

Store	Proton blow up	Pbar blow up	Comments
7237	Yes	Yes	Pbars just after collisions, protons 3 hrs into HEP
7238	No	No	
7239	Yes	Yes	after collisions
7243	Yes	Yes	17 min into HEP
7246	Yes	Yes	before squeeze for protons, 10 min into HEP for pbars
7247	Yes	No	18 hrs into store
7248	Yes	Yes	after collisions
7249	Yes	Yes	before squeeze for protons, after collisions for pbars
7253	No	No	
7256	No	No	
7257	No	No	
7258	Yes	Yes	3 hrs into store for protons, 8 minutes into HEP for pbars
7261	No	Yes	after collisions
7264	No	Yes	after collisions
7265	No	Yes	during squeeze
7269	Yes	No	40 min into HEP
7270	No	No	
7275	Yes	No	after collisions
7276	No	No	
7277	No	Yes	10 min into HEP
7282	Yes	No	just before squeeze
7283	No	Yes	near beginning of store
7284	Yes	Yes	before squeeze for protons, after collisions for pbars
7285	No	Yes	4 min into HEP
7286	No	No	Stations 1 temperature changed.
7289	No	No	
7290	No	Yes	after collisions
7291	No	Yes	after collisions
7292	Yes	Yes	15 min into store for protons (small blowup), pbars at collisions
7293	No	Yes	after collisions
7294	No	Yes	after collisions
7295	Yes	Yes	4 min into store for protons (VERY small blowup), pbars at collisions
7296	Yes	Yes	45 min into store for protons (small blowup), pbars at collisions
7306	No	No	
7307	Yes	Yes	half hour and 40 minutes for protons (2 small blowups), 15 min into collisions for pbars
7315	No	No	Low luminosity store.
7316	No	No	Low luminosity store.
7317	No	No	Low luminosity store.
7318	No	No	Low luminosity store.
7320	No	Yes	after collisions (normal luminosity)
7321	Yes	Yes	5 min and 20 min into collisions for protons, pbars after collisions
7322	Yes	Yes	45 min and 1hr into store for protons, pbars after collisions
7323	No	Yes	after collisions
7324	No	No	Low luminosity store.
7325	No	No	Low luminosity store.
7331	No	No	Low luminosity store.
7332	No	Yes	pbars after collisions
7333	No	Yes	after collisions
7340	No	Yes	after collisions
7341	Yes	Yes	Protons 10min and 20min into store (small blowup), pbars after collisions
7342	No	No	Stations 6&7 temperature changed.
7346	Yes	Yes	small blowups ½ hr into HEP
7349	No	Yes	Very slow pbar blow up starting before squeeze.
7352	No	Yes	pbar blow up at flattop before squeeze
7353	No	Yes	after collisions (small blowup)
7364	Yes	Yes	Protons very slow and small blowup 40 min into store, pbars at flattop just before squeeze.
7365	No	Yes	pbars at collisions (large blow up)
7370	No	Yes	pbars at collisions (twice)
7373	No	Yes	pbars at collisions (small blow up)
7380	No	No	Seems to be scraping, low luminosity store.
7382	No	No	Low luminosity store.
7383	Yes	Yes	Protons and pbars at collisions (small)
7384	Yes	No	1hr 20min into store, protons had very small blowup
7385	No	No	
7394	No	Yes	at collisions (small blow up)
7399	Yes	Yes	protons slow blowup during store after collisions, pbars at collisions
7400	Yes	Yes	Both protons and pbars 5 min into HEP
7404	Yes	No	Protons 1 hr into store, slow blow up
7407	Yes	Yes	Protons 10 min into HEP (small), Pbars at collisions (small)
7411	Yes	Yes	Protons 15 min into HEP (very slow), pbars very slow at collisions
7412	No	No	Low luminosity store.
7413	Yes	No	Protons at collisions and again 15 min into store.
7414	No	No	Low luminosity store.
7415	No	No	Low luminosity store.
7416	No	Yes	Pbars after collisions
7417	No	Yes	Pbars after collisions
7418	No	Yes	Pbars after collisions
7419	No	Yes	Pbars after collisions
7420	No	Yes	Pbars after collisions
7421	No	Yes	Pbars after collisions

7422	No	No	
7423	No	Yes	Pbars after collisions
7427	No	No	Good 267e30 lum store, but lower intensity pbars. Stations 2,3,4,5,8 resonances changed
7433	No	No	Low luminosity store.
7437	No	No	Low luminosity store.
7438	No	No	Pbar length at LBSEQ=25 quite long 1.6ns
7439	Yes	Yes	Pbars after collisions, protons 1.5 hrs into store.
7440	No	No	
7441	No	No	
7442	No	Yes	Pbars after collisions and about 20 min into store
7444	No	No	300e30 lum store!
7445	Yes	Yes	at collisions (small blow up)
7446	No	No	
7447	No	Yes	at collisions
7448	Yes	Yes	Protons ½ hr into store, pbars at collisions
7450	Yes	Yes	Protons 40min into store (slow blow up), pbars at collisions
7451	No	Yes	pbars at collisions (large blow up)
7452	No	No	
7453	No	Yes	at collisions and HEP
7454	No	Yes	at collisions
7455	Yes	Yes	Protons (small), pbars at collisions
7456	No	Yes	at collisions
7457	Yes	No	Protons 2.5 hrs into store, very small blow up
7458	No	No	
7459	No	No	
7468	No	No	
7469	No	No	
7477	Yes	No	Very small blow up (twice) 1 hour into store.
7484	No	No	pbars scraped
7485	No	Yes	pbars at collisions
7486	Yes	No	Protons 1 hr into store, small blow up
7487	No	Yes	Pbars at collisions, surprisingly after it scraped longitudinally
7491	No	No	Pbar bunch length scraping throughout store. See log.
7492	No	Yes	pbar 3min and 10 min into store.
7493	Yes	Yes	at collisions
7494	No	Yes	at collisions
7499	Yes	No	Small blowup 10 min into store.
7500	Yes	Yes	pbars blew up twice at collisions, protons twice ½ hr into store (very small)
7501	Yes	No	Protons very small blow up at collisions
7507	No	No	
7509	No	No	
7510	No	No	
7511	Yes	Yes	Protons ½ hr into store (twice), pbars at collisions.
7512	Yes	Yes	Protons ½ hr into store (small), pbars at collisions (very large)
7516	No	No	
7520	No	Yes	at collisions
7521	Yes	No	Protons 6 minutes into store
7523	No	No	
7530	No	No	
7533	No	No	
7534	No	No	
7535	No	No	
7536	No	Yes	at collisions. Weird scraping behaviour of protons during store.
7559	No	Yes	Pbars at collisions.
7562	Yes	Yes	Slow proton growth, pbars at collisions
7573	No	Yes	Pbars blew up 3 times after collisions. First one at collisions.
7576	No	Yes	at collisions
7577	No	No	Protons bunch length growth is strange for this store.
7580	No	Yes	Pbars 12 minutes into store.
7581	No	No	
7582	No	No	looks like very slow blow up for both species, I'm going to say no.
7583	Yes	Yes	Small proton blowups and slow blowup, Pbars 3 minutes into HEP
7584	No	Yes	Multiple times at collisions
7586	No	Yes	at collisions
7589	No	Yes	at collisions
7590	No	Yes	at collisions
7595	No	Yes	4 min into HEP
7601	No	Yes	at collisions
7603	No	No	Low luminosity store.
7610	No	Yes	at collisions
7611	No	Yes	at collisions
7612	No	No	
7613	Yes	Yes	Small proton blow up 20 min into HEP, pbars at collisions.
7614	No	No	
7615	No	Yes	right at HEP
7619	No	Yes	at collisions
7620	No	No	
7621	No	Yes	at collisions and at HEP
7625	No	No	
7628	No	No	
7629	No	Yes	2 min into HEP

7630	No	Yes	at HEP
7631	No	Yes	at collisions
7632	No	Yes	at collisions
7634	Yes	No	15 min into store.
7638	No	Yes	at collisions
7639	No	Yes	at collisions
7640	No	Yes	at collisions
7641	No	Yes	at collisions
7644	No	Yes	at collisions
7647	No	Yes	at collisions
7649	No	Yes	at collisions
7650	No	No	highest lum since shutdown
7651	No	Yes	at collisions
7655	No	Yes	at collisions
7656	No	Yes	Pbars BEFORE squeeze!
7658	Yes	Yes	Pbars before squeeze! Small proton blow up 1 hr into store.
7661	No	No	Record store!
7662	No	Yes	at collisions
7663	No	No	
7667	No	Yes	Pbars at collisions
7668	Yes	Yes	Pbars at collisions, protons very small blowup 12 min into HEP
7669	No	Yes	Pbars BEFORE squeeze and at collisions
7670	No	Yes	Pbars 7min into store.
7678	Yes	Yes	very small blow ups in both protons and pbars
7679	Yes	Yes	Pbars at collisions, very small proton blow up 1 hr into store
7680	No	No	
7682	Yes	Yes	Pbars at collisions, Protons 15 min into store. TRF1 mod change.
7685	No	Yes	Pbars 3 minutes into store. Record store.
7688	No	No	
7690	No	No	sat at flattop for 10 minutes
7694	Yes	Yes	Pbars at collisions, protons 3hrs into store. Low lum store.
7695	No	No	
7698	No	No	
7703	No	Yes	at collisions. Low lum store.
7704	No	Yes	at HEP
7705	No	Yes	Slow growth during squeeze
7706	Yes	Yes	Pbars at collisions, small proton blow up at collisions.
7711	No	Yes	at collisions
7712	No	Yes	at collisions
7713	No	Yes	1 min into HEP
7715	No	Yes	13 min into HEP
7716	No	Yes	1 min into HEP
7717	No	Yes	2 min into HEP
7718	No	Yes	2 min into HEP
7719	No	Yes	at HEP
7720	No	Yes	at collisions
7724	No	Yes	5 min into HEP
7725	No	Yes	5 min into HEP
7726	No	Yes	at HEP
7727	No	Yes	30 min into HEP
7729	No	Yes	10 min into HEP
7730	Yes	No	1.25 hrs into HEP
7731	No	No	
7732	No	Yes	5 min into HEP
7733	No	Yes	1 min into HEP
7734	No	Yes	at collisions
7735	No	Yes	3 min into HEP
7736	Yes	Yes	Pbars 16 min into HEP, slow Protons growth 18 min into HEP.
7737	No	Yes	at HEP
7738	No	Yes	at collisions. Note: protons had change of slope 1 hr into HEP
7743	Yes	No	Not a high lum store (284e30). 1.5 hrs into store, proton had a very small blowup
7746	No	Yes	at collisions
7747	Yes	Yes	Pbars 4 min into HEP, protons 10 min into HEP
7748	No	Yes	at collisions
7752	No	Yes	at collisions (small blow up)
7753	No	Yes	at collisions
7758	Yes	Yes	Pbars 3 minutes into HEP. Very small proton blow up 40 min into HEP.
7759	Yes	Yes	Pbars 12 minutes into HEP. Protons 16 minutes into HEP
7760	Yes	Yes	Huge pbar blow up 8 minutes into HEP. Very small proton blow up 2 hrs into HEP.
7764	No	No	
7768	Yes	No	Protons 2 min, 4 min and 11 min into HEP
7769	Yes	No	1.5 hrs into HEP
7770	No	Yes	at HEP
7771	Yes	Yes	Pbars 10 minutes into HEP. Protons 20 minutes into HEP.
7774	Yes	No	1.5 hrs into HEP
7778	No	Yes	5 min into HEP
7779	Yes	No	35 min into store
7780	Yes	Yes	Pbars at HEP (large blow up), protons 1 hr into HEP.
7784	Yes	No	1 hr into HEP
7789	Yes	No	Pbars long at injection. Protons 1.6 hrs into store.
7792	Yes	No	1 hr into HEP (very small)

7793	No	Yes	13 min into HEP
7794	No	Yes	at collisions
7795	No	No	
7798	No	Yes	10 min into HEP
7799	No	Yes	once at collisions, once at HEP
7802	No	No	
7804	Yes	Yes	Pbars at HEP and protons 25 min into HEP
7805	No	Yes	17 min into HEP
7806	No	Yes	at HEP
7807	Yes	Yes	Pbars at collisions, protons 50 min into store (small blow up)
7808	Yes	No	1.4 hours into store.
7811	No	Yes	at HEP
7812	No	Yes	at collisions
7815	Yes	Yes	Pbars at collisions, protons 30 min into store.
7816	No	Yes	Pbars during the squeeze.
7817	No	Yes	Pbars during the squeeze.
7818	No	Yes	
7819	No	Yes	6 min into HEP
7820	Yes	Yes	Pbars at collisions, protons 2 hrs into store. Very low lum store=188e30!!!!
7826	No	No	Change in RF amplitude from phase corrections. Proton had a slope change 1 hr into store
7827	No	Yes	6 min into HEP
7828	No	Yes	at collisions
7830	No	Yes	3 min into HEP (small blow up)
7834	No	Yes	4 min and 10 min into HEP
7835	No	Yes	5 min into HEP
7836	No	No	lum=286e30
7839	No	Yes	RFSUMA=RFSUM=1.14MV/T. Small pbar blow up 10 min into HEP
7844	No	No	Lum=195e30
7854	No	No	Lum=168e30
7855	No	No	Lum=295e30
7860	No	Yes	Small pbar blowup 28 min into HEP
7863	No	No	Lum=365e30
7864	No	No	Lum=354e30
7867	No	Yes	14 min into HEP
7868	No	No	36x32 store. Lum=295e30
7869	No	Yes	at collisions. Lum=330e30
7870	No	No	Lum=360e30
7871	No	No	extremely small blow up of pbars at start of HEP
7872	No	No	dampers seemed to have stopped protons trying to blow up during 1 st hr of HEP
7873	No	Yes	Pbars 11 min into HEP. Dampers stopped protons from blowing up.
7874	No	Yes	Pbars 17 min into HEP
7877	No	No	
7878	No	No	
7882	No	No	
7885	No	No	
7886	No	Yes	Very slow and small pbar blow up at HEP
7887	No	Yes	at collisions
7889	No	No	
7890	No	Yes	very small blow up at HEP
7891	No	Yes	very small blow up at HEP
7892	No	No	
7894	Yes	No	1.5 hrs into HEP (very small blow up)
7897	No	No	Low luminosity store.
7898	No	Yes	at collisions
7899	No	No	
7900	Yes	Yes	very small blowups 8 min into HEP. Low lum store=245e30
7902	No	Yes	very small blow up 3 min into HEP
7903	No	No	
7908	No	No	
7909	No	Yes	Large blow up 2 min into HEP
7910	No	Yes	Large blow up at collisions
7911	Yes	Yes	blow up at flattop
7918	No	Yes	at collisions
7922	No	Yes	blow up at flattop
7925	No	Yes	at collisions
7926	No	Yes	at collisions
7929	No	Yes	4 min into HEP
7930	No	Yes	at HEP
7931	No	Yes	Huge pbar blow up 8 min into HEP
7938	No	No	Low luminosity store.
7939	No	No	Lum=350e30
7940	No	Yes	end of squeeze before collisions, slow blow up
7941	No	No	Not colliding headon for number of pbars that we have.
7945	No	No	Low luminosity store.
7946	No	Yes	1 min into HEP
7947	Yes	Yes	Slow pbar growth at collisions, protons 1 hr into HEP
7948	Yes	Yes	Pbars at collisions and protons 1hr into HEP
7949	Yes	Yes	Huge pbar blow up at collisions. Protons at collisions
7950	No	Yes	Huge pbar blow up at collisions.
7951	No	No	
7994	No	No	First store after shutdown. No blow ups low lum store.

7996	No	No	Low lum store. (184e30)
7999	No	No	Low Lum store (188e30)
8003	No	No	Low Lum store (173e30)
8004	No	No	Low Lum store (223e30)
8009	No	No	Low Lum store (217e30)
8010	No	No	Low Lum store (234e30)
8017	No	No	Low Lum store (249e30)
8023	No	Yes	Small pbar blowup 6 min into store. (Lum 189e30)
8024	Yes	Yes	Small blowups 3 min into HEP (Lum 290e30)
8025	No	No	
8034	No	No	Low lum store (173e30)
8042	No	No	Low Lum store (220e30)
8045	No	No	Lum=200e30
8046	Yes	Yes	Huge pbar blow up at collisions. (223e30)
8047	No	No	Pbars came in long already (1.7 ns)
8051	No	No	Low Lum store (185e30)
8055	No	No	Low Lum store (200e30). Reference orbit now 7909.
8056	No	No	
8057	No	No	
8058	Yes	Yes	Small blow ups 3 hrs into HEP
8059	Yes	No	Huge proton blow up at collisions. Very small for pbars.
8060	No	No	
8064	Yes	No	at flattop
8072	No	No	
8073	No	No	
8077	No	No	
8078	No	No	
8079	Yes	No	3 hrs into store for protons
8081	No	No	
8082	No	No	
8085	No	No	
8086	Yes	No	1.5 hrs into HEP. Very small for pbars.
8091	No	No	TRF3 PA replaced
8092	No	No	
8093	No	No	
8096	No	No	
8097	No	No	
8098	No	Yes	5 min into HEP
8099	No	Yes	11 min into HEP
8100	No	No	Lowered orbit by 0.5mm vert at F0
8105	No	No	
8106	No	No	
8112	No	No	
8113	Yes	No	3 hrs into HEP
8122	No	No	
8123	No	No	
8126	No	No	
8127	No	No	
8130	No	No	
8131	No	No	
8132	No	Yes	at collisions
8135	No	No	
8136	No	No	
8137	No	No	
8138	No	No	
8139	No	No	
8140	No	No	
8141	No	No	
8142	No	No	TRF8 tripped about 8 hrs into store
8143	No	No	
8145	No	No	
8146	No	No	
8151	No	No	
8152	No	No	
8159	No	No	
8160	Yes	No	2 hrs into HEP
8161	No	No	
8162	No	No	
8170	No	No	
8171	No	No	
8172	No	No	
8174	No	No	
8175	No	No	
8176	No	Yes	3min into HEP
8177	Yes	Yes	Pbars 10 minutes into HEP. Protons 50 minutes into HEP.
8178	No	Yes	1 min into HEP
8179	No	Yes	6 min into HEP
8183	No	Yes	15 min into store
8184	No	No	F0 +0.25mm vert bump
8188	No	No	
8194	No	No	Low lum store (123e30) and long pbars 1.7ns

8198	No	No	
8199	No	Yes	9 min into HEP
8202	No	No	
8204	No	No	
8205	Yes	Yes	Pbars 2 min into store, protons 6 min and 10 min into store
8208	Yes	No	1.5 hrs into HEP
8209	No	Yes	8 min into HEP
8210	No	No	
8212	No	No	Low lum store (93e30)
8213	No	No	
8214	No	Yes	20 and 30 min into HEP
8219	No	No	
8220	No	No	
8221	No	No	
8227	No	No	
8228	No	No	Low Lum store (130e30)
8229	No	No	Low Lum store (130e30)
8231	No	Yes	at collisions
8242	No	No	
8243	No	No	
8244	No	No	
8245	No	No	
8248	No	No	
8249	No	No	
8250	No	Yes	at collisions
8251	No	Yes	at collisions
8255	No	No	
8256	No	No	
8257	No	No	
8260	No	No	
8261	Yes	Yes	Pbars at HEP and protons 35 min into HEP
8268	No	No	
8272	No	No	
8275	No	No	long pbar bunch length. Low lum store 188e30
8277	No	No	TRF1 tripped. Low lum store 123e30
8278	No	Yes	Very slow and small pbar blow up 15min into HEP
8282	No	No	
8283	No	Yes	7 min into HEP
8285	No	No	
8286	No	Yes	4 min into HEP
8287	No	Yes	2 min into HEP
8288	No	No	
8291	No	No	
8292	No	No	
8295	No	Yes	20 min into HEP. Note: long. Scraping of pbar bunch 1-4 because of larger trans. Emit
8296	No	Yes	Huge pbar blow up right at HEP.
8297	No	No	
8300	No	Yes	12 min into HEP. Low lum store 220e30
8307	No	Yes	small blow up 6 min into HEP
8308	No	No	
8311	No	Yes	8 min into HEP
8314	No	No	
8315	No	Yes	small blowup 7 min into HEP
8316	No	Yes	at HEP
8320	No	Yes	3 min into HEP
8321	No	No	
8322	No	Yes	small blow ups going into collisions
8323	No	No	
8330	No	Yes	at collisions
8331	Yes	Yes	at HEP. Huge pbar blow up
8332	No	Yes	at HEP
8335	No	Yes	4 min into HEP
8338	No	No	
8339	No	Yes	16 min into HEP
8340	No	Yes	small blow up 11min into HEP
8349	No	No	low Lum store (185e30)
8351	No	No	Low Lum store (170e30)
8355	No	Yes	Huge pbar blow up at collisions.
8356	No	Yes	3 min into HEP. RF trip 2hrs20min into HEP
8357	No	Yes	at collisions
8361	No	No	
8363	No	No	
8364	No	Yes	15 min into store
8365	No	Yes	at HEP
8366	No	Yes	Huge pbar blow up at collisions.
8369	No	No	
8372	No	No	
8374	No	No	
8375	No	Yes	4 min into HEP
8376	No	Yes	Huge blow up at collisions and 10 min into HEP
8377	No	Yes	Huge blow up 7 min into HEP

8378	No	Yes	6 min into HEP
8383	No	Yes	Huge blow up at HEP
8385	No	Yes	Huge blow up 14 min into HEP.
8386	Yes	No	1 hr into HEP
8387	No	Yes	at collisions
8388	No	No	
8395	No	No	1 st collisions after short shutdown for B1 spool replacement
8403	No	No	Quench at collisions
8410	No	Yes	Huge blow up at collisions
8412	No	Yes	Blow up at collisions
8413	No	Yes	Blow up at collisions
8414	No	No	
8415	No	Yes	Huge blow up at collisions
8416	No	No	
8417	No	Yes	at collisions and 10 min into HEP
8418	No	No	
8419	No	Yes	Huge blow up at collisions
8423	No	No	Low lum store (177e30)
8425	No	No	
8426	No	Yes	3 min into HEP
8427	No	Yes	at HEP
8428	No	Yes	at collisions
8429	No	Yes	at collisions
8430	No	Yes	9 min into HEP
8434	No	No	
8435	No	Yes	at collisions
8436	No	Yes	at collisions
8437	No	Yes	at collisions and 3 min into HEP
8439	Yes	Yes	very slow blow up for pbars at collisions, 4.5 hrs for protons into HEP
8443	Yes	No	45 min into HEP and very strange slow blow ups happened twice during store.
8444	No	Yes	Pbars at collisions. Protons are trying to blow up 3 times during the store.
8445	Yes	Yes	Pbars at collisions. Protons 4.5 hours into HEP.
8446	Yes	Yes	Protons and pbars at collisions. Huge blow ups
8447	No	Yes	Huge blow up at flattop
8454	Yes	No	Huge proton blow up at collisions. Checked dampers, seems to be ok. Did reset go out?
8458	No	Yes	3 min into HEP
8461	No	No	
8462	No	Yes	at collisions
8463	No	Yes	at collisions
8464	Yes	Yes	Large proton blow up at collisions. Pbars at collisions
8465	No	Yes	1 min into HEP
8466	No	Yes	7 min into HEP
8473	No	No	Low Lum store (93e30)
8477	No	No	
8478	No	Yes	at collisions
8482	Yes	Yes	Pbars 18 min into HEP and protons 44 min into HEP
8483	No	No	
8484	No	Yes	at collisions
8486	No	No	
8487	No	No	Low lum store (160e30)
8488	Yes	No	45 min into HEP
8492	No	Yes	10 min into HEP
8497	No	No	Low Lum store (162e30)
8498	No	Yes	at collisions
8502	No	No	Low Lum store (135e30)
8503	No	No	Low Lum store (116e30)
8507	No	No	Low Lum store (124e30)
8508	Yes	No	Huge proton blow up 1hr into HEP. Low Lum store (123e30)
8509	No	No	Low Lum store (109e30)
8510	No	No	Low Lum store (100e30). John discovered bad heater on TRF1, it was adjusted.
8514	No	No	Lum Lum store (110e30)
8515	Yes	No	Very small blow up 2 hrs into HEP. Low lum store (110e30)
8516	No	No	Low Lum store (103e30)
8517	No	No	Low Lum store (110e30)
8518	No	No	
8519	Yes	No	Very small blow up 4 hrs into HEP.
8526	No	No	
8527	No	Yes	3 min into HEP
8528	No	No	Low Lum store (182e30)
8529	No	No	
8534	No	Yes	6 min into HEP
8540	No	No	
8541	No	No	Low Lum store (180e30)
8542	Yes	No	Very small blow up 30min into HEP.
8546	No	No	
8547	Yes	No	At collisions. TRF1 again bad heaters
8548	No	Yes	at HEP. TRF1 again bad heaters
8459	No	Yes	at flattop
8556	No	Yes	Slow growth during squeeze
8557	Yes	Yes	caused quench at collisions?
8571	Yes	No	Huge blow up 3.5 hrs into HEP. Looks like TRF1 (Low lum store 160e30)

8575	No	No	
8578	No	No	
8581	Yes	No	Huge blow up 2 hrs into HEP. Looks like TRF1.
8582	Yes	Yes	15 min into HEP. Tuning changes made to TRF1.
8583	No	No	
8587	No	No	
8588	No	Yes	at HEP
8589	No	Yes	At collisions.
8590	Yes	Yes	At collisions.
8593	No	No	
8594	No	Yes	5 min into HEP
8603	No	No	first store after shutdown.
8606	No	No	
8607	No	No	
8608	No	No	
8610	No	No	Although there is a change in slope for pbar bunch length
8611	No	Yes	3 min into HEP
8619	No	Yes	At collisions.
8624	No	Yes	At collisions.
8627	No	No	
8629	No	No	
8630	No	No	
8631	No	No	
8632	No	Yes	once at collisions, once at HEP
8633	Yes	No	very small proton blow up 40 min int HEP, dampers stopped it.
8634	No	Yes	very small pbar blow up 6 min into HEP
8635	No	No	
8641	No	No	
8662	No	No	
8663	No	No	
8664	Yes	No	1 hr 40 min into HEP
8665	No	No	
8666	No	No	
8670	No	No	Small proton action 4 hrs into HEP
8672	No	No	
8680	No	No	
8683	No	No	
8684	No	No	
8688	No	No	
8692	No	No	
8695	No	No	
8696	No	No	
8697	No	No	
8698	No	No	
8700	No	No	Record luminosity store 405e30
8701	Yes	No	Small blow up 2hrs 20 min into HEP
8702	No	No	
8703	Yes	Yes	Huge blow ups 6 min into HEP
8707	Yes	Yes	Pbars at collisions; Protons 3hrs15min into HEP
8708	No	No	
8709	Yes	Yes	Huge blow up 10 min into HEP.
8710	No	No	
8714	No	No	
8717	No	No	RF trip in middle of store.
8718	No	Yes	At collisions.
8719	No	Yes	At collisions.
8720	No	No	
8721	No	No	
8725	No	No	
8728	No	No	
8733	No	No	Low Lum store (122e30)
8734	No	No	
8735	No	No	
8736	Yes	No	2 hrs into HEP
8737	No	No	
8741	No	No	
8746	No	No	
8747	No	No	
8748	No	No	
8749	No	No	
8753	Yes	No	2 hrs into HEP (very small)
8754	No	No	
8759	No	No	
8760	Yes	Yes	Very strange blow ups. Pbars 10min and 1.5 hrs into HEP. Protons 1.5hrs into HEP
8762	No	No	Low lum store (114e30)
8763	No	No	Low lum store (126e30)
8765	No	No	
8766	No	No	
8767	No	No	
8768	No	No	
8770	No	No	

8772	No	No	
8777	No	No	
8781	No	No	
8782	No	No	
8784	No	No	
8787	No	No	
8790	No	No	
8791	No	No	
8792	No	No	
8793	No	No	
8794	No	No	
8795	No	No	
8796	No	No	
8797	No	No	
8799	No	No	
8801	No	No	
8804	No	No	
8805	No	Yes	Very small kink 10 min into HEP
8808	No	No	
8809	No	No	
8810	No	Yes	7 min into HEP
8811	No	No	
8812	No	No	TRF3 tripped
8816	No	Yes	3 min into HEP
8818	No	No	
8819	No	No	
8820	No	No	
8824	No	No	
8825	No	Yes	13 min into HEP
8826	Yes	No	Small blow up 3hrs into HEP
8827	No	No	
8828	No	No	
8829	No	No	
8830	No	No	
8835	No	No	
8836	No	No	
8839	No	No	
8840	No	No	
8841	No	No	
8844	No	No	
8845	No	No	
8848	No	Yes	7 min into HEP
8851	No	No	
8854	No	No	Low lum store (157e30)
8855	No	No	
8856	No	No	
8857	No	No	
8858	No	No	
8861	Yes	No	Very small bumps at the start of HEP
8862	Yes	No	Very small bump 20 min into HEP
8866	No	No	strange scraping behaviour at the start of HEP
8868	No	No	
8871	No	No	
8872	No	No	
8875	No	No	
8880	No	No	Low Lum store (163e30)
8884	No	No	
8888	No	Yes	10 min into HEP
8891	No	No	
8894	No	No	
8896	No	No	
8899	No	No	Protons had weird shape at the start of HEP.
8900	No	No	Protons had weird shape at the start of HEP.
8903	No	No	
8904	No	No	
8907	No	No	
8911	No	No	
8912	No	No	strange scraping behaviour at the start of HEP
8923	No	No	strange scraping behaviour at the start of HEP
8926	No	No	
8927	No	No	
8929	No	No	
8930	No	No	
8952	No	No	Low Lum store. No cooling
8953	No	No	Low Lum store. No cooling
8954	No	No	Low Lum store. No cooling
8957	No	No	Low Lum store. No cooling
8961	No	No	Low Lum store. No cooling
8962	No	No	Low Lum store. No cooling
8963	No	No	Low Lum store. No cooling
8964	No	No	Low Lum store. No cooling

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8965	No	No	Low Lum store. No cooling
8966	No	No	Low Lum store. No cooling
8967	No	No	Low Lum store. No cooling
8968	No	No	Low Lum store. No cooling
8969	No	No	Low Lum store. No cooling
8973	No	No	
8975	No	No	
8976	No	No	
8983	No	No	Low Lum store. No cooling
8985	No	No	
8990	No	No	
8997	No	No	
8998	No	No	Low Lum store. No cooling
9004	No	No	Low Lum store. No cooling
9005	No	No	Low Lum store. No cooling
9009	No	No	Low Lum store. No cooling
9010	No	No	Low Lum store. No cooling
9014	No	No	Low Lum store. No cooling
9017	No	No	
9028	No	No	
9032	No	No	No cooling
9035	No	No	Low Lum store. No cooling
9036	No	No	Low Lum store. No cooling
9037	No	No	Low Lum store. No cooling
9038	No	No	Low Lum store. No cooling
9040	No	No	Low Lum store. No cooling
9041	No	No	Low Lum store. No cooling
9042	No	No	
9044	No	No	
9045	No	No	
9048	No	No	
9051	No	No	
9053	No	No	
9054	No	No	
9056	No	No	
9057	No	No	
9058	No	No	
9060	No	No	
9061	No	Yes	3 min into HEP
9064	No	No	
9067	No	Yes	3 min into HEP
9068	No	No	
9069	No	No	
9097	No	No	
9098	No	Yes	2 min and 6 min into HEP
9099	No	No	
9103	No	No	
9125	No	No	
9126	No	No	A little proton action 2.5 hours into HEP @ ~5:20 am
9131	No	No	
9134	No	No	
9135	No	No	
9139	No	No	
9142	No	No	
9143	No	No	
9146	No	No	
9147	No	No	
9148	No	No	
9151	No	No	
9152	Yes	No	1 hr into HEP
9153	No	No	
9154	Yes	No	3 hrs into HEP
9155	No	No	
9156	Yes	No	2 hrs into HEP
9157	Yes	No	2 hrs into HEP
9158	No	No	