 " " "
- 20:36 Tagg electronics power supply tripped (again) - stopped run and started new one after switching crate on & off

- NOTE : IF $L = 0.0$, CHECK NIM CRATE, 2nd from TOP, of CRATE 9 (RIGHT OF TRIGGER BOX) - ALL RED LED'S BELOW ON/OFF SWITCH SHOULD BE ON - IF THEY ARE NOT - SWITCH CRATE OFF AND ON AGAIN. - PLEASE WATCH FOR THIS CRATE TRIPPING OFF (L = 0.0 ON SCREEN) (THERE IS NO ALARM).

23:20 Soft ID trip

03/07/84

Düchmann / Zunge

- 1:00 YMAGNT keeps on complaining about "not nominal ^{field} values although the magnet currents are perfectly ok. We tried to REBUILD YMAGNT. But it didn't work.
- 4:10 No ID soft trips until now. Removed 2.2µF capacitor.
- 4:45 ID-Trip Jetel High current 96
- 5:02 ID-Trip (ToF-Rate alarm set) but Celo TV says Jetel High Current
- 5:11 " " "
- 5:12 Reinstalled 22µF
- 5:23 Noed 50 hang up about NSO + New Run Start: OK.
- 5:34 ID Trip (ToF Rate)!
- 5:47 JDAS Readout Error 33B2 C: timing 4cm. TOF1 counter
- 6:23 Magnet Trip: Vordurchschle primär \leftarrow due to a short in the cooling passage for the magnet shield and beam pipe. The short occurred during repair work on the main ^{L-Berthel}
- 6:31 Beam lost ^{due to a short in the cooling passage for the magnet shield and beam pipe. The short occurred during repair work on the main}
- 8:00 Beams lost due to JADE-temp. alarm
- 8:30 TASSO called asking for our tot lumi at 22.97 GeV. JADE 53 nb⁻¹, CELLO 53, TASSO 69, M-J > 69. After the next fill the energy will be raised to 22.1 GeV \leftarrow Petra will now operate at this energy - No ramping.
- 8:50 IBM Error 54 (will be fixed in 15 min)

Run	Date	Start	Stop	At Run Start		Dead time (%)	Time (sec)	Records IN	Records OUT	All *10 ⁶	T ₁ REJ *10 ⁶	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ BIT 2 E ₁ >6GeV	T ₂ BIT 17 2T·E ₄ >2T ₁
				I ⁺	I ⁻										
Exp. 24	2/7/84	4:19	5:30	4.62	4.65	10.2	3850	8002	5460	1001	10.2	3211	7512	1447	27
17113	"	5:30	6:53	4.00	4.06	7.7	4276	8001	5259	1027	85.5	3508	7435	1508	71
17114	"	6:53	7:13	3.45	3.51	6.6	1140	1822	1026	297	19.6	879	1719	370	9
17115	"	7:46	8:15	4.73	4.80	12.0	1243	2609	1608	324	39	1060	2598	457	18
17116	"	19:14	19:22	4.52	4.27	6.1	265	404	219	69	4	142	422	63	2
17117	"	19:24	19:29	4.44	4.19	6.7	273	471	266	71	5	182	458	70	2
17118	"	19:29	20:42	4.39	4.14	7.0	3619	5786	3321	941	66	2534	5880	1124	45
17119	"	20:47	22:23	3.78	3.56	6.0	5472	8002	4463	1423	85	3934	4694	1639	45
17120	"	22:24	22:37	3.16	2.98	5.0	776	991	531	202	10	480	958	229	7
17121	"	22:38	0:28	3.08	2.90	4.8	6443	8002	4319	1676	81	4276	7225	1751	44
17122	"	3:7:34	0:29	2.56	2.42	4.9	138	217	109	36	2	113	159	55	1
17123	"	2:23	4:02	4.11	3.61	5.9	5643	8002	4576	1468	86	3662	7955	1530	32
17124	"	4:03	5:22	3.52	3.07	5.4	4240	5786	3142	1103	59	2940	5307	1202	28
17125	"	5:24	6:20	3.06	2.68	5.0	3095	4019	2414	805	40	2152	3441	815	15
17126	"	6:30	6:31	2.76	2.42	3.9	49	81	46	13	1	35	45	11	0
17127	"	7:25	8:17	4.70	4.80	11.1%	2349	4735	2865	611	67	2050	4474	879	28
17128	"	9:11	10:25	4.52	4.07	10.2	4253	8001	4633	994	113	3374	7966	1420	44
17129	"	10:26	11:44	3.87	3.51	7.9	4543	8002	4437	1183	93	3592	7483	1530	50
17130	"	11:45	13:12	3.34	3.03	5.9	4744	7064	3829	1234	72	3565	6372	1513	31
17131	"	17:11	18:14	4.52	4.60	7.4	3226	5227	2958	840	62	2085	5636	1122	40
17132	"	18:16	18:40	3.90	4.05	7.6	1392	2438	1421	362	28	1050	2523	502	16
17133	"	18:41	20:09	3.72	3.87	6.5	5205	8002	4628	1267	88	3890	7870	1689	67
17134	"	20:09	21:20	3.17	3.31	5.4	4824	6611	3626	1256	68	3493	6102	1477	50
17135	"	23:57	1:14	4.40	4.36	7.3	4857	8001	4806	1266	92	3854	8098	1521	39
17136	"	4:7:94	1:15	3.79	3.76	6.5	5017	8001	4687	1706	85	3898	7633	1686	40
17137	"	2:39	4:02	3.24	3.23	5.4	4926	6757	3763	1282	69	3560	6244	1487	46
17138	"	4:7:84	5:17	4.55	4.64	8.7	4404	8002	4720	1146	99.7	3600	7704	1591	47
17139	"	4:7:84	6:33	3.91	4.0	7.6	3701	6435	3632	96.3	73.1	2887	6349	1251	34
17140	"	7:49	9:14	3.38	3.47	6.0	4897	7440	4158	1275	76.7	3744	6938	1541	36
17141	"	10:58	11:15	4.12	3.96	6.2	966	1411	749	262	15.5	549	1501	254	6
17142	"	11:50	12:32	4.48	4.52	12.1	2507	4860	2882	652	79.1	1948	4985	858	37
17143	"	12:34	13:42	4.10	4.14	10.4	4115	8001	4833	1071	112	3428	8045	1495	38
17144	"	13:49	14:11	3.53	3.58	7.6	1154	1995	1178	301	22.8	925	1995	387	11
17145	"	14:14	15:56	3.37	3.42	6.3	5279	8002	4599	1373	86.6	3897	9658	1662	29
17146	"							122	79						

Forward INT. LUMI (L/NB)

ON/OFF			<L>	SLdt forward (Vnb)	SLdt Exp.	IBM Tape	At Run start		T ₂ REJ Fract. (%)	Σ Bhabha	MH	E _{beam}	Remarks
N50	MIP	TOF					ID [uA]	TOF [EV]					
"	"	"	1.45	5.60	5.60	IBM	1.5	0.4	39	63	4	22.030	* new fill, new energy
"	"	"	1.09	4.64	10.24	"	1.3	0.25	42	54	0	"	
"	"	"	0.94	1.07	11.31	"	1.0	0.25	49	7	1	"	Beams dumped
"	"	"	1.79	2.22	13.53	IBM	1.4	0.4	44	25	0	"	Beams lost
"	"	"	no	Lumi	(HV)	"	1.5	0.32	44	8	0	"	new fill
"	"	"	"	"	"	"	"	"	42	9	0	"	
"	"	"	1.54	5.59	19.12	"	1.5	0.3	47	70	2	"	
"	"	"	1.29	7.05	26.17	"	1.3	0.25	50	74	3	"	
"	"	"	no	Lumi	values	"	1.0	0.2	51	13	1	"	
"	"	"	0.99	6.38	32.55	"	1.0	0.2	52	51	1	"	
"	"	"	0.93	0.13	32.68	"	"	"	47	3	0	"	Beams dumped
"	"	"	1.33	7.50	40.18	"	1.2	0.25	48	90	4	"	
"	"	"	1.17	4.96	45.14	"	1.0	0.2	49	48	2	"	N50 hang up
"	"	"	0.89	2.76	47.90	"	1.0	0.2	49	34	1	"	Magnet Trip
"	"	"	0.78	0.04	47.94	"	"	"	29	0	0	"	Beams lost
"	"	"	2.47	2.59	53.74	"	1.8	0.4	43	62	3	"	Beams lost
"	"	"	1.79	7.61	7.61	"	1.4	0.35	44	90	3	22.100	
"	"	"	1.50	6.82	14.43	"	1.8	0.3	50	2	"	"	1 beam gas
"	"	"	1.09	5.19	19.62	"	1.3	0.25	48	62	0	"	Beam dumped
"	"	"	-	8.00	27.62	"	1.6	0.45	47	77	1	22.100	N50 hang up
"	"	"	-	2.70	30.32	"	1.4	0.32	47	24	0	"	Run stopped Tagg crate tripped
"	"	"	1.51	6.79	37.11	"	1.3	0.26	50	74	1	"	
"	"	"	0.95	4.60	41.71	"	1.0	0.22	52	51	0	"	Beam dumped
"	"	"	1.53	7.42	49.13	"	1.4	0.34	47	81	2	"	
"	"	"	1.50	7.51	56.64	"	1.2	0.26	49	81	3	"	
"	"	"	1.07	5.26	61.90	"	1.0	0.23	52	67	0	"	Beam dumped
"	"	"	1.86	8.17	70.07	"	1.5	0.35	45	105	3	"	
"	"	"	1.46	5.40	75.47	"	1.4	0.30	47	71	2	"	Stopped due to N50 crash
"	"	"	1.09	5.33	80.80	"	"	"	50	66	1	"	beams dumped
"	"	"	0.27	0.26	81.06	"	1.5	0.32	45	7	0	"	Beams dumped. Probably filled wrong RF bucket
"	"	"	1.77	4.43	85.49	"	1.6	0.40	44	56	1	"	N50 crashed
"	"	"	1.71	7.05	92.54	"	1.5	0.32	46	85	0	"	
"	"	"	1.57	1.81	94.35	"	1.3	0.3	49	18	0	"	N50 crash. Run 17145 no units.
"	"	"	1.13	5.98	100.33	"	1.2	0.25	49	69	3	"	beams dumped.
"	"	"	0.04	100.37		"	"	"				"	

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^6$	T ₂ ACC. SUM	T ₁ RESUM E, 2285U	T ₁ INTL E, 2068U	T ₂ INTL
				I ⁺	I ⁻										

3/7/84

10:55 ID soft trip
 11:52 ID hard trip, recorded.
 14:00 Instal check of LG pedestals < 100 in YPARA. Warning print on TELETYPE at Run start should appear if a pedestal is < 100. If so, call TOKYO-LG-EXPERT. S.O.

16:00 Hatsumura & Ramcke on shift

17:10 Run start
 17:14 ID trip (soft)
 17:53 ID trip (hard)
 18:40 Run stopped. Tagging rate switch on. Run started again.
 19:50 TOF-HV wrong: TOF-Main FR 53, CHANNEL 13 reseted

Every 2 min "MAGNET FLUCTUATION"
 Somebody had put a nominal field of 7500 G into the program. We changed it to 4844 G. Tolerance is 20 G. B.N.

4.7.84

Peterson / Clarke

00:20 ID soft trip.
 12- crate missing fully part 8 - every 10-15 min. (reset OK at 21:40 crate)
 06:10 ID trip. anode current.
 06:45 " " hard.
 07:45 Nord 50 crash, restarted OK
 8:00 Narosha, Ball
 Everything quiet
 8:07 Soft ID trip.
 8:59 Beams to be dumped soon. 9.12 off "short break"
 11:00 New fill. Lums very low. PKR suspect wrong RF bucket filled. Run 17142
 11:14 Beams dumped.
 11:49 New fill. Lagging MFR 61 had to be switched on manually.
 12:32 N-50 stopped. Aborted + restarted.
 14:01 ID soft trip.

Forward INT. LUMI (N.B)

4.7.84

14:12 Nord 50 crash.
 14:25 ID soft trip
 14:50 Magnet trip. Vorlaufdruck primar. Reset in trig room. ID soft trip. Phoned K to make them check any way. They said it was due to sieves being changed in the Kubeleid.

15:40 Tasso phones to announce a new fill in ~ 20 min

16:00 Zorn + Hughes
 Reba filling
 Run 17149 started at 20:00

21:42 ID soft trip
 21:57 NORD 50 Trip "Memory out of range ---"
 STOP RUN, ABORT-NSU, Restart New run.

22:30 NORD 50 Crash. as before.
 STOP RUN
 ABORT-NSU
 Start Run Number 17152

Sometimes (according to Beate) it is necessary to type the "ABORT-NSU" command twice in order to kill the task.

23:30 ID soft Trip
 23:59 Magnet trip, ID soft Trip
 Vorlaufdruck primar.

5.7.84

00:00 Clarke + Schneeloth
 called MKK, both pumps off.
 02:26 continue run
 04:45 beams dumped
 12:26 start run 17154 Several soft ID trips, no indication on meter
 5:38 new fill, start run 17157
 6:55 Magnet run down, pump off, called MKK

8:00 Skard & Warming on shift
 check histograms OK except DL8 #3 somewhat low
 9:20 YSPY reports missing DL8 #3 run paused
 pulled out DL8 and cleaned contacts
 after putting it back, lots of readout errors
 beam dump a few minutes later

stop run before switching off a crate, start new run afterwards
 crate needs initialisation

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (Sec)	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ REJ $\times 10^6$	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ BIT ₂ E ₁ > 66u	T ₂ BIT ₁₇ Q.T.E. > 22
				I ⁺	I ⁻										
17149	4-7-84	20:40	21:31	4.42	4.35	9.6	4234	5001	4951	1101	10.5	3271	8207	1374	56
17150	"	21:36	21:58	3.85	3.79	8.4	1101	2021	1191	2866	2.4	875	1990	382	15
17151	4.7.84	21:59	22:33	3.68	3.63	7.4	1952	3316	1998	508	37.3	1461	3240	608	10
17152	5.7.84	22:35	0:39	3.45	3.4	6.2	5393	8002	4713	1403	86.8	3947	7688	1655	36
17153	5.7.84	0:40	0:45	2.81	2.77	6.3	259	442	254	67	4.3	203	298	81	5
17154	"	1:26	2:46	4.48	4.61	8.9	4499	8002	4985	1170	10.4	3444	8305	1435	43
17155	"	2:46	4:29	3.33	3.32	5.3	5960	8001	4803	1549	82	4080	7514	1641	28
17156	"	4:29	4:41	2.10	2.03	4.5	648	788	451	168	75	453	673	165	3
17157	"	5:38	7:20	4.44	4.54	8.5	4389	8002	4806	1142	98	3425	8061	1370	47
17158	"	7:20	8:42	3.60	3.71	6.7	4862	8002	4784	1265	85	3765	7698	1546	32
17159	"	8:42	9:29	3.10	3.21	5.8	2793	4926	2342	727	42	2062	3799	885	17
17160	"	12:26	12:55	4.42	4.52	13.3	1673	3432	2125	437	58	1375	3528	551	13
17163	"	15:56	17:29	3.52	3.32	6.8	4965	8002	4634	1292	88	3410	7368	1356	44
17164	"	17:29	18:19	3.02	2.85	5.6	2937	4103	2134	763	43	1923	3814	797	22
17165	"	21:33	22:24	4.47	4.57	10.6	1157	2016	1151	301	32	655	2285	354	18
17166	"	22:24	22:48	4.20	4.29	12.4	842	1581	910	249	27	537	1706	268	6
17167	"	22:48	23:00	3.61	3.71	8.3	453	788	463	118	10	289	818	131	4
17168	"	22:59	0:19	3.54	3.83	8.0	4683	8002	4616	1219	98	3466	7772	1393	42
17169	6.7.84	0:19	1:25	3.05	3.53	6.5	3429	5365	3014	892	98	2473	6940	970	22
17170	"	2:03	3:12	4.49	4.57	13.6	4038	8001	5017	1050	14.2	3247	8246	1354	39
17171	"	3:12	3:51	3.90	3.98	10.5	2253	2563	2563	585	61	1408	4354	769	23
17172	"	3:51	5:09	3.68	3.60	7.5	4635	8001	4624	1205	90	3711	7633	1547	36
17173	"	5:09	5:36	3.13	3.21	6.4	1507	2427	1370	392	24.9	1164	2228	118	12
17174	"	6:06	7:18	4.72	4.77	17.4	3863	8002	4998	1004	175	2901	8170	1388	44
17175	"	7:18	7:24	4.05	4.10	14.2	249	569	358	64	91	55	520	99	2
17177	TDC CALIBR RUN														
17178	"	15:15	16:51	3.98	3.87	6.3	5510	8001	4899	1450.9	91	3642	7928	1381	48
17179	"	16:51	17:18	3.26	3.20	5.3	1510	2138	1264	414	22	986	2063	369	11
17180	"	17:49	19:10	4.37	4.40	8.2	4573	8002	4870	1190	98	3606	8046	1578	40
17181	"	19:10	20:43	3.67	3.73	6.7	5184	8002	4980	1349	90	3866	8004	1619	61
17182	"	20:44	21:55	2.12	2.16	5.4	4232	5722	3310	1102	60	2467	5348	1214	34
17183	"	22:35	23:59	4.03	3.98	6.9	5016	8002	4857	1306	90	3682	8045	1455	44
17184	7.7.84	0:05	1:33	3.44	3.40	5.9	5530	8002	4656	1440	85	3973	7597	1523	58
17185	"	1:40	2:42	2.94	2.92	4.9	3678	4692	2689	957	47	2497	4252	959	19

Forward INT. LUMI (1/NB)

DN/OFF			<L>	SLdt	SLdt	IBM/TAPE	AT RUN START		T ₂ REJ	Σ	M.I.T.	F _{BETM}	REMARKS
NSO	MIP	TOF					ID [uA]	TOF [SV]					
"	"	"	2.33	9.87	110.24	IBM	61.6	0.34	45	110	0	22.100	
"	"	"	1.91	2.10	112.34	"	1.4	0.3	46	17	2	"	
"	"	"	1.85	3.61	115.95	"	1.2	0.27	46	26	1	"	
"	"	"	1.42	7.66	123.61	"	1.0	0.2	50	83	1	"	
"	"	"	1.01	0.26	123.87	"	0.85	0.18	42	2	1	"	Beams dumped
"	"	"	1.81	8.14	132.01	"	1.5	0.39	48	86	1	"	
"	"	"	1.1	6.53	138.54	"	1.0	0.24	51	80	4	"	
"	"	"	0.85	0.55	139.09	"	0.7	0.16	55	9	0	"	beams dumped
"	"	"	2.13	9.34	148.43	"	1.5	0.36	46	94	5	"	
"	"	"	1.46	7.42	155.55	"	1.2	0.26	48	66	1	"	
"	"	"	1.13	3.17	159.72	"	1.0	0.21	49	51	0	"	beams dumped
"	"	"	2.51	4.21	162.93	"	1.5	0.33	44	34	1	"	beams dumped
"	"	"	1.21	6.00	168.93	"	2.0	0.31	41	58	1	"	
"	"	"	0.94	2.36	171.69	"	1.6	0.25	46	29	0	"	beams dumped
"	"	"	? "0"	2.1(8)	173.79	"	1.6	0.38	43	25	2	"	!! NO LUMI-COUNTERS. SL calculated by BIL * 0.6
"	"	"	? "0"	1.8?	175.59	"	1.8	0.35	42	21	0	"	
"	"	"	? "149"	1.?	176.59	"	1.6	0.30	43	12	1	"	
"	"	"	1.69	7.93	184.52	"	1.6	0.30	44	77	4	"	
"	"	"	1.42	4.87	189.39	"	1.6	0.25	45	58	0	"	Beams lost.
"	"	"	2.26	9.12	198.51	"	1.5	0.42	45	94	2	"	
"	"	"	1.75	3.95	200.56	"	1.6	0.35	44	38	1	"	NSO Cal.
"	"	"	1.56	7.24	209.80	"	1.5	0.32	46	75	1	"	
"	"	"	1.20	1.80	211.60	"	1.3	0.26	47	27	0	"	beams dumped
"	"	"	0.19	8.45	220.05	"	1.6	0.50	44	89	3	"	
"	"	"	1.76	0.44	220.49	"	1.7	0.38	42	12	0	"	
"	"	"	1.88	10.46	230.95	"	1.2	0.26	52	113	4	"	beams dumped
"	"	"	1.36	2.17	233.12	"	1.5	0.4	48	25	0	"	beams dumped
"	"	"	2.03	9.27	242.39	"	1.4	0.4	51	105	5	"	
"	"	"	1.46	7.57	249.96	"	1.2	0.3	47	70	7	"	
"	"	"	1.06	4.49	254.45	"	1.0	0.3	51	37	2	"	beams dumped.
"	"	"	1.77	8.89	263.34	"	1.2	0.3	49	91	3	"	
"	"	"	1.27	8.95	272.29	"	1.1	0.22	50	64	5	"	
"	"	"	1.04	3.84	276.13	"	0.9	0.2	51	33	3	"	

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ REJ $\times 10^6$	T ₂ ACC SUM	T ₁ REJ SUM E, > 666U	T ₁ 917 L E, > 666U	T ₁ 917 R
				I ⁺	I ⁻										

5/7/84
 11:52 start break due to a cavity failure
 12:55 Petra got cooling problems, they want to dump the beam therefore (it is a pity, > 4 Amps still and clean conditions)
 we run down the magnet
 14:40 phone call from Beate: tomorrow Friday 6/7/84 8:00 - 16:00 (approx.) PETRA off to allow maintenance of a water leak

14:15 The 2 chamber DL8 Power Supplies are now replaced with the original DL8 Power supplies, and we've got two spare working ones in the pool on the balcony! A. Diekmann
 15:00 new fill ready, at-run stand readout error: missing lam brand 7 crate 3 checked crate controller → bit 15 faulty → exchanged checked lam grade → OK checked crate voltage → OK A. Diekmann discovered start clock-distribution unit being off → switched on all with pic again.

16:00 Jauge + Bethke
 16:30 HV wrong: MFR53/ch 13. reset by hand to nominal value (was been 0).
 16:55 ID soft trip + latch high current.
 18:18 TOF rate; immediately followed by 'switch off high-voltage'
 20:50 beam ready, switch on I.D. → one record after that: ID fast trip, anode current alarm, beam lost
 21:53 Magnet reading camac error (Max channel not set)
 22:40 Run 17165 without lumi-counters (NIM crate ^{right} near to trigger-box was off). Switched off + on → ok, but now (run 17167): IL = 149.49, all lumis crazy. So stop run 17167, start 17168 → ok.
 Scaled for runs 17165 + 66 + 67 the BIL by factor of 0.6 to write down the IC into this book (due to Yamada today in the Jale-meeting).

6/7/84
 00:00 Hughes & Staples.
 01:58 I.D. trip "soft"
 01:01 reset ok.

Forward INT. LUMI (1/NB)

6.7.84

10:08 I.D. soft trip.
 11:00 I.D. reset OK
 12:40 Beams lock, end Run.
 20:20 New beam
 24:00 TOAS readout error 33 - Missing LAM for 2 or 3 TOF1 counters.
 Run standard Histograms. Strange effect at the end of the JETC A+ & A- histogram. See "enlarged" copies
 Rack 2 upper WES power supply Ros or intermittently noisy fan.
 31:20 New run.
 35:00 N50 Crash; ABORT-N50 a restart.
 52:25 Suggest to Tasso that we have a new fill so that we get the best out of machine until 8:00 when we must go off.
 New fill in 10 mins.
 06:15 I.D. 'soft' trip
 06:25 " "
 7:10 checked JETC A+ & A- histogram it is now "normal" suspect N50
 7:15 "Soft" trip of I.D.
 7:27 Beams Dumped: Volts Down; Magnet → 100 A.
 Petra Restart 15:00 - water leak correction

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES. $\times 10^6$	T ₂ ACC. SUM	T ₁ RES. SUM	T ₁ RES. L	T ₁ RES. H
				I ⁺	I ⁻										

138 6.7.84 Krehbiel
 08⁰⁰ Duane, Krehbiel No beam till ~15⁰⁰ hrs Magnet off
 15³⁰ Injection ($\rightarrow 7500A$) 15¹⁵ Start Run. Very clean.
 16⁰⁰ PKR computer in down; no TV display is nonsense.
 16²⁰ I.D. Soft Trip. TOF Rate up to $\geq 5V$. Recovers after ~1min.

16²⁰ Dieckmann, Heimelmann
 18²³ DL101 power switched on \rightarrow check temp. 16.1°C

7-July-84

02⁰⁰ Becker & Mashimo on shift.
 04⁰⁶ soft ID trip. TOF rate $\sim 0.4V$.
 3³⁵ soft ID trip. "Jetch high current Faulty part: 96"
 3⁵⁰ soft ID trip.
 4⁰⁷ ISI error. Trigger 3 I/P missing ST 29 GP 4
 4⁴⁷ soft ID trip TOF rate $\sim 0.5V$ a little bit unstable.
 6⁵⁵ "Short Break". Trouble with transmitters during injection. PKR: "do not run down the magnet"
 5²⁶ ID trip (anode current).

08⁰⁰ Clarke, Skard on shift.
 09⁰⁰ soft ID trip. "Jetch high current"
 12²² "
 12²⁴ JOAS readout error 33 - Missing LAM branch 5 crate 1: ID ring 1. } 5 times, run stopped. "played" with crate, problem seems fixed. New run.
 12²⁶ "
 12⁵⁰ TOF MFR 53 ch 13 low - reset
 13⁰⁰ Nord crash - ABOAR-N50 etc gets us running again

16:00 Takeshita + Hugel
 16:56 15 soft trip.
 17:57 ID ~~trip~~ Trip: Beams lost
 19:57 ID soft trip
 21:33 TOF MFR 53 Channel 13 tripped off. Reset by hand.
 23:03 ID soft trip
 23:06 " " "
 23:16 " " "

Forward INT. LUMI (1/NB)

7/7/84 K-TITE
 23:23 ZD HV down. (Hard Trip?)
 23:39 IBM ONLINE -JOB ERROR CHECK 3 } Many IBM Busy''s at this time

8.7.84 00⁰⁰ Heingelmann + Komamiya
 05³ ID trip (anode current)
 10³ ID soft trip
 12⁰ " \leftarrow TOF rate current e^- e^+ 3.17 2.89 mA lead
 24⁹ Beams are ready ID current high $\sim 2.6 \mu A$ TOF $\sim 0.8V$ dead time $\sim 80\%$
 ID soft trip
 40⁴ Soft ID trip
 43⁵ Nord hang up Level 02 Data 2.3.13 Reload Nord.
 7¹⁰ New fill ready. Again high TOF rate $\sim 0.8V \rightarrow$ dead time $\sim 80\%$
 background opt. does not improve it. PKR checks now ok. $\rightarrow 10$ -trip.

08⁰⁰ Yamada + Duendel.
 Background still too high to take data. (also background has improved.)
 08²⁰ At last background falls \geq we start taking data. TOF $\sim 0.5V$ ID $\sim 1.6 \mu A$. (the first 1346 events of this run, 17206, were very high background.)
 08⁵⁵ NORD 50 died. Memory out of range at 164354 for details see NORD protocol.
 Restarting a new run required a new loading of N-50, which caused "stop".
 Following J. Albers advice to reload N-10 as well, things worked again.

Run 17207 does not exist.
 11⁰⁰ (also want to until. We ask to keep this file for another 1/2 hr. They agree!!!)
 11²⁷ JDAS READOUT ERROR 33 Missing LAM Branch 3 crate 2: Muon chambers
 no event for --- sec. \rightarrow Run paused & test continued. Run went on.
 11²⁹ JDAS READOUT ERROR 33 same as above.
 2 more errors before beam dump caution from PKR.

11:31 HV. down.
 12:34 New fill ready
 12:50 JDAS READERROR 33 Missing LAM Branch 3 crate 2. also ID soft trip
 13⁰⁰ " " " " "
 13⁰⁵ ID trip (soft)
 13²⁴: Beams lost. ID only softly tripped.
 14⁵³: Beams lost & ID trip. 16:00 FADC switched off, compressor failure, K comes.
 16:00 Stephens, Naroske
 Petra "short break", trouble with transmitters

140 RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (SEC)	RECORDS IN	RECORDS OUT	ALL x10 ⁶	T ₀ REJ. x10 ⁶	T ₁ ACC. SUM	T ₂ ACC. SUM	T ₁ BIT 2 E ₁₇₆ GeV	T ₂ BIT 17 2T-E ₄ 22TR
				I ⁺	I ⁻										
17186	7.7.84	3.13	4.24	4.78	4.81	11.5	3979	8002	5047	1035	119	3448	8175	1409	48
17187	"	4.25	5.26	4.11	4.17	9.6	3356	6554	4152	873	84	3018	6613	1295	32
17188	"	9.18	10.32	4.64	4.68	11.4	4297	8002	4829	1118	127	3186	7999	1253	52
17189	"	10.33	11.44	4.02	4.07	11.3	4264	8001	4409	1109	125	3007	8152	1137	49
17190	"	11.44	12.34	3.52	3.59	8.5	2743	4793	2621	714	60	1954	4564	735	26
17191	"	12.44	12.56	3.18	3.25	6.7	538	423	497	139	9.4	376	836	158	8
17192	"	12.59	13.48	3.11	3.18	6.2	2894	4504	2368	753	46	1906	4113	748	18
17193	"	14.21	15.28	4.8	4.78	15.2	3918	8001	4897	1019	155	3132	7977	1226	38
17194	"	15.29	16.39	3.6	3.6	11.9	4017	8002	4655	1097	150	3296	7801	1364	34
17195	"	16.39	17.31	3.54	3.58	6.7	3245	5320	3078	845	57	2416	4838	967	18
17196	"	18.41	19.49	4.69	4.61	12.0	3772	8001	6301	988	119	3276	7825	1387	47
17197	"	19.48	21:00	3.94	3.92	10.2	4176	8001	4775	1086	110	3558	7642	1470	49
17198	"	21:00	22:09	3.22	3.41	6.4	3963	6194	3596	1031	86	3092	5648	1222	27
17199	"	22:53	23:00	4.08	3.81	9.3	402	716	452	105	10	304	739	112	3
17200	"	23:01	02:22	3.76	4.03	10.6	4282	8001	4859	1115	118	3507	8252	1498	56
17201	8.7.84	02:23	1:58	3.23	3.50	7.0	4867	8002	4759	1266	89	3557	7529	1732	48
17202	"	1:59	2:03	2.72	3.00	5.6	178	321	295	46	3	155	231	54	0
17203	"	2:50	4:14	4.66	4.70	42.1	3998	8002	5422	1040	434	2991	12888	1004	26
17204	"	4:14	4:36	3.90	3.98		1433	8001	885						
17205	"	4:36	5:47	3.67	3.77	7.2	4719	8001	4535	1226	89	3853	7664	1520	40
17206	"	7:18	8:55	4.46	4.62	24.4	2570	5428	3558	669	163	2582	5367	905	36
17208	"	9:10	10:27	3.54	3.77	7.7	4616	8002	4724	1200	92	3869	7430	1548	35
17209	"	10:28	11:32	3.06	3.30	7.3	3771	6126	3441	981	71	2972	5495	1203	27
17210	"	12:37	13:25	4.41	4.57	14.2	2574	4915	3205	669	95	2099	4797	892	27
17211	"	14:39	14:53	4.35	4.22	10.0	726	1600	834	189	19	543	1446	228	8
17212	"	19:48	21:26	3.39	3.76	6.1	4931	7246	4774	1280	78	3201	7091	1315	39
17213	9.7.84	3.42	4.14	4.52	4.67	6.4	1605	2207	1300	417	26	987	2236	407	10
17214	"	5:35	6:57	4.70	4.31	8.1	4647	8002	4780	1210	99	3443	8114	1474	46
17215	"	6:57	08:21	4.06	3.96	7.4	4895	8002	4695	1269	94	3710	7815	1593	50
17216	"	8:22	9:51	3.09	2.88	6.1	5338	8002	4621	1390	85	3955	7687	1708	39
17217	"	9:52	10:02	3.09	2.87	5.4	592	882	511	154	8	449	756	194	7
17218	"	12:36	12:57	3.66	3.93	6.6	662	1050	641	172	11	432	1019	186	5
17219	"	20:10	21:30	3.79	3.91	8.2	4630	8002	4221	1205	98	3489	7723	1727	49
17220	"	21:35	22:03	3.03	3.35	7.9	1658	2952	1476	432	34	1366	2655	693	13

Forward Int. Lumi (1/NB)

ON/OFF			<L>	SLdt Forward Int. Lumi (1/NB)	SLdt Exp.	IBM TAPE	AT RUN START		T ₂ REJ. FRACT	Σ BHABHA	MH	E _{BEAM}	REMARKS
N50	MIP	TOF					ID [MAJ]	TOF [EV]					
ON	ON	ON	2.42	963	285.76	IBM	1.5	0.4	47	99	2	22.100	
"	"	"	1.95	6.53	292.39	"	1.3	0.34	48	78	2	"	beams lost
ON	ON	ON	2.39	10.25	302.64	IBM	1.5	0.38	42	112	8	22.100	
"	"	"	1.77	7.55	310.19	"	1.9	0.3	41	80	2	22.100	
"	"	"	1.54	4.23	314.42	"	2.2	0.26	41	34	0	"	
"	"	"	1.22	0.66	315.08	"	2.0	0.22	41	8	0	"	Word crash
"	"	"	1.13	3.28	318.36	"	2.0	0.22	40	32	2	"	Beams dumped
"	"	"	2.26	8.85	327.21	"	2.0	0.42	41	95	3	"	
"	"	"	1.76	7.43	334.64	"	1.8	0.3	42	96	5	"	
"	"	"	1.41	4.57	339.21	"	1.7	0.25	43	44	1	"	Beams lost.
"	"	"	2.41	9.15	348.36	"	1.8	0.5	42	89	3	"	
"	"	"	1.65	6.91	355.27	"	1.7	0.43	45	82	2	"	
"	"	"	1.37	5.42	360.69	"	1.5	0.43	49	55	2	"	Beams dumped.
"	"	"	1.86	0.25	361.44	"	1.5	0.42	48	5	0	"	NORDSO CRASH
"	"	"	1.54	6.59	367.03	"	1.6	0.47	49	87	4	"	
"	"	"	1.22	5.95	372.98	"	1.4	0.39	50	73	1	"	
"	"	"	1.15	0.20	373.18	"	1.1	0.39	39	2	0	"	Beams dumped
"	"	"	1.31	5.23	378.41	"	2.6	0.8	42	48	0	"	
"	"	"	1.69	1.24	379.65	"	1.5	0.4				"	Word hang up
"	"	"	1.48	6.97	386.62	"	1.3	0.35	48	49	1	"	Beams dumped
"	"	"	1.66	4.26	390.88	"	1.5	0.8	50	30	1	"	NORDSO died Both are Good hadrons.
"	"	"	1.46	6.75	397.63	"	1.5	0.6	47	77	2	"	
"	"	"	1.17	4.40	402.03	"			46	56	1	"	Beams Dumped.
"	"	"	1.92	4.95	406.98	"	1.7	0.45	44	51	0	"	Beams lost.
"	"	"	1.73	1.26	408.24	"	1.6	0.45	44	5	0	"	Beams lost.
"	"	"	1.24	6.12	414.36	"	1.2	0.45	46	66	3	"	beams dumped.
"	"	"	1.47	2.36	416.72	"	1.8	0.48	49	23	1	"	beams dumped
"	"	"	1.9	8.83	425.55	"	1.4	0.45	46	103	1	"	
"	"	"	1.50	7.32	432.87	"	1.3	0.35	48	89	0	"	
"	"	"	1.15	6.14	439.01	"	1.2	0.25	50	50	2	"	
"	"	"	1.23	0.73	439.74	"	1.0	0.25	42	5	1	"	beams dumped
"	"	"	1.25	0.83	440.57	"	1.4	0.35	47	4	0	"	beams lost
"	"	"	1.45	6.70	447.27	"	1.7	0.48	44	64	2	"	
"	"	"	1.08	1.78	449.05	"	2.0	0.38	43	"	0	"	NORD so crash.

RUN	DATE	START	STOP	AT RUN START	DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₀ RES $\times 10^6$	T ₂ ACC. SUM	T ₁ AREA	T ₁ INT. LUMI	T ₂ INT. LUMI
-----	------	-------	------	--------------	---------------	------	------------	-------------	-------------------	----------------------------------	-------------------------	---------------------	--------------------------	--------------------------

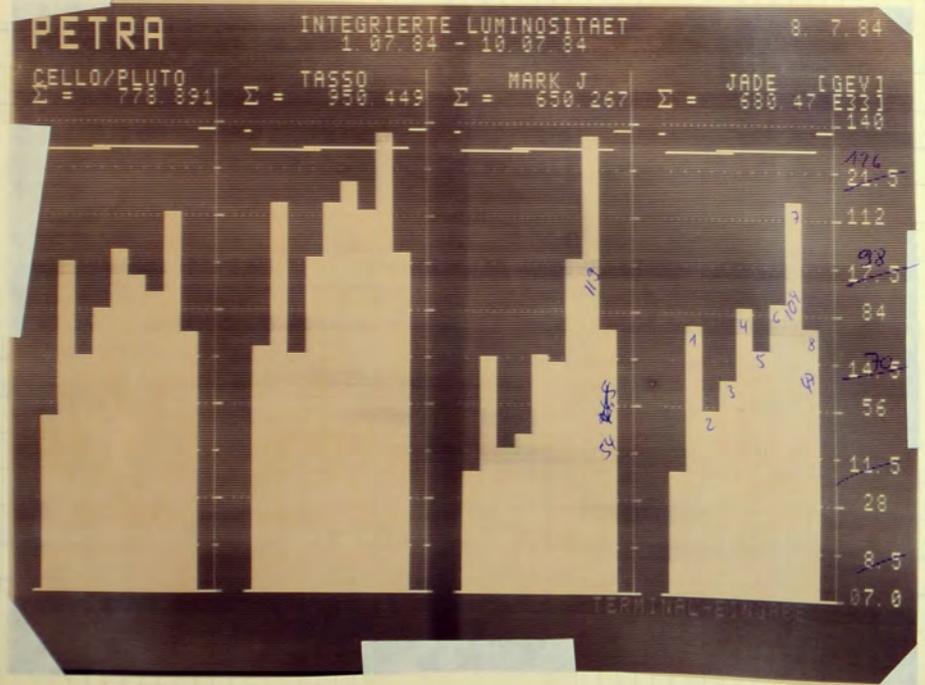
142 8.7.84
 19.45 After many futile attempts at filling, they succeed!
 Run 17212 started
 19.50 Soft trip, PKR are optimizing α -values
 21.26 TOF cables 19 and 61 were interchanged since the shutdown. Changed them back after run 17212.

We had some peculiar noises (whistling) from LG ADC crates. They disappeared and reappeared several times. We couldn't find anybody and probably it isn't too serious anyway. ← a fan for the LG linear sum makes the noise. We know it. Replacing the fan is not easy & we will keep it until it becomes really bad or breaks.

Runs 17194 - 17211 (excluding 17205 + 17206) give an average:

$$\frac{SL_{Bha}}{SL_{FW}} = 1.56$$

So the lumi in PKR is correct.



am on 7.7.

Mark J 119
 JADE 104
 TASSO 104 / 64
 Cello ~ 76 (shows missing)

Forward INT. LUMI (NB)

9.7.84

0:00 Kado + Dieckmann on shift
 3:41 beams ready! start run 17213
 7:58 FAADC's switched on. Temp. in hardware-room now 76.6°C
 8:00 Jungs & Warring on shift
 9:12 DAS Readout Error 33 Missing Lam bands crate 5
 9:13 Tasso announced: 10⁰⁰ beam dumped, followed by 30 min access for TASSO & PKR.
 9:25 1 FAADC-crate (valve #18 4th from top) tripped off, we leave it off
 10:30 S. Balle switched two of the four 'Dachlifter' from 1/2 to 1; opened windows and door at the backside of the hall; night shift people should open the door at front side; close backside door and switch back 'Dachlifter' to 1/2
 11:30 Temperature Alarm Hardware Room 19.5°C
 Reason: Technician had switched off all compressors for maintenance of a filter (duration 2 min.)
 we complain about not being notified beforehand.
 11:40 Temperature OK again
 12:37 ID - soft trip (TOF-race)
 12:50 ID - trip; beams lost
 1:00 Krehbiel & Stepler on shift
 17:30 we nearly had beam!
 19:55 we Raise BEAM!!! "background optimization"
 Good conditions after optimization, TOF 0.45V, Deadt. 7.8%
 DAS ERROR 33 Missing Lam Muon Chambers 1
 Leadglass ADC's 1
 20:45 I.D. soft trip.
 DAS ERROR 33 missing br 3 of 2 Muon chambers.
 NTOF = 2 latches Kristofan has a "hole" in the middle.
 21:30 Run 17219 ends. Krehbiel does a few electronic tests before next run starts but cannot find anything wrong.

Message to H. Kado: yesterday ~16⁰⁰ 1 compressor failed and temperature went up, that's the reason for FAADC's off

please check temperature and switch off FAADC's if > 19°C → and write a note in the logbook!! ←

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^6$	T ₂ ACC. SUM	T ₁ AREA SUM	T ₁ B172 E, 7066U	T ₂ B172 E, 7066U
				I ⁺	I ⁻										

144 9.7.84

21³⁵ Run 17220 started

22⁰⁵ " ended NOAD SO cool.

22¹⁴ Krehbiel again checking NTOF22 latch. Run 17221 started.

22¹⁶ One TOF HV went down. MFR 53/73. Reset as indicated. See console printout.

TOF TOC no Lts YSPY

22⁵⁰ I.D. Soft trip. TOF rate meter gave a "visible" kick

23⁰⁶ I.D. Soft trip.

23¹⁵ NTOF = 2 latches now looks OK

23²⁰ I.D. Soft Trip TOF rate unstable

Tag main frame 61 all channel off.

New fill at 23:45

23³⁰ another I.D. soft Trip but we are still in "PAUSE" anyway while the Tag HV's are sorted out.

And another Soft Trip. The Tag HV's are now on.

Beams unstable - according to TOF meter - Krehbiel complains to PKR and miraculously they are again stable.

Tag HV Mainframe 61 was unfused, Display showed 9999. Turned off and on, reload via (NAR) TOF.

13⁴⁵ Beams dumped.

10-7-84

0⁰⁰ DUERDOTH & J. WAGNER ON SHIFT

01⁵⁰ New filling. Background variable ID soft trip.

2²⁸ TEXTRONICS TERMINAL DETACHES. STOP RUN 17222 & RESTART ZDAS EVERYTHING ALRIGHT.

2³⁰ (JDAS R.O. ERROR 33 - MISSING LAM BZC3: TOF1 COUNTERS)

2³⁷ MAXC " " " " " " BZC2: 11 CHAMBERS)

Getting BZC2 errors every few minutes. Occasionally they seem to stop the data taking: but PAUSE/CONTINUE gets it going again. This spate of errors lasted only about 10 minutes.

3⁴⁷ SOFT TRIP. TOF RATE HAS INCREASED TO ~1.5. ASK PKR TO RE-OPTIMIZE.

4²⁵ SOFT TRIP.

4³⁰ TOF RATE JUMPS. ANOTHER SOFT TRIP FOLLOWS.

5⁰⁰ SOFT TRIP.

5⁰⁷ Beams lost. I.D. Hard Trip. Run 17225 had no events.

8⁰⁰ Yamada & Ramcke on shift

Tagging country	Lumi.	off line F.C. Lumi.	Run period	E.
online Bhabha	65.62	45.85	16951 ~ 16982	21.935 GeV
"	58.54	50.936	16983 ~ 16999	21.950

(ON LINE Bhabha) / (OFF LINE Bhabha) = 1.54 Correction factor for ON-LINE Bhabha

forward Lumi.			Run period	E.
15.13	13.363		17071 ~ 17073	22.025
42.41	41.23		17074 ~ 17096	22.040
54.81	60.84		17097 ~ 17112	22.055
53.74	52.58		17113 ~ 17128	22.070
70.07	82.18		17129 ~ 17139	22.100
236.16	250.19			

(FORWARD LUM) / (OFF LINE Bhabha) = 0.944

9⁰⁰ Magnet down (Restart 16⁰⁰)

13⁰⁰ 2-chamber - Test (T. Olsson + R. Hedgecock)

Forward INT. LUMI (N.B)

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (SEC)	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₆ REJ $\times 10^6$	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ BIT 2 E ₁ > 660V	T ₂ BIT 17 2T-E ₄ ->2TR
				I+	I-										
17221	9/7/84	22:14	23:49	276	3.06	6.4	4164	6486	3208	1083	69	3238	5697	1755	28
17222	10/7/84	1:52	2:29	4.31	4.45	7.5	1652	2865	1723	430	32	1318	2740	597	27
17223	"	2:30	4:01	3.87	4.14	9.2	4729	8001	4606	1229	114	3967	7300	1987	45
17224	"	4:02	5:04	3.23	3.56	6.7	3331	5505	3130	866	58	2853	4924	1431	40
17225	"	5:05	5:06	(NO EVENTS, BEAMS LOST RIGHT AFTER START)											
17226	"	7:13	8:38	384	3.74	6.5	5063	8002	4580	1318	85.5	3966	7398	1926	32
17227	"	8:38	8:57	332	3.27	13.2	1096	3375	1365	285	32.7	2630	1278	2152	7
17228	"	NO EVENTS													
17228	"	20:46	21:15	4.35	4.66	7.8	764	1453	1178	199	15.6	566	1425	305	7
17229	"	21:23	22:33	4.06	4.37	10.7	4043	8002	4432	1053	113	3589	7491	1847	55
17230	"	22:33	23:11	3.28	3.56	8.8	2240	4218	2271	583	52	2041	3648	995	16
17231	"	23:18	0:26	3.23	3.51	7.4	3771	6675	3631	981	73	3469	5207	1825	33
17232	12/7/84	no protocol													
17236	"	8:23	8:30												
17241	"	10:12	11:20	4.79	4.81	17.2	3583	8002	5315	933	161	3659	7258	1817	56
17242	"	11:20	11:21	(No events, beams lost almost immediately)											
17243	"	12:07	13:11	4.73	4.85	28.9	3673	8001	4927	956	276	3420	2658	1782	52
17244	"	13:12	13:26	3.46	4.06	18.8	867	1862	1139	226	42	820	1821	416	23
17245	"	16:40	17:12	4.65	3.23	9.0	3950	2782	1640	394	35	1401	2861	753	15
17246	"	17:14	18:36	4.07	2.77	7.6	4332	7775	4395	1127	86	4008	6779	2124	46
17247	"	19:15	20:04	4.77	4.89	24.4	2217	6485	4022	758	184	2954	5990	1540	48
17248	"														
17249	13.7.84	13:54	13:56	4.66	4.71	9.3	84	200	179	22	2	88	747	39	2
17250	"	15:05	15:23	4.82	4.92	13.1	894	1828	1744	232	30	832	7736	427	8
17251	"	15:31	15:38	4.43	4.61	12.9	378	257	469	98	12.2	319	208	145	9
17252	"	run summary not found.													
17253	"	23:24	0:33	4.74	4.52	11.1	4123	8002	4770	1073	118	3553	7813	1714	49
17254	14.7.84	0:33	1:50	3.75	3.92	8.6	4579	8001	4604	1191	103	3835	7470	1924	55
17255	"	1:50	3:11	3.22	3.28	7.1	4830	8001	6813	1256	89	4096	6794	2023	47
17256	"	3:11	3:30	2.78	2.92	6.9	1237	1890	1006	321	22	1030	1530	550	9
17257	"	5:08	6:22	4.90	4.82	18.6	3831	8001	4899	1012	188	3496	7356	1729	39
17258	"	6:24	7:23	3.25	3.39	8.0	3576	6222	3421	915	73	3038	5467	1640	44
17259	"	08:04	9:08	4.76	4.78	13.5	3767	8001	5038	981	132	3500	7266	1647	44
17260	"	09:08	09:48	4.13	4.16	10.3	548	1160	730	142	14.7	541	1041	274	6

Forward INT. LUMI (N.B)

ON/OFF			<L>	SLdt FORWARD (N.B)	SLdt EXP	IBM TAPE	AT RUN START		T ₂ REJ FRACT.	Σ BIARHP	MH	E _{BEAM}	REMARKS
M50	MIP	ToF					ID E _{uA}	ToF CVJ					
ON	ON	ON	0.74	3.09	452.14	IBM	1.8	0.33	46	48	1	22.100	Beams dumped.
"	"	"	1.89	3.13	455.27	"	1.6	0.55	47	31	0	"	
"	"	"	1.41	6.68	461.95	"	1.3	0.3	48	73	1	"	
"	"	"	1.14	3.81	465.76	"	1.2	0.25	50	44	1	"	Beams lost
"	"	"	1.38	6.99	472.75	"	1.4	0.45	48	57	2	"	
"	"	"	1.12	1.23	473.98	"	1.1	0.26	48	19	1	"	Beam lost
"	"	"	0.0	2.8 (BMM)	476.78	"	1.8	0.45	41	2	1	"	TAPPING-HV-PROBLEMS
"	"	"	2.1	8.48	485.26	"	1.8	0.4	44	85	0	"	
"	"	"	1.62	3.64	488.90	"	1.8	0.35	44	43	2	"	WORD-so died.
"	"	"	1.36	5.11	494.01	"	1.6	0.3	52	56	3	"	Beams lost
"	"	"											junky run. many problems
ON	ON	ON	2.24	8.03	502.04	TAPE ₃₂	1.8	0.65	45	75	2	"	Beam lost
"	"	"	1.82	6.70	508.74	IBM	1.8	0.75	44	75	0	"	
"	"	"	1.63	1.41	510.15	"	1.7	0.5	47	20	0	"	Beams lost
"	"	"	1.47	2.23	512.58	"	1.5	0.51	49	25	1	"	Word so died.
"	"	"	1.09	4.71	517.09	"	1.4	0.44	49	53	1	"	
"	"	"	2.08	6.07	523.16	"	1.8	0.74	44	74	1	"	Beams lost
"	"	"											This run does not exist (WORD problem)
"	"	"	2.89	0.24	523.40	"	1.7	0.6	37	1	0	"	Beams lost
"	"	"	2.29	2.05	525.45	"	1.8	0.5	42	27	0	"	
"	"	"	2.11	0.80	526.25	"	1.8	0.45	42	7	1	"	Beams lost. ID hand trip.
"	"	"				"	1.8	0.4				"	
"	"	"	1.93	7.97	534.22	"	1.6	0.58	45	34	1	"	
"	"	"	1.45	6.85	540.87	"	1.5	0.34	47	76	0	"	
"	"	"	1.71	5.38	546.25	"	1.4	0.32	47	53	1	"	
"	"	"	0.99	1.23	547.48	"	1.4	0.30	49	15	2	"	
"	"	"	2.13	8.27	555.75	"	1.5	0.30	42	82	5	"	
"	"	"	1.09	3.83	559.88	"	1.5	0.30	45	50	3	"	
"	"	"	2.12	8.00	567.58	"	1.7	0.40	41	99	3	"	NEW FILE
"	"	"	1.78	0.98	568.56	"	1.7	0.36	45	14	0	"	BEAMS LOST. ID FAST TRIP.

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ REJ. $\times 10^6$	T ₂ ACC. SUM	T ₁ REJ. E ₁ > 66 GeV	T ₂ REJ. E ₂ > 66 GeV	T ₂ REJ. E ₂ > 17 GeV
				I ⁺	I ⁻										

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16⁰⁰ Becker & Middleton on shift

17⁴⁵ magnet run up to 7500 amps - for injection.

20.15 FAOC's switched on for air condition test → see note on page 143! ←

"on"-time for compressor #1: 2916.7 h
 (10.7.84 20:15) #2: 2442.0 h
 #3: 3269.3 h

20.46 start run 17228.

21⁰⁰ HV error tag MF61 channel 0 10
 Reset HV by hand

22⁰⁵ soft ID trip

22¹⁵ YSPY error: Trigger 3 I/P missing: ST28 GP5

22⁵⁰ " " : TOF TDC no hits = 26

23⁰⁵ HV error: TOF main fr. 53 channel 13 - reset by JDAS

23⁰⁹ NSO busy - aborted NSO after STOP-RUN & then started new run - o.k.

23³⁰ soft ID-trip.

23⁵⁰ " " "

23⁵⁵ JDAS readout error 33 - missing LAM br. 5 cr. 3 : I.D. Ring 1

11-7-84

0⁰⁰ Heimgelmann & Mashimo on shift

0¹¹ YSPY error Run 17231 Trigger 3 I/P missing: ST28 GP5

7⁰⁰ PETRA has a vacuum problem (somewhere gas-leak).
 "Short break".

7⁰⁰ PKR has not yet fixed the vacuum trouble. Down magnet current to 500 A.

Forward INT. LUM (LNB)

149 11.7.84

8⁰⁰ Schneekloth + Bethke

8⁰⁵ checked "on"-time of air-condition-compressors:

#1	2928.3	- on-time last night (12 hours) →	11,6 h	(Schaltfolge: 3-1-2)
#2	2453.8	"	11,8 h	
#3	3281.2	"	11,9 h	(Temp. Hardware-room: 16.2°)

⇒ do all compressors really run all the time even at night (DL101 on) ??

// Please check again at ~20¹⁵ //

11⁴⁰ Beate phoned. Probably no beam this shift. (Vacuum problems at Petra)

16⁰⁰ S. Wagner + Dieckmann

16⁵⁰ Injection starts

19⁰⁰ New alarm-box for ID-soft-trips installed. Now only alarm is set, if one of the signals is present for more than ~0.2 sec (Tag-rate or ID-current).
 This should solve the problem of the most soft trips caused by no visible reason. Please report for a while all soft trips and your observations about it in this book. (S.B.)

19⁰⁰ Temp. in hardware-room: 17.2 °C • compressors are fighting hard...

19²⁰ Magnet up to 7500 A

20.15 compressors checked again →

"on"-time for compressor #1: 2940.5 h
 (11.7.84 20:15) #2: 2465.9 h
 #3: 3293.3 h

⇒ running-time in 24h: 23.8, 23.9, 24.0 hours!
 this means, the compressors run all the time!

20⁵⁵ Temp. in hardware room 17.7 °C
 Magnet to 500 A

12-7-84

0⁰⁰ Middleton + Ambras on shift
 still bad PETRA-vacuum

4.15 set magnet to 7500 A

5.54 run 17232 started & then stopped because of "JDAS READOUT ERROR 33 - missing LAM branch crate 2 : I.D. ring 2."

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T# REJ $\times 10^6$	T ₁ ACC. SUM	T ₁ ARGUM	T ₁ 9172 E ₁ 9172	T ₁ 9172 E ₁ 9172
				I ⁺	I ⁻										

Forward INT. LUMI (L/NB)

12.7.84

5⁵² ID trip - reset

8⁰⁰-16⁰⁰ Stard, Yamada on shift: - We inherited problems -

8⁰⁷ During testing missing lam etc: Avoid SD busy after few events. Start new run/reload NSO → same problem. Exit and try to start → Hang up during NSO load. It works now.

But: no data-rejection by mipro + NSO (only 10% of all). Yamada touched some cables at the branch drivers. strange: now normal reduction (60%).

Start data taking after having used (?) the b4 cr2 - problem (crate-controller + lam order exchange)

Again: rejection by MP16: 6%. NSO: 13%. Total: 18.6%.

Spurious timing lam b45 cr.3 ID Ring 1

After few minutes: rej. MP16 0%. NSO 35%. Total 33%.

Several holes in ID wire - maze. totally junk run. Stop it and look for error →

9.17 Restart N10, then data acquisition works with occasional missing LAM branch 5.

IBM goes down for one hour.

Petra cannot refill because of trouble with Linac II.

Stop run to reset LG high voltages and find error in DL8.

9⁷⁰ PETRA can be refilled. HV down.

10⁰⁷ New fill ready

10³⁰ ID soft trip ALARM No.1. (TOF alarm ans) lamp on.

11²⁰ 17242 started with IBM-link.
 > IBM ONLINE-JOB ERROR CHECK 2.

11²⁰ of a few seconds later Beams lost!

13⁰⁵ ID soft trip.

16⁰⁰ Hill & Mashimo on shift

16³⁵ luminosity

16⁵³ ID trip (anode current)

17¹⁰ NSO BUSY. ABORT-NSO - OK now.

18⁰⁶ JPAS readout error 33 Missing LAM branch 5 crate 3: ID Ring 1

12.7.84

18¹⁵ Soft ID trip "Jetch high current Faulty part: 93"

18²¹ ID Trip. (anode current)

18²⁰ YVOLTS reported error: TOF MFR53 ch13 HV=0.268 should be = 2.670. reset by ZDAS.

18²² YSPY error. "TOF TDC no hits: 0"

19¹⁰ New fill.

20⁰⁵ Beams lost. "BREAK RESTART 21:30"

PKR say "Synchrotron Trouble"

20⁵⁸ "Restart ca. 23:00"

23.58 Old shift changes paper in Gould plotter

New shift: Naroska wakes.

13.7.84 it's Friday today!

Naroska & Middleton on shift. magnet to 1000amps.

2.00 Still no news from PKR, reduce shift crew to 1 person.

There is a short in one of the cables from a power supply to a Dasy magnet.

3.40 Screen says: "Restart 8.00", I switch off magnet (Isolator off) and go home.

6.25 Temperature check ~18°, check compressors. No 1 was not running but I think 3 switched itself on.

6.41 t = 17.0°

7.12 t = 16.9

8.15 T = 17.2°

compressors checked again: "on"-time for #1: 2977.5 ~ 54.8h (since 70.7.84 20:15 2.60h)
 #2: 2496.9 ~ 54.9h
 #3: 3326.3 ~ 57.0h

→ air condition system works at 93% of its maximum power

(14)

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ REJ $\times 10^6$	T ₂ ACC. SUM	T ₁ ACCUM. EXP. REV.	T ₁ INT. L. E. 2066U	T ₂ INT. L. 291717
				I ⁺	I ⁻										

Forward INT. LUMI (1/NB)

1 152 13.7.84

Ueda + Yamada on shift

- 8:30 TV says: "Trouble with magnet-cable, restart ca. 12:00"
- 9:15 T = 16.6° (digital) (17° Glass thermometer)
- 10:20 T_{dry} = 16.8 T_{Hg} = 17°
- 11:00 T_{dry} = 17.0°C T_{Hg} = 17.2°C meanwhile TV says "restart ca. 13:00"
- 12:10 T_{dry} = 16.7 T_{Hg} = 17.0
- 13:00 T_{dry} = 16.5°C T_{Hg} = 17.0°C TV says "Injection" 0
- 13:15 magnet current raised to 7500 amps
- 13:40 beams ready, start run 17248 → Nord 50 busy, stop run and about NSO start run 17249, after ~200 Triggers LS HV-problems ← LG-HV read error, The crate had power failure (quite obvious: Friday 13.)
- 13:55 stop run, a few seconds later: beam loss
- 15:00 New fill ready
- 15:25 NORD50 busy, ABORT-NSO and start again → ok
- 15:38 beams lost again
- 16:00 Nye, Weber
PICK says there is trouble with a magnet power supply. TV monitor for "Short Break"
- 17:30 Fata replaces Nye
Injection!
- 19:42 Temperature check: T_{Hg} = 17.0° TV monitor: "injection"
- (25) Friday 13th, this is 13th day book & there is 13.6V on energy monitor - can anything work now?
- 20:55 Luminosity for a short moment, no time to switch on I.D. - good thing because beams lost at 20:57.
- 22:34 Luminosity at last.
- 22:59 Start run 17252 after trouble with resetting I.D.
H.V. Error 3. Accept. ok.
Run 17252 ended. YSPY ERROR "MUON CRATES 155-165". Pushed detector crate all get into mouse test programme; lost summary of run 17252. Try to find it after starting run 17253, but "YRUNSH: CANNOT FIND SUMMARY FOR RUN 17252" but the histograms seem to be there.
- 23:23 YSPY detects OLB #3 giving no response, read injection show konvention light flashing.

153

14.7.84

- 0:00 Kuhlau & Warming on shift
- 0:10 Karl Anubas is coming to do the DL8 #3 → it seems to be working now.
- 0:35 magnet current found to be 7530 Amps → readjusted to 7500 A
- 0:58 JDA5 read error 33 - Missing LAM branch 5 crate 3: I.D. Ring?
- 1:05 " " " " " " " " " "
- 1:35/36 3x JDA5 readout error 33, branch 5 crate 3 later on more JDA5 readout errors 33/5/3
- 5:45 JDA5 readout error 33 - missing beam branch 2 date 3
- 6:00 ID trip, chamber HV run down, but run continued for a few minutes!
↑ due to partial beam loss
- 7:05 M-gear went, as indicated by the online event display seem to have more often the topology (⊙) than the other way round (⊗). Why?
- 08:00 MATSUMURA & HEDGECOCK.
- 09:18 Beams lost. Shortly afterwards, TV monitor reads "Trouble with magnet power supply". We run our own magnet down to 1000 A.
- 11:02 "Injection" appears on TV. Run magnet up to nominal running level.
- 13:09 "NORD 50 BUSY" APPEARS. - STOP RUN! ABORT-NSO THIS START. WITH F1 - NEW RUN STARTS.
- 16:00 B. Mike & Basil
- 16:20 HV read errors for LG-System
Mashimmo checked: it is a power failure in a CANAC crate
HV was however ok. only read error.
→ This error occurred since Friday 13th ~~28th~~ 13⁵⁴
it seems as if we were the first to notice this error.
NO. ← NO Also at 22:59
- 19:10 Beams lost
Vacuum problems - short break minimum 4^h -
run down magnet to 100 A.
Restart 8:00
Magnet off.
Ask Ramcke to come in at 4:00
Thus Mashimmo has to do the first part of the shift

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^6$	T ₂ ACC. SUM	T ₁ AERUM	T ₁ BIT L	T ₂ BIT L
				I ⁺	I ⁻										

15.7.84

- 0⁰⁰ Mashimo on shift.
- 3⁴⁵ Rancke - (Mashimo goes home)
- 7¹⁵ Temp. in Hardware-Room 16.8°C
- 7⁴⁵ From TV: Resident ca. 12⁰⁰ Uhr
- 7⁵⁸ FOSTER HERE --- (YAWN---)
- SKAFFO CALLS IN - WE AGREE TO SPLIT THE SHIFT IF NECESSARY - HE GOES HOME.
- Initiation
- 11⁰⁰ PKR request magnet ON - turned up manually 7500 A.
- 11⁴⁹ Luminator (22.100 GV) - background optimisation.
lead glass alarm
Eventually we identify "band 2" power supply with we correct light on. Yamada comes in.
- 13¹⁸ Run 17268 gets started. Mr Yamada finds dead channel.
This is an amazing "fill" - the I⁺, I⁻ counts have been identical for 2 hours...
One LG Barrel counter is disconnected. (Distributor #3, ch 84) The counter is Ring 12, TOR-side No 1, i.e. Address 651 (counted from 0).
- 13⁵⁰ HV-unit 3 - LG. Camac crate had tripped off again. Switched OFF-ON, OK now, "Fan failure".
- 14¹³ Found same LG Camac crate off again; this time there was no error message, so it may have been off for some time. OFF-ON brought it back again. Something must be done about this.
- 14⁴⁰ Fan unit replaced. ↗
- 15⁴⁰ Temperature in hardware room: 16°C.
- 16.00 Ambros / Kuhlén on shift
- 17.05 IBM BUSY occurs frequently; IBM operators say everything is okay, our dump arrives.
"IBM jam ended at (time) after (n) sec" several times
- 18.10 TOF MFR 53 CH 13 wrong HV. reset.

22:20 Nord 50 busy → about Nord 50, start run, works

16.7.84

- 00 Nye, Felt on shift
- 01⁰⁰ new filling resulted in short break
- 06²⁰ couldn't switch on LG-HV, barrel power supply recurrent, switching off - on cured it
- 07²² NORD 50 BUSY - aborted and started new run - OK.
- 8⁰⁰ Becker & Krehbiel on shift. New shift crew was ~~not~~ greeted by heavy alarms at 8⁰⁰ exactly. Beams lost, 1D hard trip, "Short break"
- 9⁰⁰ Beams again. Mu Crate 73 permanently missing. Only local reset helped.
- 9.40 Bad beam conditions. Tot-Rate to 0.95, DT to 50%. Complaining induced "Untergrund optimising"
Things went better.
- 11⁰⁸ HV error TOF MFR 53 ch. 13 - reset by GDAS
- 12.17 Call from Mark J; Beam dump & on 5 Min.
Then "Short Break."
- 15.70 Beams up again. Conditions better than previous fill. Deadtime < 10% at
But alas! Things went worse again (slightly)
- 16.00 Ambros, Nye on shift. (Replaced by photo at 17.45)
- 17.37 HV error TOF MFR 53 ch 13 - reset OK
- 17.55 TRIGGER 3 I/P missing: ST 28 GPS - 78PY ERROR
- nothing seen in histograms.
- 19.15 New fill beam run - unstable beam so wait before sent on I.D.
- 19.20 Start run 17288
HV read error 2)
3) power supply 15 HV=1.981 should be 1.970
- 19:30 Temperature 17°C in Hardware.
- 20:25 HV read error: LG/BP POWER SUPPLY 15 HV=1.981 SHOULD BE 1.970
- 20.55 Lead glass fault - dump HT end run.
- 21.02 Start run 17290
(Call Yamada - says no problem please ignore warning for the moment.)
- 22.41 Beams dumped
- 23.30 New fill established - start run 17292
Temperature = 16.6°C
- 23.45 DL8: 3 error - but expect is already here!
Problem cured.

Forward INT. LUMI (1/NB)

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (SECS)	RECORDS IN	RECORDS OUT	ALL * 10 ⁶	T ₁ RES * 10 ⁶	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ BIT 2 E ₁ 76 Geo	T ₂ BIT 2 ZT. Eq. 2 ZTR
				I ⁺	I ⁻										
156 Run															
17261	14/7/84	11:32	12:36	4.81	4.86	15.3	3801	8001	4732	989	151	3424	7355	1525	45
17262	"	12:50	13:09	4.15	4.20	17	1905	4048	2276	496	84	1694	3741	798	14
17263	"	13:12	14:13	3.82	3.87	10.0	3628	7078	5149	944	95	3210	6315	1548	47
17264	"	15:38	16:45	4.58	4.67	18.8	3855	8001	4525	1005	188	3358	7415	1538	48
17265	"	16:46	19:02	3.94	4.02	9.2	4897	8001	5695	1118	103	3592	7053	1694	42
17266	"	18:02	18:57	2.92	3.20	6.4	3268	5924	3668	850	54	2723	4440	1324	32
17267	"	19:08	19:25	2.53	2.79	6.2	53	87	58	8.6	0.5	45	38	30	0
17268	15/7/84	13:18	14:28	3.87	3.87	8.9	3564	6332	4757	927	82	2890	5744	1266	46
17269	"	14:43	15:15	3.22	3.23	7.5	1777	3066	1736	462	35	1425	2669	614	22
17270	"	15:19	15:23	2.98	2.98	6.4	251	397	231	65	4	174	340	7981	1
17271	"	16:01	17:06	4.78	4.78	15.8	3836	8002	4720	938	157	3464	7364	1593	56
17272	"	17:06	18:15	4.04	4.04	12.1	4093	8002	4636	1065	129	3653	7161	1752	38
17273	"	18:15	19:30	3.40	3.41	7.2	4469	7697	4152	1163	84	3808	6650	1877	37
17274	"	21:49	21:45	4.68	4.77	34.3	61	136	79	16	5	36	194	16	0
17275	"	22:01	22:16	4.11	4.21	8.3	814	1524	818	211	17	683	1313	347	10
17276	"	22:22	23:37	3.91	4.01	7.6	4513	8001	4427	1174	89	3924	7047	1888	40
17277	"	23:38	0:56	3.30	3.40	6.4	4594	7360	8920	1195	77	3741	6316	1767	47
17278	16/7/84	3:28	4:37	4.72	4.63	14.1	3941	8002	4655	1026	145	3323	7893	1596	56
17279	"	4:37	5:36	4.01	3.99	9.4	3461	6642	3758	901	84	2946	6319	1422	35
17280	"	6:28	7:19	4.73	4.74	15.4	3023	6489	3757	789	121	2904	5905	1474	37
17281	"	7:25	8:03	4.11	4.13	11.5	2268	4490	2592	590	68	1970	4307	899	29
17282	"	8:53	10:04	4.81	4.84	16.2	3871	8001	4820	1008	164	3475	7907	1683	54
17283	"	10:05	11:14	4.02	4.09	10.9	4012	8001	4578	1045	114	3615	7605	1745	51
17284	"	11:14	12:25	3.37	3.47	4.4	4221	7373	4101	1098	81	3721	6666	1822	46
17285	"	15:13	17:05	4.82	4.68	10.6	4051	8001	4936	1055	111	3912	7712	1943	46
17286	"	17:05	18:25	3.74	3.65	6.6	4794	8002	4408	1249	83	4066	6704	1895	33
17287	"	18:26	18:27												
17288	"	19:20	20:26	4.65	4.73	9.7	3873	8002	6311	1008	97	3848	7046	1895	46
17289	"	20:27	20:53	3.91	4.02	8.6	1512	2777	1602	394	34	1360	2477	612	19
17290	"	21:03	22:26	3.61	3.72	6.4	4922	8002	4401	1282	82	4191	6899	1897	46
17291	"	22:26	22:41	3.01	3.13	5.7	857	1378	779	224	13	755	1046	345	3
17292	"	22:34	22:44	4.71	4.71	14.8	566	1260	725	148	22	559	1083	233	8
17293	"	23:52	00:02	4.52	4.52	11.3	563	1178	697	147	12	508	1097	224	4

17/07/84

Forward INT. LUM. (N.B.)

N SO	M/P	T ₀ F	<L>	Ldt FORWARDED INT. LUM. (N.B.)	Ldt EXP.	IBM TAPE	AT RUN START		T ₁ RES FRACT.	Σ BMSWA	MH	E _{beam}	REMARKS
							ID [μA]	T ₀ F [V]					
ON	ON	ON	2.68	10.18	578.74	IBM	2.0	0.4	41	99	1	22.100	
"	"	"	2.05	3.90	582.64	"	2.0	0.36	41	46	0	---	NOV SO BUSY - NO TRIGGERS.
"	"	"	1.89	6.85	589.49	"	2.0	0.32	42	70	0	---	Beam lost
"	"	"	2.38	15.78	589.49	"	1.8	0.38	110	3	"	"	
"	"	"	1.49	6.40	605.09	"	2.0	0.32	40	71	0	"	
"	"	"	1.14	3.74	608.83	"	1.8	0.25	32	41	1	"	
"	"	"	1.53	0.05	608.88	"	?	?	34	2	0	"	
"	"	"	1.73	6.17	615.05	"	1.8	0.32	44	51	0	---	
"	"	"	1.29	2.30	617.35	"	1.7	0.24	43	27	1	---	Beam dumped
"	"	"	1.1	0.27	617.62	"	1.7	0.2	43	5	0	"	Beam dumped
"	"	"	2.38	9.11	626.73	"	2.0	0.35	42	96	3	"	
ON	"	"	1.74	7.12	633.85	"	2.0	0.35	42	85	2	"	
"	"	"	1.32	5.92	639.74	"	1.8	0.28	45	72	0	"	beams dumped
"	"	"	0.00	0.00	639.74	"	2.8	0.6	59	3	0	"	
"	"	"	1.00	0.81	640.58	"	2.0	0.4	40	19	3	1	NOV SO BUSY - no triggers
"	"	"	1.85	8.36	648.94	"	1.8	0.35	45	88	2	"	
"	"	"	1.23	5.67	654.61	"	1.6	0.29	46	72	4	"	beams dumped
"	"	"	1.49	5.89	660.50	"	2.0	0.80	43	78	1	"	
"	"	"	1.22	4.21	664.71	"	1.8	0.50	44	63	3	"	beams lost
"	"	"	2.21	6.69	671.40	"	2.0	0.50	42	77	2	"	NOV BUSY
"	"	"	1.77	4.00	675.40	"	1.9	0.40	44	39	0	"	beams lost
"	"	"	1.99	7.70	683.10	"	1.8	0.6	45	84	7	"	
"	"	"	1.63	6.55	689.65	"	1.9	0.4	45	51	1	"	
"	"	"	1.14	4.83	694.48	"	1.8	0.5	48	44	0	"	beams lost dump
"	"	"	2.03	8.21	702.69	"	1.8	0.53	45	100	1	"	
"	"	"	1.42	6.82	709.51	"	1.5	0.28	46	69	1	"	
"	"	"	-	-	-	"			0	0	0	"	Too short run. Beams dumped.
"	"	"	2.33	9.01	718.52	"	1.8	0.42	41	107	1	"	
"	"	"	1.80	2.72	721.24	"	1.6	0.34	46	38	1	"	Low gain error. dam H.T.
"	"	"	1.47	7.25	728.49	"	1.5	0.28	48	73	0	"	
"	"	"	1.15	0.98	729.47	"	1.2	0.22	45	7	0	"	Beam dumped
"	"	"	2.43	1.37	730.84	"	2.0	0.56	39	11	1	"	end run with 0.8. 3 problem.
"	"	"	2.27	7.28	732.72	"	1.9		42	75	0	"	beams lost

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T# REJ $\times 10^4$	T ₁ ACC. SUM	T ₁ ARESUM	T ₁ INTL	T ₂ INTL
				I ⁺	I ⁻										

16/7/84
 23:51 Start run 17293.
 17/07/84 Mashimo / Frings on shift

- 2⁵⁵ Nord 50 busy. Stop run 17295. Abort-NSD
- 3⁴⁹ JDAS readout error 33 Missing LAM branch 3 crate 2: Muon chambers
- 4⁰⁵ TOF MFR 53 ch 13 wrong HV. Reset
- 6⁵⁸ ID trip. (anode current) by beam-loss.
- 8:00 ~~Hosokawa~~ / Weber
- 8:07 Start run 17301 with new fill, TOF and ID currents o.k. but strong dead time fluctuations up to 45%; PKR tries to reduce fluctuations.
- 8:25 Stop run 17301 because of "Sender-Ausfall"; they are able to keep the beam; start run 17302 at 8:35;
- 9:00 Temp. check $T_{Hg} = 17^{\circ}C$; $T_{dry} = 16.5^{\circ}C$;
- 9:35 ~~Start 17302~~ Z chamber test RUN
- 9:55 Normal data taking start (run 17303)

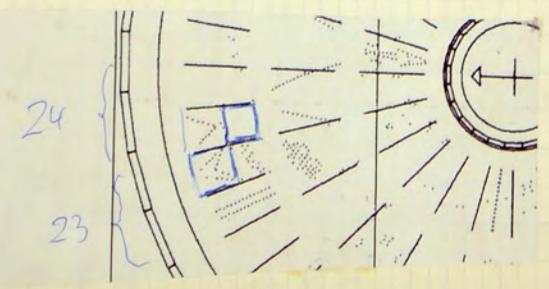
Noted that run 17303 had PATRCH rejection/analysis OFF - no message in log book - so turned back ON for run 17304

YTEXT updated to allow new error messages for Z-Chambers HER

11:45 Found that two DL8 cables were exchanged:

Wires # 1496-1503 Segment 23, 4, second 8 exchanged with
 Wires # 1504-1511 Segment 24, 3, first 8

Last run with exchanged cables: 17304
 First run with exchanged cables: 16826?
 This fault is probably also the reason why wires # 1496-1503 and # 1512-1519 are low in the wire map



Rlog

Forward INT. LUMI (1/NB)

17.84
 13.24 we are now taking data (without 2-chamber); run 17305 with 'new program' (CAMAC readout)
 R17306 test data with 2-chamber readout (!) on tape (1 Michael on tape!)
 R17307 Continue data taking with standard program. → ~~NSD BUSY~~
 No data of R17307 (← NSD BUSY; standard procedure)
 R17308 Looks OK.

- 16:00 Loebinger, Narosha. Krebbel instead of Bill. They want to go to Elliot Blooms Muster-show. Kids may run and play.
- 18:40 Gould Plotter Hardware Hangup. Operators Manual Sect. 4.4 didn't help much. After a random sequence of button-pulls the run-Smy was there!
 Muon-Crate 13 missing. The Camac representative of that had a tiny wee label: "Hardware reset removed." Why is that so? I was torn between two demands: climbing down to crate 13 or guarding the vest of JADE. I decided for the former. Pressing the white button helped.
- 19:00 JDAS Error 33, Missing LAM 5/3 one
 " " 33 2/3
- 19:30 " " 33 2/5 twice + level 5 hang up on Krebbel's Trigger box.
- 20:15 TSPY detected ToF counter wiring. HV of counter 13 off reset.
- 20:30 Make J wait new filling at 20:45
- 21:00 Temp check $T_{Hg} = 17^{\circ}C$; $T_{dry} = 16.5^{\circ}C$.
- 21:23 Start new run.
 LG/BP power supply 23 HV = 1.975 should be 1.996.

18th July

- 0⁰⁰ Barlow + Berlike.
- 0³⁰ Beams dumped.
- 1¹⁰ New fill.
- 1⁴⁵ Large fluctuations in dead time (up to 60%) and TOF current. Ask PKR to improve our background.
- 3⁰⁰ Histograms checked. All OK.
- 4¹⁵ Beams dumped.
- 4⁵⁰ New fill.
- 5⁰⁰ Nord 50 busy. stop run, restart → again busy after first 5 evts (run 17320 → no evts)
 Exit, readout JDAS → ok!
- 6⁴⁵ ID. Soft Trip.
- 7²⁰ Beams dumped.
- 7⁵⁰ 'short break' on TV

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ REJ. $\times 10^6$	T ₁ ACC. SUM	T ₂ ACC. SUM	T ₁ BIT 2 E ₁ > 66eV	T ₂ BIT 2 2T ₁ E ₁ > 2.2T ₁
				I ⁺	I ⁻										
17294	1707/84	00:18	01:53	4.78	4.82	17.1	3319	8001	4665	993	169	3389	7627	1585	51
17295	"	01:53	02:45	4.71	4.16	12.1	3084	6320	3527	802	97	2887	5637	1355	36
17296	"	02:47	4:05	3.65	3.69	7.2	4602	8002	4272	1176	87	3970	6977	2020	51
17297	"	4:05	4:11	3.72	3.76	6.5	263	509	270	68	4	253	365	728	23
17298	"	4:14	4:33	3.06	3.71	6.0	7066	1771	947	277	17	883	1399	417	8
17299	"	5:03	6:07	4.85	4.74	19.1	3822	8002	4629	993	190	3337	7577	1547	41
17300	"	06:02	07:00	4.15	4.23	12.0	3128	6385	3672	814	98	2930	5215	1360	44
17301	"	8:07	08:25	4.40	4.56	21.6	922	2099	1261	258	56	848	2020	381	6
17302	"	8:35	9:36	4.07	4.37	10.3	3617	7251	5625	942	97	3161	6944	1482	41
17303	"	9:56	11:15	3.42	3.69	6.9	4739	8002	6501	1234	85	4026	7095	1894	45
17304	"	11:10	11:18	2.89	3.13	5.8	77	161	88	20	1	76	100	24	1
17305	"	12:24	13:22	4.49	4.53	11.3	412	890	524	107	12	396	767	173	3
17306	"	13:44	13:55	4.35	4.32	13.5	513	1044	627	133	18	406	1034	187	6
17308	"	13:58	15:09	4.22	4.19	9.4	4223	8002	4510	1099	103	3583	7691	1676	35
17309	"	15:09	16:03	3.65	3.63	7.2	3174	5693	367	827	60	2710	5036	1225	34
17310	"	17:28	18:37	5.08	5.17	27.4	3876	8002	4744	993	272	3378	7862	7536	52
17311	"	18:43	19:52	4.24	4.32	14.7	3960	8001	4613	1031	152	3579	7549	1649	45
17312	"	19:53	20:45	3.62	3.70	8.2	3268	6070	3483	850	69	2923	5849	1325	34
17313	"	21:23	22:25	5.12	5.06	21.9	3686	8001	4979	959	210	3477	7920	1584	54
17314	"	22:25	23:32	4.34	4.30	11.1	3969	8002	4819	1033	115	3770	7644	1680	48
17315	"	23:32	00:33	3.69	3.66	7.1	3623	6452	3887	948	67	3390	5629	1506	32
17316	18/7/84	1:12	2:14	5.05	5.09	18.9	3720	8002	4997	967	183	3534	7809	1612	49
17317	"	2:14	3:22	4.27	4.32	9.6	4016	8001	4951	1044	100	3904	7478	1776	52
17318	"	3:22	4:18	3.62	3.67	6.5	3324	5561	3266	865	57	2867	5036	1241	17
17319	"	4:57	5:07	5.01	5.03	25.1	522	1109	687	136	34	468	1045	209	5
17320	"	5:10	6:12	4.83	4.86	18.7	3701	8002	4923	963	174	3521	7899	1582	54
17321	"	6:13	7:22	4.12	4.15	10.7	3987	8002	4660	1038	111	3790	7418	1717	48
17322	"	7:22	7:33	3.52	3.55	7.5	644	1166	665	168	13	563	1041	246	10
17323	"	11:49	12:52	4.47	4.50	16.4	3716	8002	4770	967	159	3872	7609	1554	50
17324	"	12:52	14:03	3.81	3.84	8.1	4225	8001	4685	1100	93	3746	7225	1725	50
17325	"	14:43	15:03	5.24	5.26	38.2	1247	2534	1567	325	124	898	2591	392	13
17326	"	15:07	16:10	4.93	4.95	35.2	3793	8001	4841	987	347	3154	7896	1379	38
17327	"	16:11	17:13	4.20	4.22	13.8	3735	8002	4703	972	134	3719	7053	1660	42
17328	"	17:14	18:23	3.61	3.64	8.0	4166	8002	4563	1084	87	4212	6361	1932	38
17329	"	18:24	18:28	3.07	3.10	6.9	241	462	267	62	4	242	47	117	1

ON/OFF			<L>	∫ L dt FORWARD INT. LUMI	∫ L dt EXP.	IBM TAPE	AT RUN START		T ₂ REJ. FRACT.	Σ BHABHA	MH	E _{BEAM}	REMARKS
H50	MEP	TOF					ID MA	TOF V					
ON	ON	ON	2.02	7.73	739.85	IBM	2.0	0.57	42	99	6	22.100	
"	"	"	1.73	5.33	745.18	"	1.8	0.35	42	56	0	ABORT - H50	
"	"	"	1.32	6.07	751.25	"	1.6	0.35	45	68	0	"	
"	"	"	1.23	0.32	751.57	"	1.5	0.24	37	3	0	"	
"	"	"	7.14	7.27	752.78	"	1.4	0.26	44	14	1	beams dumped	
"	"	"	7.97	7.31	760.09	"	2.0	0.51	41	77	2	"	
"	"	"	1.64	5.72	765.21	"	1.8	0.43	42	69	3	beams lost	
"	"	"	1.98	4.05	769.26	"	2.0	0.65	41	29	2	new fill	
"	"	"	1.75	10.21	779.47	"	1.8	0.45	43	73	6	"	
"	"	"	1.18	5.58	786.60	"			47	51	1	No PATRAX rejection - why?	
"	"	"	0.99	8.98	786.74	"	1.1		42	1	0	beams dumped	
"	"	"	1.90	5.78	788.00	"	1.8	0.42	40	7	0	new fill	
"	"	"	1.51	0.77	789.12	HD 185			43	8	1	Tot Run with z-chamber	
"	"	"	1.31	5.52	792.20	IBM	1.7	0.36	45	70	0	"	
"	"	"	1.45	4.61	796.81	"	1.8	0.33	43	46	0	Beams lost	
"	"	"	2.25	8.58	805.39	IBM	2.0	0.65	43	107	4	"	
"	"	"	1.73	6.84	812.23	"	1.8	0.54	44	76	4	"	
"	"	"	1.34	4.37	816.60	"	1.8	0.50	46	71	0	Beams dumped	
"	"	"	2.31	8.52	825.12	"	2.1	0.8	45	103	4	"	
"	"	"	1.85	7.33	832.45	"	1.5	0.65	47	84	1	"	
"	"	"	1.47	5.34	837.79	"	1.2	0.43	49	66	0	Beams dumped	
"	"	"	2.36	8.79	846.58	"	1.8	0.92	45%	88	1	"	
"	"	"	1.96	7.87	854.45	"	1.3	0.48	48%	79	1	"	
"	"	"	1.47	4.88	859.33	"	1.1	0.39	49%	61	4	Beams dumped	
"	"	"	2.45	1.28	860.61	"	1.6	0.75	43%	14	0	NO H50 hangup Run 17320 does not exist.	
"	"	"	2.19	8.09	868.70	"	1.6	0.68	46	73	3	"	
"	"	"	1.76	7.00	875.70	"	1.4	0.53	46%	66	3	"	
"	"	"	1.30	0.83	876.53	"	1.3	0.40	46%	7	1	Beams dumped	
"	"	"	1.89	7.03	883.56	"	1.8	0.55	42%	78	2	"	
"	"	"	1.58	10.63	884.18	"	1.8	0.4	44	26	3	Beams dumped	
"	"	"	2.08	2.60	896.73	"	2.1	0.7	40%	28	0	"	
"	"	"	2.01	7.64	904.43	"	2.0	0.5	41	87	1	"	
"	"	"	2.16	8.07	912.50	"	1.6	0.28	43	90	2	"	
"	"	"	2.09	8.72	921.22	"	1.6	0.28	44	85	0	"	
"	"	"	1.86	0.45	921.87	"	1.4	0.22	45	7	0	beams dumped	

Forward INT. LUMI (1/NB)

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES. $\times 10^6$	T ₂ ACC. SUM	T ₁ RESUM. E ₁ > 0.6 GeV	T ₁ INT. L. E ₁ > 0.6 GeV	T ₂ INT. L.
				I ⁺	I ⁻										

15 162 18.7.84

8⁰⁰ Schmidt + Komamiya

DESY have problems with the cooling system
 Beams are ready.
 Main power supply for LG (barrel 6) is overcurrent. No Tokyo people here!
 HV distributor #10 Kawanoto was hidden in ^{main} ~~main~~
 We finally find the counter (short circuit?) \rightarrow switched off. 1 channel. \rightarrow OK
 in PMT Ring 1-counter 25 (Wand)

13⁰⁰ HV cable 53 channel out by band to 2.620V.
 14⁰⁰ beams dumped

After the discovery of exchanged DL8 cables yesterday, I investigate now (during the refill) the cable order systematically with the program CABCHK. Another pair of exchanged cables was found!!

Segment 1, cell 1
 Wires 0-7 exchanged with 8-15
 First Run with this error probably # 16803 (7.6.84)
 Last Run with this error # 17326 (18.7.84) Rbg
 - This two errors were so long hidden, since L O'Neill and R.D. Heuer have left us -

16⁰⁰ Murphy + Schneekloth
 2054 Beams lost.

"VOLTS" amp no response in HV supply 15 (LGs), then amp HV is 1.981 instead of 1.970.
 This happened twice in run 17333.
 Kawanoto says ignore this. If you want to check, instructions are LG HIST file. It might be useful to know that the supply called "15" by the NORD is actually labelled 14, as, of course, you would expect. The voltage is OK.

0.00 Thursday 19/7/84 Mashimo & Lockinger

01.00 Beams lost
 136 Start Run 17335. TOF rate OK. But deadtime is high and fluctuate up to 65%.
 155 asked PKR to improve this.
 06.05 Beams lost

Forward INT. LUMI (1/NB)

19.7.84

8⁰⁰ Kawamoto + Ramche on shift
 8⁰⁴ YSPY error Run 17341 Trigger 3 4P missing: ST29 GP5
 8¹⁹ Beams lost
 8³⁰ From TV: Temporary beam Restart 10⁰⁰ Magnet current \rightarrow 1500 A

10⁰⁰ I checked again the order of the DL8 cables. Now it is ok.
 11²⁰ Injection ~~is~~ announced. Magnet \rightarrow 7500 A
 12⁵⁰ Warning on the console: "LG/8P Power Supply 1 HV=1.400 should be = 1.820"
 13⁵⁴ ID-Trip (soft) ~~is~~
 14³² Call from Mark J: ^{Try to} Change to higher energy
 14³² Run stopped
 15³⁴ ~~Mark J~~ The energy will not go higher until next week. (\leftarrow information from) Mark J
 We will continue to stay at EBM = 22.1 GeV.

16⁰⁰ Kuller, Spitzer
 18.45 HV wrong MFR 53 CH 73, reset
 18.53 YSPY: Trigger 3 I/P missing, ST29 GP4
 21.50 "The vacuum in PETRA east is so very bad, that there is no lifetime." Restart unknown on TV
 22:05 TV: "The vacuum in PETRA'S East is so very bad that there is no lifetime. Restart unknown"

20.7.84

0⁰⁰ Barkel & Murphy on shift
 run down magnet
 01.02 Start run 17348.
 Tagging HV's don't come on; switch stream on manually.

8⁰⁰ Isidor, Felt on shift
 10³⁰ Mark J phone. CELLO has turned ^{down} off its magnet as they have problems with it - this does not seem to have any effect on the beams, (in accordance with Marshall's 2nd law of physics at PETRA). The will turn it back on sometime in the next fill.
 10⁵⁰ Beams lost. Servants Trip.

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL * 10 ⁶	T ₁ REG. * 10 ⁶	T ₁ ACC. SUM	T ₁ BIT 2 E ₁ > 66eV	T ₂ BIT 17 2T.E ₄ > 2TR	
				I ⁺	I ⁻										
17331	15 July 1984	2028	2054	4.90	4.93	17.2	1508	3305	2030	392	68	1410	2994	577	23
17332	"	2132	2240	4.25	4.73	10.4	4069	8082	4902	1060	110	3624	7547	1541	38
17333	"	2240	2332	3.59	4.04	7.5	3099	5657	3238	807	61	2861	4855	1271	27
17334	19/7/84	0.06	1.03	5.13	5.16	18.6	3427	7863	5623	892	166	3397	7402	1482	46
17335	"	1:37	2:40	5.73	5.79	31.2	3800	8007	4907	988	308	3207	7878	1412	54
17336	"	2:40	3:44	4.28	4.33	12.7	3746	7999	5192	974	124	3714	7168	1611	40
17337	"	3:44	4:59	3.62	3.67	7.5	4799	8002	4656	1170	87	4121	6787	1768	40
17338	"	5:00	5:17	3.03	3.07	6.0	998	1611	925	260	16	865	1306	370	4
17339	"	5:48	6:05	5.14	5.20	27.6	957	2084	1278	249	69	1400	1905	374	15
17340	"	6:46	7:48	5.73	5.76	28.7	3722	8002	4976	969	278	3253	7669	1493	53
17341	"	7:49	8:18	4.32	4.36	18.3	1779	4000	2536	452	82	1692	3692	757	22
17342	"	12:17	13:49	3:68	3:88	5.8	5549	8002	4811	1444	84	4135	7028	1699	36
17343	"	13:51	14:38	3:03	3:31	5.5	2580	3654	2304	671	37	2007	3082	822	13
17344	"	16:01	17:02	5.18	5.13	15.6	3684	8002	5079	958	139	3616	7236	1477	42
17345	"	17:08	18:13	4.34	4.30	9.6	3859	8001	4924	1014	97	3804	6904	1608	37
17346	"	18:14	19:30	3.65	3.66	7.1	4564	8002	4722	1187	84	4305	6506	1918	36
17347	"	19:31	19:52	3.11	3.09	5.8	1282	1728	1046	333	19	1087	1608	493	11
17348	20/7/84	1:03	2:10	5.04	5.14	9.9	4022	8002	4897	1047	104	3730	7230	1526	46
17349	"	2:11	3:24	4.25	4.34	8.4	4350	8002	4781	1132	95	3837	7290	1681	46
17350	"	03:24	04:47	3.56	3.64	6.3	4969	8002	4787	1293	82	4252	6788	1862	34
17351	"	4:48	5:04	2.97	3.04	5.5	946	1367	807	246	13	726	1178	322	4
17352	"	6:24	7:27	5.17	5.14	12.9	3767	8001	4950	981	17	3352	7830	1447	56
17353	"	7:27	8:04	4.34	4.33	12.8	2785	4566	2793	568	73	2077	4774	915	33
17354	"	8:47	9:41	5.02	5.11	17.5	3588	8002	5877	933	163	3341	7748	1428	57
17355	"	9:42	10:49	4.26	4.33	10.4	4030	8001	4922	1049	109	3846	7306	1620	43
17356	"	10:50	10:57	3.59	3.54	7.0	439	772	466	114	8	355	710	160	4
17357	"	13:15	13:16	5.06	5.08	21.9	23	84	58	6	1	29	51	13	0
17358	"	13:24	13:27	4.96	4.92	22.0	156	345	222	40	9	129	309	48	9
17359	"	13:31	13:51	4.87	4.89	19.9	1180	2689	1942	307	61	1044	2422	406	17
17360	"	13:53	14:56	4.57	4.60	12.9	3798	8002	4980	989	127	3680	7168	1524	307 32
17361	"	14:57	16:12	3.85	3.89	7.6	4488	8002	6116	1168	89	4018	6824	1641	41
17362	"	16:12	16:39	3.24	3.28	6.6	1535	2486	1435	399	26	1287	2134	531	8
17363	"	17:30	18:31	5.27	5.16	16.8	3481	8002	5983	906	152	3525	7165	1479	54
17364	"	18:32	19:38	4.38	4.23	11.6	3929	8002	4881	1022	118	3819	7151	1628	45
17365	"	19:38	20:39	3.64	3.52	7.1	6052 3577	8002 6252	3655 3655	931	66	3275	5228	1374	22

ON/OFF	N50	MIP	TOF	<L> mb/sec	SLAT Forward INT. LUMI (N.B)	SLAT EXP.	IBMTAE	AT RUN ID MA	START TOF V	T ₂ REG. %	Σ BHAHA	MH	E _{BEAM} eV	Remarks
"	ON	ON	ON	3.39	5.11	926.98	IBM	1.8	0.40	40	59	1	22.100	Beams lost
"	"	"	"	2.44	9.94	936.92	IBM	1.7	0.36	45	94	1	"	"
"	"	"	"	1.99	6.17	943.09	IBM	1.5	0.27	46	61	0	"	Beams dumped
"	"	"	"	2.73	9.34	952.43	"	1.8	0.40	43	116	3	"	Beams lost
"	"	"	"	2.36	8.96	961.39	"	2.1	0.45	42	100	5	"	"
"	"	"	"	2.77	8.11	969.50	"	1.6	0.35	44	90	2	"	"
"	"	"	"	1.63	7.34	976.84	"	1.4	0.28	46	77	2	"	"
"	"	"	"	1.27	1.26	978.10	"	1.2	0.23	47	13	0	"	Beams dumped.
"	"	"	"	2.68	2.56	980.66	"	2.0	0.46	39	25	1	"	Beams lost
"	"	"	"	2.35	8.76	989.42	"	2.0	0.46	41	98	2	"	"
"	"	"	"	2.32	4.04	993.06	"	1.8	0.39	41	50	1	"	Beam lost
"	"	"	"	1.82	10.12	1003.18	"	1.4	0.26	48	110	8	"	"
"	"	"	"	1.40	362	1006.80	"	1.2	0.2	50	43	3	"	"
"	"	"	"	3.41	12.57	1019.37	"	2.0	0.42	42	143	5	"	"
"	"	"	"	2.55	9.95	1029.32	"	1.7	0.33	42	109	2	"	"
"	"	"	"	1.85	8.55	1037.97	"	1.4	0.27	47	96	2	"	"
"	"	"	"	1.76	1.75	1039.52	"	1.2	0.22	52	26	0	"	Beams dumped
"	"	"	"	3.17	12.77	1052.29	"	1.8	0.40	43	160	4	"	"
"	"	"	"	2.43	10.58	1062.87	"	1.6	0.32	45	116	4	"	"
"	"	"	"	1.82	9.05	1071.92	"	1.4	0.25	48	111	4	"	"
"	"	"	"	1.41	1.33	1073.25	"	1.2	0.21	49	16	0	"	Beams dumped
"	"	"	"	2.87	10.83	1084.08	"	1.8	0.42	43	113	4	"	"
"	"	"	"	2.40	5.24	1089.32	"	1.6	0.36	44	55	2	"	"
"	"	"	"	2.93	10.52	1099.94	"	2.0	0.43	42	141	1	"	"
"	"	"	"	2.16	8.69	1108.53	"	1.6	0.34	46	88	1	"	"
"	"	"	"	1.13	0.50	1109.03	"	1.3	0.28	46	4	0	"	"
"	"	"	"	3.11	0.07	1109.10	TAPE F1101	1.8	0.39	23	7	0	"	2 chamber Est.
"	"	"	"	4.06	0.63	1109.73	F1146	1.8	0.38	38	8	0	"	"
"	"	"	"	3.22	3.80	1113.53	IBM	1.8	0.38	35	48	1	"	"
"	"	"	"	3.18	12.07	1125.60	"	1.7	0.33	42 126	4	4	"	"
"	"	"	"	2.18	9.77	1135.37	"	1.6	0.27	45	90	2	"	"
"	"	"	"	1.67	2.56	1137.93	"	1.4	0.22	47	40	1	"	beams dumped
"	"	"	"	3.60	12.53	1150.46	"	2.0	0.44	40	164	3	"	"
"	"	"	"	2.84	11.14	1161.60	"	1.8	0.33	45	113	4	"	"
"	"	"	"	2.16	7.74	1169.34	"	1.5	0.27	46	74	4	"	BEAMS LOST

Forward INT. LUMI (N.B)

15 166 20.7.84

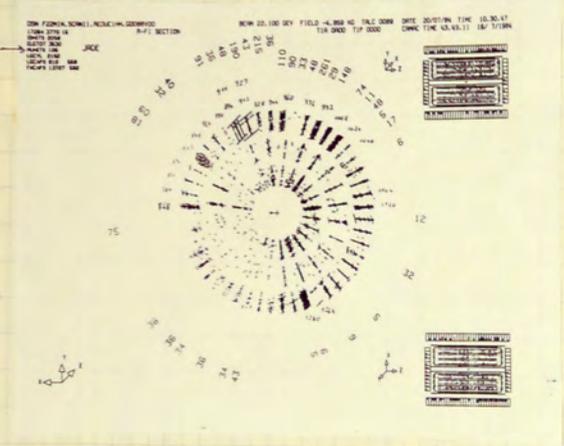
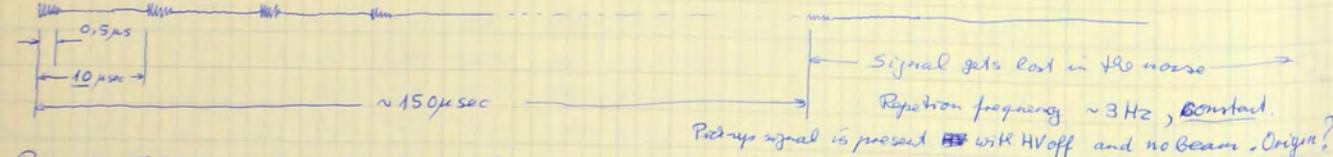
- 15¹⁵ Z chamber test runs to tapes F11101 and F11146
- 13:51 Nord 50 Busy: Abort - N50 and new run started
- 14:20 TDAS error 33 Missing LAM branch 6 crate 4 - ~~two~~ three times.
- 14:40 More missing LAMs from branch 5 crate 3.
- 15:05 PKR will try to locate leak on MONDAY starting at 8AM; this will take "at least 1 Shift"
- 16:00 J. WAGNER & RIESEBERG ON SHIFT

? M?

Note on pick-up events, which were observed frequently in the last days:

- 1) Events look all similar
- 2) Rate is sometimes so high, that one sees the structure in the mean hit per wire histogram, especially the wires # 896, 911, 912, 924, 927 and the regions around wires 1000-1060 and 1280-1330.
- 3) We observed this morning a pick-up signal with the scope (on the V34 analog out) for nearly all wires, but highest for the edge wires eg. 911, 912.

Amplitude 3mV peak to peak, ~15MHz



16:39 Run # 17362 ended for beam dumps. Luminosity was still 1.7×10^{30} at the end.

17:30 New fill ready $I^+ = 5.3$, $I^- = 5.2$
 Start Run # 17363, YPARA 8: PED CRT3 CH19 05 > 500
 IBM ONLINE - JOB ERROR CHECK 4 → bad buffer length

20:40 Stop for refill
 We have had several Missing Lam Errors in B5C3 and B6C4.
 Run Kodhils LAMTEST program → no error

Forward INT. LUMI (I/NB)

still 20.7.84

- 21:22 New fill ready, start run # 17366
- 21:23 TOF-NFR 53, channel 13 HV = 0.349 instead 2.670, Reset via 2DAS Detector control; Reset HV
- 22:14 No triggers: Stop/continue → 02. Then: JDAS Readout error 46 - MP-16 out of sequence: YY=1
- 23:09 Nord 50 crash Memory out of range at 311365 - 311365 / Arithmetic overflow
 last address 164354
 ... see printout on systemic console ...
 Abort N50 and start new run (# 17368)
- 23:16 Muon crate 3 missing, reset → 02 and Trigger 3 input missing ST21 GP4
- 23:25 Beams lost.
- 23:53 New filling, start R 17369

21.7.84

0:00 MATSUMURA, KAWAMOTO

0:24 ID tripped
 0:50 "No trigger" May be trig box hang up. Record in ~8000 ev. → STOP Run. New Run (R17370) started normally.

2:00 Missing LAM branch 5 crate 3: ID Ring 1

4:13	"	"	6	4	"	3
4:37	"	"	6	4	"	"
5:18	"	"	6	4	"	"

DL8 #1360 replaced. now no error Ma

7:00	Missing LAM	Br 2	Crate 3			
		"	5	3	Ring 1	2 times

- 08:00 Coulmizer / Fring
- 08:45 ID-trip; beams lost — magnet problems in PETRA & PIA
- 09:55 Still no beams: Kurze Unterbrechung announced. Run magnet down to 1000 Amps.
- 12:50 "Restart at ~15:00". Magnet (which had walked up to 1300A) reset to 500A.
- 15:00 Injection starts, we run on magnet back to 7500A.
- 15:55 New beams, start new run.
- 16:00 BARLOW & J. WAGNER ON SHIFT
- 16:50 Beams lost. ID Trip.

158 RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME SEC	RECORDS IN	RECORDS OUT	ALL x10 ⁶	T ₀ REJ. x10 ⁶	T ₁ ACC. SUM	T ₂ ACC. SUM	T ₁ BIT ₂ E ₁ >66EY	T ₂ BIT ₁₇ 2T ₀ E ₄ >22TR
				I ⁺	I ⁻										
17366	20-7-84	21:22	22:19	5.15	5.18	12.3	3382	8002	7010	881	108	3599	7041	1450	43
17367	"	22:20	23:08	4.32	4.37	12.1	2855	6079	3696	743	90	2904	5211	1224	35
17368	"	23:11	23:25	3.76	3.81	8.6	848	1670	1005	224	19	811	1447	356	8
17369	"	23:53	0:55	5.09	5.13	14.7	3363	7783	6220	876	129	3258	7490	1416	43
17370	21-7-84	0:56	1:59	4.36	4.40	12.1	3776	8001	4864	983	119	3822	6964	1656	57
17371	"	1:59	2:49	3.66	3.70	7.6	2911	5712	3637	758	57	2774	4553	1143	21
17372	"	3:33	3:49	5.13	5.19	21.2	944	2252	1607	246	52	867	1949	351	15
17373	"	3:51	4:45	4.87	4.94	18.5	3220	8002	5837	838	155	3151	6690	1291	37
17374	"	4:46	5:22	4.16	4.22	12.8	2110	4913	3374	549	70	2097	3920	888	21
17375	"	5:50	6:52	5.10	5.20	24.9	3684	8002	4936	958	233	3262	7626	1370	53
17376	"	6:53	7:57	4.27	4.36	12.6	3870	8002	4846	1007	127	3743	7128	1599	44
17377	"	07:58	08:45	3.58	3.67	7.5	2806	5082	3204	730	55	2637	4242	715	22
17378	"	15:52	16:57	4.01	3.28	6.3	3521	5345	3242	916	58	2468	4873	933	259
17379	"	17:41	17:47	4.60	4.57	11.2	282	598	396	73	8	262	488	107	5
17380	"	17:44	18:59	4.47	4.46	10.1	4128	8002	4742	1075	108	3615	7261	1405	48
17381	"	18:59	19:00	3.71	3.72	8.3	334	650	378	87	7	307	519	123	2
17382	"	19:37	20:43	5.03	4.83	15.7	3764	8002	4883	979	154	3486	7349	1397	47
17383	"	20:43	21:55	4.17	4.16	8.7	4291	8002	4878	1117	98	3845	7078	1632	42
17384	"	21:55	22:23	3.45	3.31	6.4	1609	2662	1545	49	27	1390	289	562	3
17385	"	23:20	0:22	5.18	5.21	28.7	3657	8002	5743	952	273	3768	7683	7326	47
17386	22-7-84	0:22	1:29	4.33	4.37	15.5	3843	8002	4672	1000	155	3477	7480	7510	49
17387	"	1:29	2:06	3.61	3.65	9.5	2766	4708	2298	563	54	1936	3603	858	15
17388	"	2:35	3:38	5.24	5.34	31.5	3719	8001	5785	967	304	3766	7795	7388	54
17389	"	3:38	4:42	4.35	4.44	17.9	3783	8002	4755	983	176	3507	7238	7543	40
17390	"	4:42	5:27	3.65	3.74	8.2	2644	5024	2793	688	56	2444	4311	7067	23
17391	"	6:51	7:56	5.18	5.17	30.5	3891	8002	4828	1012	309	3007	8077	7288	48
17392	"	7:57	8:59	4.39	4.38	16.5	3698	7794	4526	961	159	3305	7260	1392	46
17393	"	09:34	09:51	5.23	5.17	37.3	599	1249	779	156	58	421	1269	169	4
17394	"	10:38	11:40	5.16	5.22	22.7	3673	7932	4959	955	217	3255	7685	7368	45
17395	"	11:42	12:48	4.32	4.37	11.6	3920	8002	4844	1019	118	3637	7342	7572	50
17396	"	12:50	14:03	3.62	3.67	6.8	4352	7252	4145	1131	77	3656	6411	7518	39
17397	"	14:31	15:36	5.24	5.18	20.3	3742	8002	5805	972	197	3397	7316	7425	38
17398	"	15:37	16:48	3.67	3.96	8.7	4227	8001	4461	1099	95	3782	6909	7588	39
17399	"	17:01	17:04	2.98	3.24	5.9	113	234	132	31	2	112	151	38	1

ON/OFF			<L>	∫Ldt	∫Ldt	IBM	AT RUN START		T ₂ REJ.	Σ	MH	E BEAM	REMARKS
NSO	MIP	TOF	mb/sec	FORWARD INT. LUMI.	EXP	TAPE	ID #A	TOF V	FRACT.	BHABHA	GeV		
ON	ON	ON	3.87	13.09	1182.43	IBM	2.1	0.45	40	133	6	22.100	
"	"	"	2.86	8.17	1190.60	"	1.8	0.35	42	75	2	"	ended by NSO crash
"	"	"	2.51	2.13	1192.73	"	1.6	0.29	45	33	0	"	beams lost
"	"	"	2.32	7.81	1200.54	"	1.9	0.5	42	84	1	"	
"	"	"	2.65	10.00	1210.54	"	1.8	0.36	43	108	4	"	
"	"	"	2.17	6.31	1216.85	"	1.6	0.29	39	62	0	"	Beams dumped
"	"	"	3.66	3.46	1220.31	"	2.0	0.45	32	31	0	"	NSO down
"	"	"	3.01	9.68	1229.99	"	2.0	0.42	31	122	3	"	
"	"	"	2.44	5.20	1235.19	"	1.8	0.36	31	51	5	"	Beam lost
"	"	"	2.67	9.85	1245.03	"	2.0	0.45	40	104	2	"	
"	"	"	2.46	9.53	1254.56	"	1.9	0.35	43	128	1	"	
"	"	"	1.80	5.05	1259.61	"	1.6	0.29	46	62	2	"	beams lost
"	"	"	2.32	8.76	1267.77	"	1.6	0.26	44	96	3	"	Beams lost
"	"	"	3.77	1.06	1268.83	"	1.9	0.35	37	16	0	"	NSO crash
"	"	"	3.07	12.68	1281.51	"	2.0	0.33	42	158	2	"	
"	"	"	2.61	0.87	1282.38	"	1.8	0.28	39	6	1	"	BEAMS LOST
"	"	"	3.31	12.46	1294.84	"	2.0	0.4	41	142	1	"	
"	"	"	2.54	10.92	1305.76	"	1.7	0.31	44	112	8	"	
"	"	"	1.96	3.16	1308.92	"	1.4	0.25	45	41	0	"	Beams Dumped
"	"	"	2.96	70.82	1319.74	"	2.1	0.46	39	123	0	"	
"	"	"	2.41	9.26	1329.00	"	1.9	0.38	42	94	4	"	
"	"	"	1.96	4.24	1333.24	"	1.8	0.32	43	63	1	"	
"	"	"	2.74	10.18	1343.46	IBM	2.35	0.5	41	721	3	"	
"	"	"	2.29	8.68	1352.14	"	1.95	0.4	47	95	4	"	
"	"	"	1.87	4.95	1357.09	"	1.7	0.33	43	51	0	"	
"	"	"	2.23	8.66	1365.75	"	2.3	0.49	40	706	3	"	
"	"	"	2.10	7.77	1373.52	"	2.0	0.38	41	98	0	"	I ⁺ beam lost
"	"	"	2.70	1.62	1375.14	"	2.3	0.48	38	11	0	"	Beams lost
"	"	"	3.12	11.45	1386.54	"	2.6	0.48	41	130	3	"	NSO crash
"	"	"	2.42	9.49	1396.04	"	1.6	0.33	43	112	1	"	
"	"	"	1.86	8.11	1404.15	"	1.5	0.26	47	88	1	"	beams dumped
"	"	"	2.65	9.91	1414.06	"	2.1	0.45	40	112	4	"	
"	"	"	2.00	8.44	1422.50	"	1.9	0.31	56	85	6	"	
"	"	"	1.55	0.18	1422.68	"			32	3	0	"	Beams dumped

Forward INT. LUMI (1/NB)

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^4$	T ₁ ACC. SUM	T ₁ RESUM E ₁ > 2000V	T ₁ 212 E ₁ > 600V	T ₂ 117
				I ⁺	I ⁻										

Forward INT. LUMI (N/B)

15 172 23.7.84

16⁰⁰ Mashimo + Komamiya

Magnet has 'sleepwalked' from 500A to ~1236A several times today

The PATRCH RIAR2 ID hit limit has been reduced from 400 to 350 hits to see if the deadline at start of fill can be lowered. This commences with run #17419

19⁰⁰ "restart 23⁰⁰" on t.v.

19³⁸ NORD10 was found to hang up at level 14. no error message on printer

21⁰⁰ Beams are ready

24.7.84

0⁰⁰ T. Kawamoto and H. Rieseberg on shift

Smooth running at $E_b = 22.16$ eV, rather low dead time ~15% at $I^\pm = 4.8$ mA, good luminosity ~3.5 $\mu\text{b}^{-1}/\text{sec}$

2²⁴ End run # 17423 for refill. $L = 1.7$ at the end.

2⁵⁰ Beams are ready. 25 min only!

Run 17424 started

4³⁶ YSPY Error: Trigger 3 input missing St28 Gp 4. Y1 used to be Gp 5!

4⁵⁴ Nord crash \rightarrow Abort-N50 (see printout on error)

Note: Magnet current is all the time rather high 7524-7528 Amperes

5⁵⁵ Stop run 17427 for refill

6²⁵ New beams are ready

Start of run # 17428

6⁴⁰ Now background worse: TOF rate ≈ 0.6 V, $\langle \text{ID current} \rangle = 3 \mu\text{A}$.

Then problems with IBN busy

7¹⁰ Background still bad, frequent soft ID trips by $\langle \text{ID anode current} \rangle$. We complain at PKR

7¹⁵ We have to pause the run, since chamber current is too high. PKR tries again to improve

7⁵⁰ "Boulder failure" reduces our chamber anode current from 3 to 2 μA . TOF rate not affected.

24.7.84

8⁰⁰ Barkl & Warming

8¹⁰ magnet had walked up to 7534 A, reset ok.

9¹⁵ TOF HV channel 13 0.23V reset by hand at the power supply

13⁰⁰ N50 hang up about N50 ok again

Std. histograms: average # of upward hits in ID ≈ 300 that is more than we had previously at the same energy. This is a question of beam steering. Background conditions and specific runs are ok so we did not ask for steering. There is also no demand signal to optimize.

14⁰⁰ The HV read errors on power supply #15 are spurious and do not affect the performance of the LG-system. Takahata did an independent check this morning. He was not worried about the error message so we don't care any more. Branch 5 crate 3 (ID ring 1) read out is also a little bit shaky from time to time (1/hour) we get a missing LAN message

14³⁰ IBN break down according to IBN-operator it will be up soon again

14³⁵ IBN link ok again

16⁰⁰ New run started for our successors on shift.

16⁰⁰ Greenshaw, Felst on shift

deadline at beginning of run rather high $> 30\%$

16¹³ soft ID trip

16³⁰ dead time still $> 30\%$ asked for optimization (PKR- limits to only receive TOF-rate)

16³⁵ dead time now $\approx 20\%$, specific limits of TOF not significantly different (maybe somewhat larger)

18¹⁰ MTR 53 channel 13 0.266 instead of 2.67 eV, reset

18¹⁷ notice that TOF rate meter is "0", stops run, can't find expert,

HV seems to be o.k.

18³⁰ ID trip

18³² ~~in~~ start new run, TOF rate meter still "0", TOF histograms look reasonable

look further for expert

18⁴⁰ TOF rate meter reading OK, Tim Greenshaw came from dinner and checked it

22⁰² "Further run time error" messages appear on system console. I had just asked to view the R plot NI/NBla, any possible correlation? Run continues apparently unaffected.

25.7.84 0⁰⁰ Becker + Ball

1¹⁴ Run 17443 started.

174 RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (Sec)	RECORDS IN	RECORDS OUT	ALL *10 ⁶	T ₁ REF. *10 ⁶	T ₁ ACC. SUM	T ₂ ACC. SUM	T ₁ BIT 2 E ₁ >6GeV	T ₂ BIT 17 2T·E ₁ ≥ 2TR
				I ⁺	I ⁻										
17400	22.7.84	17:49	18:57	5.12	5.13	37.6	4017	8002	4801	1045	393	2916	8819	1225	53
17401	"	18:57	19:01	4.20	4.21	22.4	181	426	260	47	11	166	418	76	1
17402	"	19:32	20:20	5.22	5.26	43.1	2801	5602	3492	729	314	2042	5641	907	22
17403	"	20:59	21:25	5.24	5.31	50.8	1539	2941	1789	401	203	950	3571	406	19
17404	"	22:02	22:12	5.44	5.42	55.5	514	1024	615	134	75	298	1091	129	6
17405	"	22:13	22:22	5.26	5.23	58.9	489	937	594	127	75	280	1061	114	3
17407	"	22:29	22:34	5.00	4.98	54.6	261	557	360	68	37	169	577	82	5
17408	"	22:37	23:46	4.86	4.85	42.0	4092	8002	4779	1065	448	2828	8371	1279	36
17409	23.7.84	0:19	1:03	3.63	3.63	10.8	2562	5067	2721	667	72	2181	4520	826	427
17410	"	1:30	2:41	5.27	5.20	39.2	3803	8002	4652	1016	347	2881	7884	1217	55
17411	"	2:42	3:03	4.30	4.21	23.0	1133	3428	1828	425	88	1386	3247	608	12
17413	"	3:22	4:31	3.85	3.77	10.7	4108	8001	4303	1068	114	3563	7126	1485	35
17414	"	4:31	4:42	3.24	3.18	7.2	637	1168	587	166	12	524	1014	234	4
17415	"	5:08	6:16	5.25	5.29	32.3	3866	8000	4815	1006	325	3013	8021	1265	45
17416	"	6:16	6:28	4.32	4.36	28.2	1288	1356	752	168	47	492	1328	190	5
17417	"	6:29	7:35	4.18	4.22	14.7	3904	8001	4383	1016	150	3452	7292	1506	36
17418	"	7:35	7:44	3.52	3.56	8.6	439	887	484	114	10	316	763	168	6
17419	"	21:18	21:55	4.38	4.53	9.3	2188	4367	3243	569	53	1913	4108	745	19
17420	"	21:56	23:01	3.98	4.13	7.8	3920	7052	4447	7020	80	3228	6452	7266	34
17421	"	23:37	0:42	5.02	4.96	13.6	3701	8002	5361	962	130	3423	7414	1351	66
17422	24.7.84	0:43	1:49	4.21	4.17	9.4	3975	8002	4925	1034	97	3603	7139	1488	50
17423	"	1:50	2:23	3.57	3.54	7.3	1988	3635	2102	517	38	1699	3170	695	17
17424	"	2:53	3:51	5.17	5.15	22.6	3467	8001	6073	902	204	3013	8352	1261	46
17425	"	3:52	4:54	4.34	4.35	19.1	3734	8002	4855	972	186	3149	7797	1284	32
17426	"	4:54	4:57	3.67	3.69	15.0	146	384	236	38	6	155	288	54	1
17427	"	5:00	5:55	3.62	3.64	11.1	3282	6555	3701	854	95	2736	6184	1186	39
17428	"	6:30	8:11	5.15	5.00	24.7	3661	8001	6230	952	235	2925	11093	1306	39
17429	"	8:12	9:21	3.80	3.71	9.8	4156	8001	4815	1082	106	3622	7269	1592	58
17430	"	9:21	10:29	3.21	3.17	6.4	4008	6459	3876	1043	66	3216	5619	1501	47
17431	"	11:12	12:17	4.77	4.95	22.4	3618	8002	5207	949	213	3297	8237	1419	56
17432	"	12:33	13:07	3.85	4.02	12.1	2009	4255	2557	522	63	1841	3785	804	17
17433	"	13:10	14:22	3.52	3.68	8.3	4322	8001	4640	1125	93	3787	6812	1610	45
17434	"	14:23	14:42	2.98	3.14	11.0	489	826	475	127	14	402	641	150	3
17435	"	16:01	17:04	5.25	5.31	30.0	3028	8001	5273	944	284	3191	7708	1429	68
17436	"	17:03	18:00	4.37	4.14	13.1	3813	8002	4941	991	120	3492	7417	1448	40

ON / OFF			<L>	√Ldt Forward	√Ldt Exp.	IBM/TAPE	AT RUN START		T ₂ REF. FRACT.	Σ BHABHA	MH	E _{BEAM}	REMARKS
NSD	HIP	TOF					ID (μA)	TOF (V)					
ON	ON	ON	2.33	9.36	1432.04	IBM	2.8	0.5	45	95	4	22,100	
"	"	"	2.24	0.41	1432.45	"	2.6	0.4	44	4	1	"	Beam lost
"	"	"	2.38	6.65	1439.10	"	2.6	0.52	40	51	3	"	Beams lost
"	"	"	2.02	3.11	1442.21	"	2.7	0.55	46	42	2	"	Beams lost
"	"	"	1.92	0.99	1443.20	"	2.6	0.55	37	16	0	"	
"	"	"	1.97	0.96	1444.16	"	2.8	0.55	41	10	0	"	← R17406 lost (No data)
"	"	"	1.59	0.41	1444.57	"	2.7	0.50	38	5	0	"	
"	"	"	1.97	8.04	1452.61	"	2.7	0.5	40	108	4	"	
"	"	"	1.82	4.81	1457.52	"	2.1	0.3	39	54	2	"	beams dumped.
"	"	"	2.40	8.37	1466.89	"	2.2	0.5	40	105	2	"	
"	"	"	2.07	3.37	1469.26	"	2.2	0.4	40	48	0	"	← Run 17412 lost (No data)
"	"	"	1.84	7.54	1476.80	"	2.2	0.35	41	89	1	"	
"	"	"	1.25	0.80	1477.60	"	1.8	0.26	41	8	1	"	beams dumped.
"	"	"	2.38	9.19	1486.79	"	2.6	0.5	40	102	1	"	
"	"	"	1.80	1.16	1487.95	"	2.4	0.4	38	12	0	"	ABORT-NSD
"	"	"	1.88	7.33	1495.28	"	2.2	0.35	34	84	0	"	
"	"	"	1.50	0.66	1495.94	"	2.2	0.3	37	12	0	"	beams dumped.
"	"	"	3.39	7.41	1503.35	"	2.0	0.4	43	81	3	"	
"	"	"	2.55	70.00	1513.35	"	1.85	0.3	43	108	1	"	beams dumped
"	"	"	3.52	13.03	1526.38	"	2.0	0.41	41	141	3	"	
"	"	"	2.51	9.97	1536.35	"	1.9	0.35	41	116	4	"	
"	"	"	2.11	4.19	1540.54	"	1.8	0.29	42	45	1	"	beams dumped
"	"	"	3.03	10.51	1551.05	"	2.8	0.50	43	108	5	"	
"	"	"	2.30	8.59	1559.64	"	2.3	0.43	40	95	3	"	
"	"	"	2.25	0.33	1559.97	"	2.2	0.37	28	6	0	"	Ended by Nord 50 crash
"	"	"	1.88	6.15	1566.12	"	2.2	0.35	41	78	2	"	beams dumped
"	"	"	2.22	8.14	1574.26	"	2.5	0.54	56	103	1	"	
"	"	"	1.68	7.00	1581.26	"	1.8	0.56	43	72	4	"	
"	"	"	1.28	5.14	1586.40	"	1.4	0.38	46	52	1	"	beams dumped
"	"	"	2.80	10.20	1596.60	"	2.8	0.56	45	112	2	"	
"	"	"	2.22	4.46	1601.06	"	2.4	0.44	39	56	2	"	
"	"	"	1.88	8.11	1609.17	"	2.0	0.35	41	80	2	"	
"	"	"	1.38	0.68	1609.85	"	1.8	0.30	39	4	1	"	beam lost
"	"	"	2.91	10.55	1620.30	"	2.5	0.55	40	118	2	"	
"	"	"	2.47	9.43	1629.73	"	1.9	0.40	42	112	1	"	

Forward INT. LUMI (1/NB)

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (sec)	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₀ REJ $\times 10^6$	T ₁ ACC SUM	T ₂ ACC SUM	T ₁ bit 2 E ₁ > 6 GeV	T ₂ bit 13 2T ₁ E ₂ > 2.7T ₁
				I ⁺	I ⁻										
176															
17437	24-7-84	18 ⁰³	18 ¹⁷	3.68	3.74	8.1	487	571	540	127	10	419	874	167	7
17438	"	18 ²²	19 ¹³	3.47	3.55	7.4	3588	6277	3658	933	68.7	3208	5299	7353	71
17439	"	20 ²⁹	21 ²³	5.57	5.52	27.5	3483	8007	5718	906	249	3289	7584	7380	41
17440	"	21 ²⁴	22 ²²	4.70	4.66	16.7	3501	8002	5871	910	152	3457	7500	1493	56
17441	"	22 ²²	23 ²⁷	4.0	3.9	9.0	3822	7643	4746	994	84.5	3678	6767	7554	374 42
17442	25-7-84	0:12	1:15	5.77	5.67	44.4%	3773	8002	5530	981	435	2813	10259	1173	42
17443	"	1:14	2:20	4.79	4.71	31.5	3698	8002	5146	962	304	3080	8270	1301	42
17444	"	2:19	3:22	4.02	3.95	11.2	3729	8002	6193	971	109	3347	7471	1406	40
17445	"	3:23	3:34	8.45	8.39	7.8	621	1170	657	162	12.6	523	1054	227	6
17446	"	4:32	5:24	5.03	5.19	18.6	2937	7434	6722	765	142	2700	9109	1113	40
17447	"	5:26	6:30	4.39	4.55	25.1	3694	8001	4958	962	242	3105	8868	1244	46
17448	"	6:31	6:41	3.72	3.88	17.9	571	1219	716	149	26.6	405	1204	195	1
17449	"	06:53	08:02	3.53	3.68	10.3	4733	8002	4481	1075	110	3348	7455	1344	52
17450	"	08:03	08:04	3.03	3.17	6.7	29	68	43	7	1	25	44	11	0
17452	Each test beam as missing	10:51		5.23	5.50			779	540	No Run Summary				No Run Summary	
17453		11:02		5.06	5.30			391	257	No Run Summary				No Run Summary	
17455	"	11:53	12:13	4.45	4.67	27.4	1144	2457	1585	298	88	907	2807	385	14
17456	"	12:44	13:32	3.72	4.14	72.4	2831	6307	5075	736	91	2500	6229	1032	37
17457	"	13:48	14:01	2.49	3.50	3.2	732	1300	799	197	74	590	1087	230	9
17458	"	14:29	15:03	5.66	5.68	30.9	1762	4396	4017	458	142	1588	5325	610	26
17459	25-7-84	18:17	19:15	4.82	5.01	18.7	3389	8002	6486	881	165	3171	7819	733	50
17460	"	19:15	20:17	4.15	4.33	11.4	3695	8002	5640	961	100	3398	7224	1430	23
17461	"	20:18	20:38	3.59	3.76	8.2	1167	2349	1564	303	25	1050	1977	421	9
17462	"	21:48	22:54	5.79	5.25	37.1	3201	8002	7213	832	308	2981	8612	1198	26
17463	"	22:55	23:28	4.84	4.34	19.5	1952	5038	4081	508	99	2130	4665	882	16
17464	26-7-84	2:28	3:10	5.62	5.70	21.4	3147	8002	6705	814	176	3449	7537	1277	52
17465	"	3:20	4:13	4.86	4.94	16.6	3134	8002	7026	815	135	3532	7225	1385	50
17466	"	4:13	4:26	4.23	4.31	11.9	1146	1076	751	116	14	505	859	195	6
17467	"	5:11	5:35	5.67	5.74	22.8	1185	3192	2606	308	70	1337	2932	498	12
17468	"	6:41	7:35	5.70	5.81	32.8	3086	8002	6861	802	262	3272	7825	1312	53
17469	"	07 ³⁰	08 ¹³	4.88	4.86	24.6	2192	5689	4433	570	140	2470	5107	1040	29
17470	"	10 ⁵²	10 ²¹	5.72	5.88	26.9	530	1369	1275	138	37	582	1868	207	10
17471	"	11 ⁵⁶	12 ⁵⁵	5.78	5.87	30.4	3340	8001	5958	869	264	3270	9420	1164	47
17472	"	12 ⁵⁵	13 ⁵⁹	4.92	5.01	31.6	3621	8002	6073	942	298	3245	8494	1302	46
17474	"	14 ⁰¹	14 ²⁵	3.22	3.51	6.6	1006	1706	983	262	17	846	1432	351	0

On/off			<L>	JLdt Forward int Lumi (nb ⁻¹)	JLdt Expt.	ISM/Tope	At run start		T ₁ rej Fract.	Σ Bhabha	MH	E _{beam}	Remarks
NSO	MCP	TOF					ID (pA)	TOF (V)					
ON	ON	OFF	2.74	7.05	1630.77	507	1.5	0.3	44	75	0	2.2.700	
ON	ON	ON	1.71	6.74	7636.91	"	1.4	0.28	45	77	3	Beams dumped	
"	"	"	3.35	11.66	7648.57	"	2.6	0.66	40	127	1	"	
"	"	"	2.74	9.58	1658.15	"	2.2	0.50	42	123	6	"	
"	"	"	2.21	8.44	7666.59	"	1.8	0.44	44	100	1	Beams lost	
"	"	"	2.61	9.84	1676.43	"	3.0	0.7	51	126	3	"	
"	"	"	2.23	8.25	1684.68	"	2.6	0.6	43	79	2	"	
"	"	"	2.15	8.00	1692.68	"	2.4	0.4	41	91	1	"	
"	"	"	1.69	1.05	1693.73	"	2.0	0.35	42	11	0	Beams dumped	
"	"	"	3.03	8.91	1702.64	"	2.8	0.6	50	86	2	NSO busy	
"	"	"	2.20	8.13	1710.77	"	2.7	0.5	47	78	1	"	
"	"	"	1.86	1.06	1711.83	"	2.5	0.4	43	15	0	"	
"	"	"	1.62	6.71	1718.54	"	2.3	0.4	41	84	2	"	
"	"	"	1.32	0.04	1718.58	"	2.0	0.4	36	1	0	Beams dumped	
"	"	"	3.65	1.23		Tape Fill 114	2.8	0.55				Z-chamber readout E-entend wrong @ run start	
"	"	"	4.13	0.61		Tape Fill 130	2.7	0.5				Z-ch readout PECA link down - info entered manually	
"	"	"	2.59	2.96	1721.54	Tape Fill 138	"	"	47	32	0	After rebuild. NO Z-CH. Stopped for ZST test	
"	"	"	2.16	6.73	1727.67	F11 174	2.7	0.4	42	76	0	Z-ch test again	
"	"	"	1.28	0.93	1728.00	F11 180	2.0	0.4	39	73	1	Beams dumped	
"	"	"	3.41	6.07	1734.67	F11 197	2.8	0.55	50	65	1	Beams dumped, short beam	
"	"	"	3.03	10.27	1744.88	IBT	2.4	0.5	41	141	4	"	
"	"	"	2.73	8.74	1753.12	"	2.3	0.4	33	100	0	"	
"	"	"	1.94	2.26	1755.38	"	2.0	0.35	38	26	0	Beams dumped	
"	"	"	2.96	9.47	1764.85	"	2.8	0.54	44	112	4	"	
"	"	"	3.03	5.91	1770.76	"	2.5	0.44	40	63	2	beam lost	
"	"	"	3.86	12.22	1782.98	"	2.4	0.51	42	130	8	"	
"	"	"	3.25	10.18	1793.16	"	2.3	0.42	41	119	4	"	
"	"	"	2.58	1.15	1794.31	"	2.1	0.36	38	6	1	beams lost	
"	"	"	4.47	5.29	1799.60	"	2.2	0.52	40	48	0	beams lost	
"	"	"	3.09	11.39	1810.99	"	2.5	0.60	42	118	8	"	
"	"	"	3.27	7.03	1818.02	"	2.4	0.58	40	68	2	BEAMS LOST	
"	"	"	4.88	2.43	1820.45	"	3.0	0.6	60	29	2	BEAMS LOST	
"	"	"	3.82	12.76	1833.21	"	3.0	0.5	52	140	3	"	
"	"	"	2.68	9.72	1842.83	"	2.8	0.45	46	111	4	"	
"	"	"	1.80	1.81	1844.64	"	1.8	0.28	43	20	0	BEAMS DUMPED	

Forward INT. LUMI (1/NB)

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ REJ $\times 10^4$	T ₁ ACC SUM	T ₁ RESUM E, > 666V	T ₁ RTZ E, > 666V	T ₂ RTZ
				I ⁺	I ⁻										

Forward INT. LUMI (1/NB)

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- 1:27 IR slow trip
Occasional readout error 33 messages: missing KAM BR5 CR3: ID RING 1.
- 3:00 If beam currents are high, we get very high deadtime at start of fill. Decide to keep this fill for another 1/2 hour.
- 3:16 All expts agree to new fill at 3:30.
- 3:30 Beams dumped.
- 4:25 New fill ready. Start on 17446.
- 4:46 I.D. slow trip
- 5:01 HV read error: Mainframe 15 - LG/BP system HV control: no response
- 5:24 N-50 crashed. Abort + restart.
- 5:35 I.D. slow trip.
- 6:37 N-50 latch job aborted, bad magnet structure.
I.D. fast trip, anode current remains off scale! Looks like a standard anode current trip. Sun enough, the meter falls to zero on resetting.
but Internal device for N50 latch occupied
N50 cannot be started - on trying to start run. ABORT-N50 no effect. Reload NORD.
- 7:45 All experiments agree to new fill ~ 08:00.
- 08:00 Warning / Fringe
- 08:08 'short break'; problem with absorber at north side
- 08:35 call from PKR; absorber has to be changed \Rightarrow short break for 1-2 hours
- 9:15 magnet sleepwalked to 1200 Amps, reset OK
- 10:35 new fill ready, but link to IBM is down due to F58 activities
at present we can't get hold of anybody, so we will write onto tape
- 11:15 Computer dead, NRO is continually banging on level 14, reason unknown
HEM: the steam hammer nextdoor is suspected to have shaken it to pieces.
- SINTRAN (HENT) & JDAS completely rebuilt. \Rightarrow Rest in pieces!
- Runs 17451 & 17454 discarded.
- 13:35 position beam partially lost because of faulty absorber; probably it has to be changed again, so we don't request for a new fill until PKR has found a decision
- 14:00 beams dumped; PKR will provide a new fill until ~ 15:00 then they will dump the beams and install another type of absorber. That will take a short break of ~ 2 hours so Restart could be ~ 17:00. During short break Herr Schütz from F58 will check our Interface to IBM.

According to Mr. Matsumura this is normal: If the Anode Current Scanner stops, the DAC remains on the data just received before (this means the two converted meters get stuck on a high value) till new data is sent from the scanner
Reg

25.7.84

179

In an effort to reduce dead time at start of killing, the PATRCH is RIARZ cutoff has been reduced from 350 to 250 hits. This of course means fewer T2 events will be rejected. HEM (start run 17456)

Due to the high number of synchrotron radiation hits in this run (17458) ~ 350 at start of fill, the PATRCH is not performed much (only 10 events rejected, in 2500!) and still DT is above 25%. The problem is that there is a high raw trigger rate of over 5 Hz - and we require ≤ 3 Hz for good running.

15:00 Break for PETRA work. F58 start to test our link/PADAC

16:00 Davis, Narshen

18:20 Petra came back on around 17:15.

Herr Schulz and Herr Reiblich kindly took apart the whole PADAC and half the NORD 10. Finally the problem was found. One card was broken in the Nord. We got it from the second Nord. Now we are running again.

22:00 New filling $I_+ = 4.7$ mA, $I_- = 5.3$ mA
Dead time ~ 50%, oscillating from 10-70%.

Asked for optimization. They tried all kinds of bumps, α -value adjustments, scrapers etc. All that didn't help very much. He will now first try to optimize the specific luminosity.

22:20 dead time still ~ 40%
It is still reproducible: Switching off Z-Vertex analysis in this state of bad bad ground immediately brings down deadtime to ~ 15% stable. But I leave Z-Vertex on.

Average # of synrad hits still 300 like before.

Take out collinear TBC without veto for test, does n't help much.

23:05 John Nuge has decreased tagging thresholds this afternoon. It's clearly visible on spectrum and trigger rate. I wonder whether this was wise?

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^4$	T ₂ ACC. SUM	T ₁ RESUM E>GGEV	T ₂ IT 2 E>GGEV	T ₂ IT 12
				I ⁺	I ⁻										

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23 30 beams lost: all magnet currents (Petra, Doris, Pia) to 0.

26.7.84 Spitzer + Schneekloth

2 22 fill ready, start run 17464
 4 17 soft id trip
 4 30 beams lost
 5 06 new fill, start run 17467
 5 15 ID trip
 6 40 ID trip

08 00 MATSUMURA & HEDGECOCK

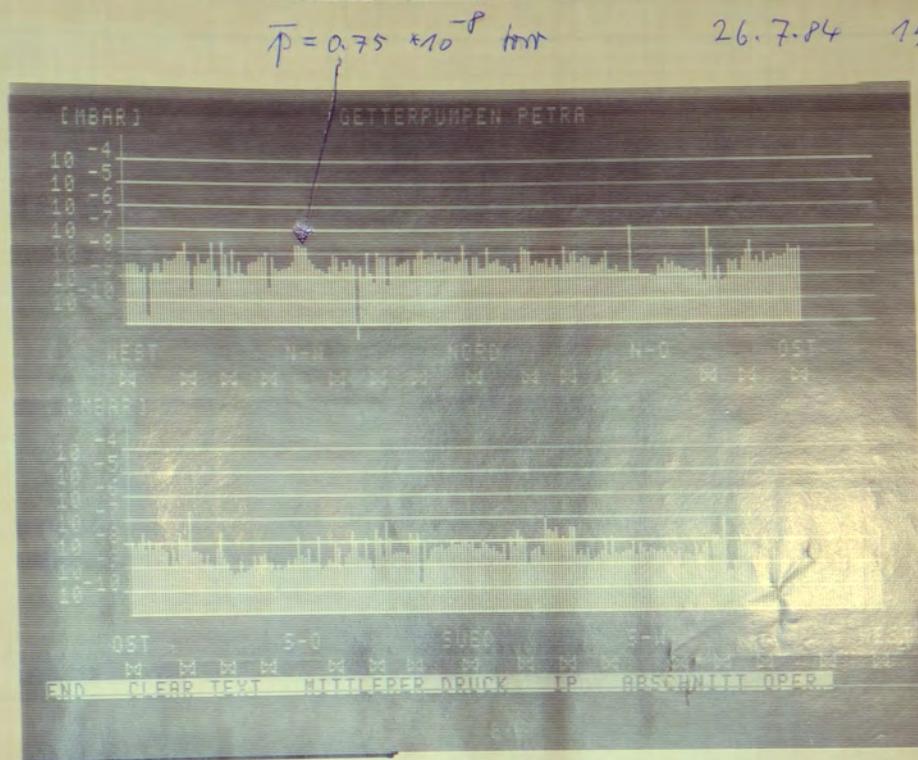
08 30 "Short break" appears on screen. Problem with PETRA magnet P/sucess. Restart at around 09 15 hrs ?? Magnet down to 1000A.
 10 30 Same procedure as above.
 12 07 ID soft trip
 13 07 ID Trip
 14 04 ID TRIP (SOFT) HADON CLATE 8 MISSING SEVERAL TIMES.
 15 20 ID TRIP (SOFT) IS 37 DITTO.

16 00 Becker + Hill

16 30 ISPY error: TOF TDC no hits: 60
 16 40 " " " " " " 70
 17 40 following the result of discussion in the FADE-meeting, N-50 z-vertex analysis is switched off R-FEST
 18 22 New fill
 18 30 ID trip - high background - PAUSE
 18 40 ID HV goes do (high current) call to Hellenbrand - Run terminated call to PUR - I.D. current improved -
 19 00 TOF high voltage wrong - reset by ZDAS
 21 00 ISPY error: TOF TDC no hits: 0
 22 40 Soft trip I.D.
 22 52 ID Fast Trip.

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Forward INT. LUMI (1/NB)



27/7/84 0⁰⁰ H. Mills & M. Kuhlen on shift

0⁵⁵ Mark-J ring suggesting a new fill saying luminosity decreased by 1/3rd since start. We see 1/2 effect. From this & beam history I treat their suggestion coolly!
 1³⁰ The bhabha luminosity in the colour TV & run summary programs has now the 1.54 correction factor
 2⁰⁰ New fill ready. TOF rate high ~ .80. Over phone reduced this to ~ .64 by talking with PKR. The SYNRAO hits seem to be around 280. This is better.

RUN DATE START STOP AT RUN START I+ I- DEAD TIME (%) TIME RECORDS IN RECORDS OUT ALL * 10⁶ T₁ RES * 10⁶ T₂ ACC SUM T₁ ACC SUM T₁ BIT 2 E₁ > 6 GeV T₂ BIT 2 T₂ BIT 2

Forward INT. LUMI (1/N.B.)

182 RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME (SEC)	RECORDS IN	RECORDS OUT	ALL * 10 ⁶	T ₁ RES * 10 ⁶	T ₂ ACC SUM	T ₁ ACC SUM	T ₁ BIT 2 E ₁ > 6 GeV	T ₂ BIT 2 2T ₂ BIT 2
				I+	I-										
17475	26-7-84	14 ⁵²	16 ⁰⁰	5.85	5.97	26	3552	8002	5071	924	240	3244	7786	1281	53
17476	"	16 ⁰⁰	17 ⁰⁷	3.21	3.39	6.7	3962	6570	3681	1031	69	3324	5523	1374	30
17477	"	18 ⁵⁸	19 ⁵⁹	4.58	4.39	8.9	3648	8002	4760	949	84	3625	6966	1485	57
17478	"	20 ⁰⁰	21 ¹⁰	3.94	3.77	7.5	4274	8001	4643	1096	87	3844	6664	1647	42
17479	"	21 ⁰⁰	21 ⁵⁰	3.35	3.21	5.9	3623	3621	2244	600	35	1958	2926	805	158
17480	"	22:24	23:14	5.88	5.83	14.3	2664	8002	7160	693	99	3205	8371	1311	51
17481	27-7-84	23:15	00:01	5.01	5.08	16.0	2761	8002	5731	718	114	3273	7870	1422	56
17482	"	0:00	0:58	4.37	4.44	10.9	3365	8001	4724	875	95	3463	7549	1441	52
17483	"	1:01	1:21	3.73	3.90	8.8	1168	2521	1432	304	26	1139	2235	500	12
17484	"	2:10	2:52	5.91	6.14	23.0	2514	8002	5281	653	150	3174	7561	1383	52
17485	"	2:52	3:41	5.13	5.40	15.9	2628	8002	5473	683	108	3463	7572	1635	66
17486	"	3:42	4:42	4.41	4.66	9.7	3305	8002	6545	860	83	3940	7128	1744	53
17487	"	4:46	5:30	3.68	3.61	7.4	2632	5274	3263	685	50	2808	4218	1202	26
17488	"	6:00	6:48	6.08	6.08	24.3	2510	8002	5300	653	158	3054	7995	1305	36
17489	"	6:48	7:10	5.15	5.16	23.2	1092	3455	2797	278	64	1314	3327	560	24
17490	"	7:16	7:37	4.71	4.73	16.2	1022	2987	1917	265	43	1247	2759	546	18
17491	only initialization events						I.D. madone problem								
17492	"	7:40	7:56	4.99	4.46	8.2	3852	7733	4744	1003	83	3577	7111	1441	51
17493	"	16:28	17:17	5.38	5.44	16.1	2894	8002	5322	752	121	3185	8481	1270	47
17494	"	17:17	18:22	4.71	4.78	11.3	3381	8001	5059	880	99	3373	7804	1404	50
17495	"	18:23	19:18	3.61	3.77	7.1	3132	5733	3286	815	58	2820	4782	1134	26
17496	"	19:51	20:00	5.68	5.35	13.6	544	1517	987	142	19	576	1501	228	7
17497	"	20:10	20:55	5.38	5.06	14.0	272	6384	4018	5983	82	2665	6070	1103	37
17498	"	21:02	22:02	4.30	4.19	9.0	3639	8001	4791	947	85	3616	7030	1473	56
17499	"	22:03	22:49	3.67	3.58	6.9	2718	4887	2883	707	49	2454	3949	989	26
17500	27-7-84	23 ²³	00 ¹⁷	5.64	5.83	14	2839	8001	5202	738	103	3381	7624	1322	54
17501	28-7-84	00 ¹⁷	1:19	4.79	4.99	10.8	3267	8002	4861	848	97	3538	7203	1457	48
17502	"	01 ²⁰	02 ⁰¹	3.62	3.92	7.6	4106	8001	4403	1068	81	3858	6726	1560	43
17503	"	03 ⁰¹	03 ⁴⁸	5.43	5.94	15.6	2791	8002	5394	727	113	3120	8409	1317	41
17504	"	03 ⁴⁸	4:37	5.12	5.14	13.2	2894	8001	5078	753	99	3875	7429	1378	43
17505	"	04 ³⁷	05 ³²	4.44	4.46	9.2	2931	6817	4027	762	70	3155	5882	1367	40
17506	"	06 ⁰¹	06:58	5.98	6.07	20.6	2630	8001	5302	684	147	3777	8662	1255	42
17507	"	06:59	07:41	5.10	5.20	17.7	1927	5799	3589	507	85	2351	5436	972	32

ON/OFF			Fwd Int. LUMI (N.B.)	Sldt Exp.	IBM TAFE	AT RUN START		T ₂ Rtg FRACT.	Σ SHASHTA	M14	E BEAM	REMARKS
N50	MIP	TOF				ID [HA]	TOF (V)					
ON	ON	ON	3.06	10.88	1855.52	IBM	2.5	0.56	42	109	3	22.100
"	"	ON	1.82	7.19	1862.71	"	1.7	0.28	44	78	2	beams dumped
"	"	"	"	"	"	"	"	0.6	"	"	"	high I.D. current
"	"	"	3.07	11.19	1873.90	"	2.2	0.4	40	115	6	"
"	"	"	2.13	8.98	1888.88	"	2.0	0.3	47	75	5	"
"	"	"	1.62	3.75	1886.63	"	1.6	0.24	47	49	2	beams dumped
"	"	"	4.35	11.58	1898.21	"	2.6	0.6	45	119	5	"
"	"	"	3.25	9.24	1907.45	"	2.5	0.5	43	101	4	"
"	"	"	2.52	8.47	1915.92	"	2.4	0.45	43/53	95	4	"
"	"	"	2.11	2.46	1918.38	"	2.2	0.38	42/57	27	0	beams dumped
"	"	"	4.20	10.55	1929.93	"	2.2	0.64	39/47	124	4	"
"	"	"	3.50	9.21	1938.14	"	2.1	0.54	42/43	101	6	"
"	"	"	2.99	9.88	1948.02	"	1.6	0.50	46/23	118	8	"
"	"	"	2.31	6.07	1954.09	"	1.4	0.40	46/50	65	4	beams dumped
"	"	"	3.93	9.87	1963.96	"	2.5	0.75	40/46	115	4	"
"	"	"	3.28	3.57	1970.47	"	2.2	0.55	38/49	38	0	no triggers - new run
"	"	"	2.80	2.86	1973.33	"	2.0	0.52	40/48	36	2	beams lost
"	"	"	"	"	"	"	"	"	"	"	"	"
"	"	"	2.58	9.92	1983.25	"	1.8	0.45	44/53	116	1	beams lost
"	"	"	4.33	12.53	1995.78	"	2.8	0.6	45/57	124	6	"
"	"	"	3.18	10.77	2003.55	"	2.7	0.42	43/48	133	6	"
"	"	"	2.28	7.15	2020.70	"	2.4	0.23	41/35	76	5	beams dumped
"	"	"	4.30	2.34	2023.04	"	2.4	0.5	41/49	36	0	problem with MIP-16
"	"	"	3.99	9.08	2032.12	"	2.4	0.45	42/51	83	2	"
"	"	"	2.80	10.17	2042.29	"	2.1	0.4	40/54	125	1	"
"	"	"	2.11	5.73	2048.02	"	1.9	0.3	41/55	71	3	Beams dumped
"	"	"	4.44	12.88	2060.90	"	2.4	0.5	42/49	131	2	"
"	"	"	2.95	9.67	2070.51	"	2.0	0.48	41/50	122	2	"
"	"	"	2.20	9.09	2079.55	"	2.0	0.35	41/60	90	2	BEAMS DUMPED
"	"	"	3.45	9.66	2089.21	"	2.7	0.6	44/44	151	5	"
"	"	"	3.73	40.80	2100.01	"	2.3	0.46	40/50	109	5	"
"	"	"	2.85	8.35	2108.36	"	2.0	0.4	40/54	83	3	BEAMS DUMPED
"	"	"	4.42	11.62	2119.98	"	2.7	0.6	46/45	123	6	"
"	"	"	3.49	6.73	2126.71	"	2.5	0.52	39/50	72	2	Beams lost

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES $\times 10^4$	T ₂ ACC. SUM	T ₁ RESUM E ₁ > 66 GeV	T ₁ INT L E ₁ > 66 GeV	T ₂ INT L
				I ⁺	I ⁻										

11 184 27.7.84

2⁰⁹ we get 2 Missing LAM branch 5 crate 3 - ID Runs"
 1 2⁵⁸ soft ID trip Dead time seems to get worse as run progresses.
 3¹² "
 4⁰⁹ fast ID - trip
 5.13 YSPY: TOF - TDC no hits: 60; 60 is low in the TOF hit map, but TDC and ADC histograms are ok.
 5.21 YSPY: Trigger 1 input missing 37, Trigger 2 output missing 45
 HV MFR53, ch. 13 wrong, reset via detector control
 5.57 new fill ready, fast ID trip soon after run start, run paused and continued after alarm reset and HV up again.
 7.03 soft ID trip
 7.15 no triggers; stop run and start a new one.
 7.21 fast ID trip
 7.32 YSPY: MFR crate missing, reset at MFR crate
 7.38 Beams lost YLIST altered #107
 7.51 Absorber in the "Lindhall" broken, restart 12.00
 08.00 Ball, fudge.
 Magnet → 500A.
 11.35 New fill ready. TOF rate 0.75 fluctuating ± 0.05 . Switch on ID, but soon trips.
 Ask for optimisation.
 11.40 PKR optimise background for JADE with our phone.
 Start run 17492 - string of error 33 missing lam. BRS CE. Try usual procedure for wicket contacts - no effect. ball input. LAM-Test was OK, after switch on-off, DLS out and in.
 13.15 ID-trip; beams lost
 14.00 Short break. Under-overflow.
 16.00 Meinke + Komamiya
 16.20 Beams are ready
 17.20 ID whipped
 17.57 ID soft trip
 18.30 "
 18.45 YSPY DETECTED ERR "TOF TDC NO hits": 35 → stat. s. ?
 19.00 Magnet read error → looks OK
 19.50 New fill ready

Forward INT. LUMI (L/NB)

27.7.84

20 04 ID trip
 20 05 JADAS read-out error - MP-16 analysis incomplete; $YY=1$ / cured by starting new run
 20 39 ID trip
 20 51 ID trip
 20 56 ID trip → TOF rate and 1-D current show both overflows (TOF > 10V)
 21 40 JADAS read out error 33 Missing LAM branch 2 crate 3 TOF1 counters
 22 30 YVOLTS: TOF - MFR: 53 CHAN: 13
 We try to reset the TOF H.V. from JAAS control terminal.
 i.e. (E14) detector control ↓
 (E4) reset HV ↓
 ENTER MAIN FR: 53 ↓
 ENTER CHANNEL: 13 ↓ was tried.
 The answer from the teletype was "invalid main frame or channel given".
 We finally reset the HV system (LeCroy) by hand.
 We called Beate and her answer was "yesterday it was OK".
 23 25 YVOLTS: mainframe 15 no response
 23 50 Magnet read error → looks OK
 23 51 ID trip
 00 00 KAPO & HEDGECOCK NEW DAY? 28/7/84.
 00 00 ID soft trip, sorry HARD TRIP - ANODE CURRENT!! (JED wake up later??)
 0:27 same again
 0:44 ID soft trip
 05 10 ID TRIP. 05²⁷ ditto! 05³³ ditto! 06³³ ditto! 06⁵⁷ ditto!
 7:50 Beams lost (PETRA has a magnet problem) "SHORT BREAK"
 8:00 Hellenbrand + Krumholz
 11:45 All ready, start RUN 17509
 12:30 ID soft trip
 12:45 <LUMI> down to $\sim 1 \times 10^{30}$, phoned PKR to improve LUMI
 LUMI improved to 2.5×10^{30} → background increased drastically
 <ANODE CURRENT> > MAX → ID trip (soft)
 CELL
 not possible to switch on ID again

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL *10 ⁶	T ₁ RES *10 ⁶	T ₁ ACC SUM	T ₁ BIT2 E<666V	T ₁ BIT2 E>666V	T ₁ BIT7
				I ⁺	I ⁻										
17509	287	11:47	13:19	5.48	5.01	12.2	3570	8001	4756	929	113	3005	10209	1275	53
17510	"	13:19	14:25	4.45	4.06	9.2	3770	8001	4667	987	90	3460	7677	7467	40
17511	"	14:25	14:34	3.84	3.49	7.3	509	992	534	134	10	455	814	199	8
17512	"	15:07	15:59	5.79	5.85	23.5	2663	8002	5463	694	163	3025	10533	1204	19
17513	"	16:00	17:00	4.91	4.98	7.7	3371	6146	3609	877	68	2984	5429	1309	32 32
17514	"	18:54	19:42	4.96	5.35	8.9	4095	3095	1876	384	34	1337	2769	531	9
17515	"	19:52	21:08	3.56	4.04	6.9	4364	8001	4599	1135	78	3964	6352	1694	22
17516	"	21:09	21:30	2.80	3.25	5.9	1222	1951	1078	318	19	1005	1495	428	2
17517	"	22:15	22:27	5.98	6.02	18.6	448	1326	898	117	22	541	1585	220	6
17518	297	0:20	1:08	5.36	6.02	20.1	2526	8001	5450	657	132	3275	7709	1463	52
17519	"	1:08	1:57	5.12	5.18	13.2	2902	8002	5251	755	90	3712	7224	1679	56
17520	"	1:57	3:07	4.43	4.49	8.0	3954	8001	5206	1023	82	4186	6774	1864	35
17521	"	3:07	3:58	3.68	3.74	6.7	2967	5270	3207	772	51	3000	4050	1338	30
17522	"	4:27	5:14	5.91	5.96	16.6	2773	8001	5088	722	119	3241	5295	1434	38
17523	"	5:16	6:11	5.07	5.13	12.4	2903	8001	5169	755	94	3544	7019	1565	35
17524	"	6:11	6:16	4.30	4.36	9.7	73	240	136	19	2	106	156	39	0
17525	"	8:38	9:30	5.81	5.87	17.3	2998	8002	5252	780	135	3238	9593	1320	37
17526	"	9:31	9:43	4.88	5.04	14.8	733	1988	1282	191	28	811	2100	358	9
17527	"	10:22	11:30	5.93	5.91	24.8	2562	8001	5471	666	165	3077	9920	1380	37
17528	"	11:30	11:58	4.49	4.46	12.5	1546	4029	2441	402	50	1761	3456	782	22
17529	"	12:30	13:25	5.76	5.78	17.9	2704	8001	5056	704	126	3244	7624	1447	48
17530	"	13:25	14:16	4.83	4.88	13.3	2888	8002	4867	751	100	3497	7135	7637	36
17531	"	14:16	15:18	4.20	4.25	9.2	3526	8002	4654	917	84	3870	6602	1785	46
17532	"	15:18	15:52	3.61	3.67	8.7	2009	3844	2120	521	45	2025	2964	957	12
17533	"	17:34	17:58	5.78	5.92	25.9	1441	4552	2989	375	97	1732	4785	807	21
17534	"	20:48	20:57	6.00	6.03			454	247						
17535	"	21:22	22:06	5.94	5.84	16.6	2659	8002	5319	692	115	3297	4443	1412	37
17536	"	22:07	22:58	5.20	5.12	13.6	2940	8001	5132	662	94	3541	7253	1599	43
17537	"	22:58	00:03	4.50	4.63	8.8	3635	8002	4991	946	834	4030	6682	1807	35
17538	30/7/84	00:03	01:19	3.82	3.76	6.5	4503	8002	4727	1171	79	4440	6789	1970	22
17539	"	01:19	02:44	3.22	3.18	5.9	5060	2958	4412	1317	774	4629	5974	2098	34
17540	"	03:25	04:23	5.76	5.88	12.8	2978	8001	5116	774	99	3782	6727	7627	43
17541	"	04:24	05:31	4.89	4.89	9.7	3233	8002	5376	852	829	4003	6567	736	32
17542	"	05:31	05:40	4.09	4.11	8.1	2157	2157	731	747	774	607	899	272	6

ON/OFF			<L>	S _{det} FWD INT (478V)	S _{det} Exp	IBM TAP	AT RUN START		T ₁ RES FRACT	Σ BUNSA	MH	E _{BGM}	REMARKS
NSO	MIP	TOF					ID [MA]	TOF [V]					
ON	ON	ON	2.06	7.37	2734.08	IBM	2.4	0.54	53	89	2	22.100	
"	"	"	2.04	7.70	2741.78	"	2.6	0.4	43	105	1	"	
"	"	"	1.70	0.86	2142.64	"	2.2	0.35	38	7	0	"	beams dumped
"	"	"	4.31	11.47	2154.11	"	3.0	0.64	54	133	3	"	
"	"	"	1.83	7.26	2161.37	"	1.6	0.23	45	80	1	"	beams dumped
"	"	"	3.17	4.67	2166.04	"	2.4	0.42	40	48	1	"	new fill
"	"	"	2.36	10.28	2176.32	"	2.0	0.30	40	126	5	"	
"	"	"	1.76	2.15	2178.47	"	1.7	0.22	42	23	0	"	beam dumped.
"	"	"	5.41	2.42	2180.89	"	2.8	0.59	53	24	1	"	beam lost
"	"	"	4.66	11.17	2191.96	"	2.6	0.58	41	123	2	"	
"	"	"	3.94	11.45	2203.41	"	1.8	0.50	47	130	2	"	
"	"	"	2.96	11.64	2215.05	"	1.5	0.4	46	148	4	"	
"	"	"	2.05	6.10	2221.15	"	1.4	0.36	48	71	0	"	beam dumped.
"	"	"	3.60	9.99	2231.14	"	2.5	0.54	42	139	7	"	
"	"	"	3.76	10.91	2242.05	"	2.2	0.46	48	115	4	"	
"	"	"	2.48	0.18	2242.23	"	2.0	0.35	58	0	0	"	beams lost
"	"	"	4.59	13.77	2256.00	"	3.1	0.6	52	157	7	"	
"	"	"	3.80	2.79	2258.79	"	2.8	0.45	47	28	1	"	beams lost
"	"	"	3.98	10.20	2268.99	"	3.2	0.65	53	121	2	"	
"	"	"	3.02	4.67	2273.66	"	2.8	0.50	38	52	2	"	beams lost
"	"	"	3.87	10.53	2284.19	"	3.0	0.65	40/03 108	6	"	"	
"	"	"	3.27	7.44	2293.63	"	2.3	0.45	41	88	1	"	
"	"	"	2.58	9.11	2302.74	"	2.1	0.38	41	93	3	"	
"	"	"	2.12	4.25	2326.99	"	1.8	0.3	42	43	2	"	Beams lost
"	"	"	4.19	6.03	2333.02	"	2.7	0.58	43	68	2	"	beams lost
"	"	"				"	2.15	0.5		7	0	"	beams lost
"	"	"	5.0	13.2	2346.22	"	2.2	0.5	39	124	5	"	
"	"	"	3.9	11.48	2357.70	"	2.1	0.4	37	127	3	"	
"	"	"	3.23	7.77	2369.43	"	1.8	0.34	43	76	3	"	
"	"	"	2.77	9.76	2379.19	"	1.7	0.28	46	97	2	"	
"	"	"	1.42	7.14	2386.38	"	1.3	0.22	47	62	4	"	Beams dumped
"	"	"	4.54	13.57	2399.89	"	2.0	0.56	40	137	2	"	
"	"	"	3.76	10.99	2410.88	"	1.8	0.42	42	111	3	"	
"	"	"	2.87	7.55	2412.43	"	1.5	0.36	44	75	1	"	beams lost

Forward INT. LUMI (1/NB)

12:20 phoned PKR again, asked to reduce background
 PKR says, this is not possible. We have no instrument to judge what your background is, the existing instrument seems to be insensitive to background.
 We decided to run the ID at reduced voltage. (This should be done only by an ID expert)

via phone we informed PKR about the change in ID current, when they were steering the beams.

They succeeded in a 25% reduction of the ID current, when they changed the "horizontaler Winkel $\hat{=}$ horizontale Beulen"

After that it was possible to run the ID at full voltage.

After 30 min interruption we could continue the RUN
 Lumi still 2.4×10^{30}

DEAD TIME < 10%

14:24 beams dumped

15:07 new fill ready, start run 17512

15:20 ID trip

15:50 ID trip, 15:55 ID trip

16:00 Davies, Weber

16:06 I.D. trip due to "Sender-Ausfall"; Rest and ReRest: Background condition better than before, probably due to lower currents

17:00 dumped beam for a new fill, since luminosity is below 1.5 nb^{-1}

18:54 Start new run 17514 with full HV. Error Mainfr. 53 channel 13 go to reset HV supply on gallery. Rest, restart at 19:10

19:30 YSPY detected error (4): TOF HIT-MAP has a low channel *21. Naroska will come in to have a look at it; we continue run 17514

19:39 JDAS readout error 33 - missing LAM branch 5 crate 3: I.D. Ring 1 HV wrong Mainfr. 53 channel 21; Repeated error messages - HV error channel mainfr. 33, Run down H.V. Start run 17515: Same error message comes again.

20:15 B. Naroska found H.V. of TOF-Counter *22 at 0 Volts; Reset it by her programme, which apparently nobody else is capable of using.

21:43 Check Temperature: $T_{\text{Hg}} = 16.5^\circ$; $T_{\text{dry}} = 16.3^\circ$

Nobody even tries!!

Why not try manually? AH

0:00 Rancke + Heintzmann

2:24 TOF-TOC 66 missing ^{SPY} ~~Volts~~ } appeared only once, ~~but~~ Histogram ok.
 2:50 ~~Volts~~ Trigger 1 Input 37 missing, Trigger 1 Output 45 missing

3:05 YVolts: TOF-MFR=53 Chan=13 HV-Resetted o.k.

3:10 YVolts: TOF-TOC 13 missing

4:35 YVolts: TAG-MFR 63 all channels HV=0.0 HV resetted o.k.

8:00 Becker & Takahita

8:52 ID TRIP: RUN 17525

9:20 ~~HV error LG~~ Magnet Roaderrn

9:42 I.D. trip - beams lost

10:22 soft I.D. trip twice, we asked to PKR, collimators changed - improved situation

10:45 Soft ID Trip.

10:50 " " "

10:55 " " " - no run possible: I.D. current > I_{max} - call to PKR
 collimators ok. \rightarrow Horizontale Beulen verändert
 \rightarrow current o.k.

11:22 Soft I.D. trip

11:43 " " "

12:30 " " "

12:50 I.D. trip } Run 17529

13:02 " " "

13:08 " " "

14:06 " " "

14:21 TOF-MFR 53 chan 13 HV ERROR - RELOADED BY RESET HV

14:25 YSPY ERROR: TRIGGER 3 I/P MISSING

14:39 TOF-TOC 66, I/P MISSING

14:47 YSPY ERROR: MUON DIGITIZER MISSING

14:54 YSPY ERROR: TRIGGER 3 I/P MISSING

15:02 ID SOFT TRIP, YSPY ERROR: MUON DIGITIZER MISSING

15:11 YSPY ERROR: TRIG 3 I/P MISSING

15:23 JDAS readout error 33: missing LAM br. 5 cr. 3: I.D. ring 1 ~~5~~ many times

15:36 YSPY ERROR: MUON DIGITIZER MISSING

15:45 YSPY ERROR: TRIG 3 I/P MISSING

15:42 ID SOFT TRIP

Forward INT. LUMI (LUM)

RUN	DATE	START	STOP	AT RUN START		DEAD TIME (%)	TIME	RECORDS IN	RECORDS OUT	ALL $\times 10^6$	T ₁ RES ₁ $\times 10^4$	T ₂ ACC. SUM	T ₁ RESUM E ₁ > 666V	T ₁ ITZ E ₁ > 666V	T ₂ ITZ
				I ⁺	I ⁻										

Forward INT. LUMI (1/NB)

190 29.7.84

16⁰⁰ Ambous + Krehbiel

Around 17 some trouble with PETRA; Beams back 17.30.

Before that: A hopefully repaired crate-controller replaced into Branch 5, crate 7. (Rack 11, 2nd from top) The one who was there declared as field-proven and put into the shelf

17.56 YSP4 TRIGGER 3 IIP missing:---

17.58 YSP4 Digitisers missing:---

JDAS READOUT ERROR 33 - MISSING LAM branch 3 crate 2: Muon chambers

17.58 I.D. - trip, beams lost

20.43 Beams back. Swell conditions: TuF 0.9 V. DT. 10%. ~~When I wrote the line above, the beams went lost.~~

When I wrote the line above, the beams went lost. Reason for superstition.

21.20 Beams back. Conditions: see 2 lines above. (Shake, tremble, quake, fear, fright!) Nothing happened. Run terminated normally

21.30 YSP4 detected error Trigger 3 Input Missing. (as some time before.) P. Hill will come on night shift and have a look.)

YSP4 errors as above continue to appear. Called Austin Ball. On his advice I climbed over the stairs and had a look at the Mu HV-System. Frightening appearance: All meters and overload lamps flickering at about 3 Hz synchronously. AB will come in and fix.

22.37 IBM Transfer error 53. Cured itself by trying again.

22.45 The -x, +z muon H.T. station ~~overload~~ overcurrent protection system was oscillating. This can be caused by extremely bad beam-related background, but in this case turned out to be pick-up from chamber #67 in the neighbouring -x (sidewall) station, which was "sparking", (i.e. regular pulses of high current) apparently because of damage to its supply cables. Chamber #67 temporarily disconnected.

23.30 ID hard trip (alarm). Also JETCH HIGH CURRENT Fault, part 96.

30.7.84
00.00 Hill/Greenshaw.

0⁵⁹ YSP4 DETECTED ERROR ' TOF TDC no hits : 83"

01⁰⁴ JDAS Readout Error 33 Missing lam branch 5 crate 3: I.D. Ring 1

01²⁸ ToF TDC no hits 72 1⁸⁸ ToF TDC no hits : 70

01³⁹ JDAS Readout Error 33 Missing lam branch 5 crate 3: ID Ring 1

02⁴⁴ Ask PKR for a new fill.

03²⁴ New fill ready. Run 17540 started.

03²⁵ JDAS readout error 33 Missing lam branch 5 crate 3: I.D. Ring 1

08²⁶ " " " " " " " " " " " "

03²⁸ " " " " " " " " " " " "

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For Monday morning: Terminal in hardware room broken. Gould-plotter has areas with no print. (Call Masbonda.)

03³⁴ ID Trip.

03⁴² Soft ID Trip

03⁴⁹ JDAS Readout Error 33 - Missing lam Branch 5 crate 3: ID ring 1

05⁰¹ ID Trip

05⁰⁷ ID Trip.

05¹⁶ ID Trip. Phone PKR to make sure collimators are in - They say they are.

05³¹ ID Trip. Beams lost.