Date	6/13/07
PA FIL Hrs	17650
HVPS Hrs	98620
SWTU Hrs	11861

7835 Conditioning

7835 tube S/N	BV17

Joshua, Ken H.

7835 peak Vacuum @ powerup:

8.6mA / Error 2 (HV on ion gauge tripped off).

7835 Vacuum (filament off) - 0.00μA.

Perform gas test

Time	Current	
Leakage	1μA.	<-- Anode leakage before turning Filament ON
0 Minutes	>50μA.	<-- Initial reading ← 8 min. filament warm up.
1 min	21μA.	
2 min	17μA.	
3 min	15μA.	
4 min	13.5μA.	
5 min	12.5μA.	<-- Should be less than 20uA
10 min	9μA.	

7835 Vacuum
204μA.
177μA.
158μA.
143μA.
103μA.

Anode E	-45 Volts
Grid I	50 Amps
Grid E	23V.
Fil Current	6400 A.

Wednesday, 13 June 2007 Joshua, Ken H.

Start conditioning 7835 BV17.

HV = 98620
PA = 17653
SWTU = 11863

Driver conditioning

Time	Driver P	Log Pump I
1405	59.7 kW.	23.5μA.
1408	90.0 kW.	23.7μA.
1412	71.7 kW.	19.0μA. ← Retuned driver power.
1416	90.0 kW.	17.0μA.
1423	100.0 kW.	21.3μA.
1503	4616 anode supply tripped. The capacitor fuse blew again. Replaced fuse - turning low on.	
1558	99.3 kW.	11.1μA.
1600	87.4 kW.	12.0μA. ← Re-tuned driver.
1602	95.4 kW.	10.7μA.
1717	95.2 kW.	8.5μA.
1719	105.4 kW.	8.7μA. Will let run overnight. KaH

Thursday, 14 June 2007 Joshua, Ken H.

Station tripped on a crowbar overnight. Driver conditioning BV17.

HV = 98640
PA = 17673
SWTU = 11884

1012	103.1 kW.	0.23μA.
1013	110.0 kW.	0.25μA.
1038	110.7 kW.	0.30μA.
1040	120.8 kW.	0.33μA.

1

BV17

Friday, 15 June 2007 Joshua, Ken H.

HV = 98647
PA = 17700
SWTV = 11911

Conditioning BV17. Station was shut down yesterday for parts. to adjust modulator regulator card before running gradient. Resume driver conditioning.

Time	Driver P	Ion Pump I
1346	119.0 kW.	0.06 μA.
1348	130.0 kW.	0.06 μA.
1542	131.0 kW.	0.05 μA.
1544	150.3 kW.	0.05 μA.
1600	151.0 kW.	0.06 μA.
1601	160.9 kW.	0.07 μA.
1645	160.4 kW.	0.06 μA.
1646	175.4 kW.	0.11 μA.
1719	175.1 kW.	0.10 μA.
1721	190.2 kW.	0.15 μA.
1755	190.0 kW.	0.11 μA.
1756	200.3 kW.	0.14 μA.

Will let run here over the weekend.

KaH

Monday, 18 June 2007 Joshua, Ken H.

HV = 98715
PA = 17769
SWTV = 11980

Conditioning BV17. Driver ran all weekend. Starting to tune up modulator but BV17 is brand new so we have to go slowly.

Time	I Mod.	E Mod.	Ion Pump I.	7835 P.	7835 Fil. I.
1511	82.6A.	2.7kV.	29.0μA.	0.18mW.	6480A.
1544					System HV tripped off.
1545	82.5A.	2.57kV.	28.0μA.	0.17mW.	6490A.
1603	82.5A.	2.67kV.	33.0μA.	0.18mW.	6490A.
1634	83.0A.	2.67kV.	34.0μA.	0.18mW.	6490A.
1728	82.7A.	2.66kV.	28.0μA.	0.18mW.	6500A.

Will let run here overnight.

KaH

Tuesday, 19 June 2007 Joshua, Ken H.

HV = 98739
PA = 17793
SWTV = 12003

Conditioning BV17. Station ran overnight. The only trip recorded was a driver crowbar.

1003	82.8A.	2.67kV.	13.0μA.	0.18mW.	6430A.
1043	86.9A.	2.92kV.	15.0μA.	0.20mW.	6420A.
1106	86.9A.	2.97kV.	18.0μA.	0.20mW.	6430A.
1306	86.8A.	2.95kV.	12.0μA.	0.20mW.	6430A.

6/19/07 cont.

Time	I Mod.	E Mod.	Ion Pump I.	7835P	7835 Fil. I.
1431	95.7A.	3.74kV.	15.0μA.	0.26MW.	6430A.
1[illegible]	95.6A.	3.74kV.	18.0μA.	0.26MW.	6420A.
1702	99.3A.	4.09kV.	17.5μA.	0.29MW.	6420A. Will let run here overnight.

KH

Wednesday, 20 June 2007 Joshua, Ken H.

Conditioning BV17. Station ran overnight, no trips.

HV = 98763
PA = 17817
SWTU = 12027

1946	99.2A.	4.10kV.	19.4μA.	0.29MW.	6420A.
1949	103.5A.	4.54kV.	15.7μA.	0.34MW.	6410A.
122	103.4A.	4.57kV.	15.50μA.	0.34MW.	6420A.
126	106.6A.	4.88kV.	15.50μA.	0.37MW.	6420A.
03	106.6A.	4.90kV.	17.00μA.	0.37MW.	6420A.
04	109.3A.	5.15kV.	17.0μA.	0.39MW.	6430A.
139	109.4A.	5.16kV.	17.0μA.	0.39MW.	6450A.
10	109.4A.	5.18kV.	18.0μA.	0.40MW.	6430A.
13	114.1A.	5.74kV.	18.0μA.	0.45MW.	6430A.
58	114.2A.	5.71kV.	20.0μA.	0.45MW.	6440A.
100	120.2A.	6.32kV.	20.0μA.	0.52MW.	6440A. ← Will let run here overnight

KH

Thursday, 21 June 2007 Joshua, Ken H.

Conditioning BV17. Station ran overnight, no trips.

HV = 98787
PA = 17841
SWTU = 12051

209	120.1A.	6.19kV.	18.0μA.	0.51MW.	6480A.
214	135.1A.	7.86kV.	19.0μA.	0.71MW.	6480A.
03	135.1A.	7.89kV.	21.0μA.	0.71MW.	6480A.
11	151.7A.	9.65kV.	21.0μA.	0.95MW.	6480A, ← One mod. block.
308	151.7A.	9.73kV.	27.0μA.	0.99MW.	6450A.
312	158.1A.	10.47kV.	28.0μA.	1.11MW.	6440A.
136	158.3A.	10.41kV.	29.0μA.	1.10MW.	6470A.

Friday 22 June 2007 LG.

5[illegible]45	180.7	13.04	17.0 ma	1.525	6480	
635	201.6	15.71	19 ma	2.006	6480	ion pump I peaked @
0[illegible]5	201.6	15.72	20 ma	2.013	6480	
55	201.8	17.13	21 ma	2.13	6480	Tuned output to maximize
700	175.3	13.65	20 ma	1.508	6480	Leaving @ this level

the weekend.

BV17

Wednesday, 11 July 2007 Joshua, Ken H.

HV = 98884
PA = 18324
SWTU = 12509

Conditioning BV17. RF7 down for a while with driver anode su ly problems.

Time	I Mod.	E Mod.	Ion Pump I	7835 P.	7835 Fil. I.
1331	167.1A.	13.84kV.	0.48μA.	1.53MW.	6390A.
1419	167.0A.	13.75kV.	0.55μA.	1.52MW.	6400A.
1428	174.7A.	14.85kV.	0.55μA.	1.69MW.	6400A.
1531	174.6A.	14.81kV.	0.66μA.	1.69MW.	6400A. ←Mod. block.
533	180.5A.	15.62kV.	0.81μA.	1.82MW.	6400A.
617	180.6A.	15.72kV.	0.72μA.	1.84MW.	6400A.
618	188.4A.	16.86kV.	0.72μA.	2.04MW.	6400A.
58	188.3A.	16.87kV.	0.83μA.	2.04MW.	6400A. Will let run here over.

Ken H.

Thursday, 12 July 2007 Ken H.

HV = 98904
PA = 18345
SWTU = 12530

Conditioning BV17. Station tripped on a driver crowbar. Tried to reset - looks like the 4616 anode supply is dead g i. The breaker tripped, probably a blown fuse.

Ken H.

iesday, 24 July 2007 Ken H.

HV = 99021
PA = 18472
SWTU = 12659

Conditioning BV17. Finally repaired driver. Two shorted 4616 tubes.

533	167.0A.	15.73kV.	10.65μA.	1.76MW.	6330A.
43	167.2A.	15.70kV.	3.42μA.	1.76MW.	6330A.
45	174.7A.	17.02kV	3.50μA.	1.95MW.	6330A.
5	175.0A.	16.21kV.	4.21μA.	1.87MW.	6340A.
46	182.7A.	17.45kV.	6.96μA.	2.08MW.	6350A. Will let run here overnight.

Ken H.

Wednesday, 25 July 2007 Ken H.

HV = 99039
PA = 18491
SWTU = 12677

Conditioning BV17. Station ran overnight. Trips on mod. block, PA crowbar and V3 lamp lit.

7	182.9A.	16.42kV.	4.39μA.	1.93MW.	6385A.
0	195.3A.	18.19kV.	5.95μA.	2.25MW.	6385A.
50	195.5A.	18.6kV.	2.98μA.	2.31MW.	6845A.

7/25/07 Cont.

Time	Imod.	Emod.	Ion Pump I.	7835P.	7835 Fil. I.
0	201.5A.	19.51kV.	2.91μA.	2.48MW.	6360A.
42	201.7A.	19.81kV.	35.0μA.	2.50MW.	6340A. ← Gas burst?
44	209.7A.	21.23kV.	3.95μA.	2.74MW.	6340A.
38	209.5A.	21.38kV.	3.34μA.	2.71MW.	6350A.
39	217.7A.	20.78kV.	3.83μA.	2.76MW.	6470A. ← Raised 7835 fil. current.
23	217.8A.	20.75kV.	47.46μA.	2.75MW.	6470A.
5	206.0A.	19.11kV.	47.44μA.	2.42MW.	6460A. ← Reduced power to avoid gas trip

Will let run here overnight.

KeH

Thursday, 26 July 2007 Ken H.

HV = 99063
PA = 18514
SWTV = 12701

Conditioning BV17. Station ran all night. The only trips were on high tube pressure.

42	206.2A.	19.10kV.	43.5μA.	2.42MW.	6500A.
47	193.4A.	17.35kV.	47.6μA.	2.09MW.	6500A. ← Tried to go higher but upset the Nacc
5	193.2A.	17.37kV.	44.5μA.	2.09MW.	6500A. ← Gas trips.
[illegible]	193.0A.	17.67kV.	14.70μA.	2.14MW.	6430A. ← Line Voltage is swinging around
2	193.0A.	17.46kV.	4.60μA.	2.10MW.	6470A. ← Gas trip.
8	193.2A.	17.55kV.	3.53μA.	2.10MW.	6500A.
9	199.4A.	18.28kV.	2.80μA.	2.25MW.	6500A.

Will let run here overnight.

KeH

Friday, 27 July 2007 Ken H.

HV = 99088
PA = 18540
SWTV = 12726

Conditioning BV17. Station ran all night. Mod. block, crowbar indication, V3 and V4 lights lit.

[illegible]	199.4A.	18.21kV.	2.76μA.	2.25MW.	6490A.
	209.9A.	19.66kV.	2.75μA.	2.53MW.	6490A.
	210.0A.	19.69kV.	1.39μA.	2.55MW.	6490A. ← High pressure trip.
	215.4A.	21.2kV.	1.47μA.	2.80MW.	6420A. ← Line Voltage jumping.
	216.1A.	20.57kV.	1.55μA.	2.70MW.	6470A.
	222.7A.	22.23kV.	1.60μA.	3.00MW.	6400A.
	222.4A.	22.2kV.	1.61μA.	2.99MW.	6420A.
[illegible]	.2A.	22.1kV.	1.52μA.	3.02MW.	6510A. ← Raised 7835 Fil. I. Will let run here

over the weekend.

KeH

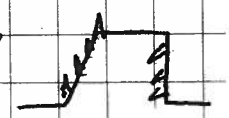
BV17

Monday, 30 July 2007 Ken H.

HV = 99159
PA = 18611
SWTU = 12797

Conditioning BV17. Station ran all weekend. Station tripped on mod. block / PA crowbar. V3 and V4 lights lit.

Time	I Mod.	E Mod.	Ion Pump I.	7835P.	7835 Fil. I.
0952	233.2A.	22.89kV.	3.13μA.	3.16MW.	6580A.
0955	239.4A.	23.94kV.	3.32μA.	3.36MW.	6580A.
1301	239.4A.	24.10kV.	2.95μA.	3.38MW.	6570A.
1303	244.4A.	24.93kV.	2.92μA.	3.52MW.	6570A.
1446	244.8A.	25.20kV.	3.14μA.	3.55MW.	6550A. ← Modulator I & V wav "spiky".



Not seen on "mod. in" or "
but seen on "cavity" forward

1710	241.4A.	21.75kV.	1.70μA.	3.15MW.	6780A. ← Conferred with Larry to be intermittent. May be on mod. reg. card, str a ground loop. Will low power overnight. St waveform at these Valu

K

Wednesday, 1 August 2007 Joshua, Ken H.

HV = 99185
PA = 18667
SWTU = 12853

Conditioning BV17. The 4616 anode supply cap. fuse blew up again Tuesday, 31 July 2007 after one week to the day of running fine. Joshua and I replaced the crowbar trigger circuit. I cleaned the contacts on the modulator regulator card switches and pots as best as I could. Station is running again.

1802	242.3A.	21.66kV.	0.22μA.	3.14MW.	6850A. ← MD7CZ = 89 Ω.

Will let run here overnig

KA

Thursday, 2 August 2007 Ken H.

HV = 99200
PA = 18683
SWTU = 12869

Conditioning BV17. Station ran all night. Trips on PA Crowbar, mod. block, Driver Crowbar, PA O/L and PA fil. down.

155	242.1A.	21.71kV.	0.15μA.	3.16MW.	6820A.
0957	252.1A.	23.06kV.	0.16μA.	3.46MW.	6820A.
1108	252.2A.	23.07kV.	0.17μA.	3.47MW.	6820A.
1111	257.7A.	23.76kV.	0.17μA.	3.63MW.	6820A.
[illegible]	[illegible]	23.79kV.	0.18μA.	3.64MW.	6830A.

8/2/07 Cont.

Hopefully, we found what was giving us the "spikey" waveform (P. 228 30 July entry). al Moretti suggested the switchtubes. V4 wasn't reading grid current so Joshua and I opened up the modulator. The 2 Ω Carborundum grid resistor (mounted on the SWTU driver deck) for V4 had one end burned up. The Mod E and Mod I waveforms look much happier now.

ne	I mod.	E Mod.	Ion Pump I.	7835 P.	7835 Fil. I.
7	260.7A.	24.35kV.	0.14μA.	3.67MW.	6810A. ← Will let run here overnight.

KAH

day, 3 August 2007 Ken H.

HV = 99223
PA = 18707
SWTU = 12893

Conditioning BV17. Station ran overnight. Station tripped on d. Block, Driver Crowbar and PA O/L.

260.1A.	24.18kV.	0.18μA.	3.65MW.	6860A. ← MD7LZ = 92.7 Ω.
268.9A.	25.24kV.	0.17μA.	3.91MW.	6860A.
69.5A.	25.49kV.	0.17μA.	3.93MW.	6850A.
274.5A.	26.02kV.	0.17μA.	4.10MW.	6845A.
274.0A.	26.17kV.	0.16μA.	4.12MW.	6830A.
279.6A.	26.90kV.	0.16μA.	4.30MW.	6830A.
279.5A.	26.87kV.	0.18μA.	4.30MW.	6830A.
282.7A.	27.59kV.	0.17μA.	4.46MW.	6820A. ← Bumped up 7835 Fil. I. NTF
283.5A.	27.25kV.	0.19μA.	4.40MW.	6890A. Will let run here over the week

MD7LZ = 96.1 Ω

KAH

Date	21 August 2007
PA FIL Hrs	~~99332~~ 18915
HVPS Hrs	~~18915~~ 99332
SWTU Hrs	13125

7835 Conditioning

7835 tube S/N	BA1

7835 peak Vacuum @ powerup: 10.57mA. / 5.70mA.

7835 Vacuum (fil. off) - 0.00μA.

Ken H.

Perform gas test

Time	Current
Leakage	1.5μA.
0 Minutes	0.75μA
~~1 min~~	3.0 μA
2 min	1.0 μA.

<-- Anode leakage before turning Filament ON

<-- Initial reading : 10.42μA

50A. SPLY ON. →

7835 Vacuum

0.73μA.

Anode E	-45 Volts
Grid I	50 Amps
Grid E	13 V