#361

PIONEER VENUS 1

ONMS VENUS SUMMARY, LOW FREQ. DATA

78-051A-11B

PIONEER VENUS 1

ONMS VENUS SUMMARY, LOW FREQ. DATA

78-051A-11B

THIS DATA SET HAS BEEN RESTORED. THERE WAS ORIGINALLY ONE 9-TRACK, 1600 BPI TAPE WRITTEN IN ASCII. THERE IS ONE RESTORED TAPE. THE DR TAPE IS A 3480 CARTRIDGE AND THE DS TAPE IS 9-TRACK, 6250 BPI. THE ORIGINAL TAPE WAS CREATED ON A DEC PDP 11/70 COMPUTER AND WAS RESTORED ON AN IBM 9021 COMPUTER. THE DR AND DS NUMBER ALONG WITH THE CORRESPONDING D NUMBER AND TIME SPAN IS AS FOLLOWS:

DR#	DS#	D#	FILES	TIME SPAN
DR006128	DS006128	D063880	1	12/24/78 - 08/13/80

REQ. AGENT	RAND NO.	ACQ. AGENT
DAD	V0261	HKH
SAR	V0301	HKH

PIONEER VENUS 1

ONMS VENUS SUMMARY, LOW FREQ. DATA

78-051A-11B

This data set consists of one tape. It is 1600 BPI, 9-track, ASCII and was created on a DEC PDP 11/70 computer. The D and C numbers along with the time spans are as follows:

D#	C#	TIME SPAN
D-63880	C-24097	12/24/78 - 08/13/80

** NOTE: Tape D-63880 and C-24097 were replaced 3/4/92. RWP

PIONEER VENUS ORBITER NEUTRAL MASS SPECTROMETER (ONMS)

Energeric Ion Location File

ORBITS 1 TO 706

A summary of the location of energetic ions detected by the ONMS instrument is given in this file. The file contains the start and stop times for each energetic ion segment. The file header description:

Name	Comment
ORBIT	Orbit number
MS	Mass number of species (e.g. 16 would be nominally O+)
YYDDD	YY = last two digits of year
	DD = day of year
HH:MM:SS	HH = hour
	MM = minutes
	SS = seconds
PER TIM	Time from periapsis (sec)
ALT	Altitude in (km)
SZA	Solar zenith angle (deg)
LST	Local solar time (hr)

PIONEER VENUS NEUTRAL MASS SPECTROMETER ENERGETIC ION EVENT LIST

		START						FINISH					
ORBIT	MS	YYDDD	HH:MM:SS	PER TIM	ALT	SZA	HOUR	YYDDD	HH:MM:SS	PER TIM	ALT	SZA	HOUR
1	16	78339	15: 6:35	-278.4	625.3	63.5	15.5	78339	15: 9:19	-114.2	420.8	62.8	15.9
1	16	78339	15:13:26	133.3	436.2	64.8	16.3	78339	15:14:46	213.2	524.9	66.2	16.4
3	16	78341	14:25:51	-356.3	624.0	66.4	15.5	78341	14:27: 2	-285.4	476.5	65.8	15.7
6	16	78344	14:47:58	-496.8	976.0	70.6	15.3	78344	14:50:46	-328.8	544.8	69.5	15.9
9	16	78347	15:15:22	-246.4	368.7	74.1	16.5	78347	15:16:59	-149.8	237.0	74.6	16.7
9	16	78347	15:22:30	181.1	272.9	78.8	17.2	78347	15:22:43	194.6	290.5	79.0	17.3
9	16	78347	15:23:44	255.6	394.3	80.1	17.3	78347	15:24:22	293.1	453.3	80.8	17.4
9	16	78347	15:26: 0	391.4	672.0	82.7	17.5	78347	15:26: 0	391.4	672.0	82.7	17.5
22	16	78360	17: 6: 1	-442.8	799.8	85.6	17.3	78360	17: 7: 3	-380.2	637.7	86.9	17.5
26	16	78364	17:37:15	-506.2	984.1	87.9	17.4	78364	17:38:51	-410.5	715.5	90.4	17.8
26	16	78364	17:40:31	-310.4	482.6	93.3	18.1	78364	17:41:55	-226.4	331.0	95.7	18.3
27	16	78365	17:46:53	-407.4	708.6	91.6	17.9	78365	17:46:53	-407.4	708.6	91.6	17.9
27	16	78365	18: 0:14	393.0	671.9	111.3	19.5	78365	18: 0:14	393.0	671.9	111.3	19.5
27	16	78365	18: 6:28	767.2	1888.8	112.1	20.1	78365	18: 7:15	814.3	2071.8	112.0	20.1
30	16	79003	18: 7: 8	-616.7	1331.5	88.2	17.3	79003	18: 7:39	-585.2	1225.1	89.1	17.5
30	16	79003	18:30:17	773.0	1903.7	115.5	20.4	79003	18:45: 3	1658.4	5745.5	107.4	22.3
32	16	79005	18:16:48	-633.9	1399.3	89.1	17.4	79005	18:16:48	-633.9	1399.3	89.1	17.4
33	16	79006	18:39:19	423.2	749.9	120.7	20.2	79006	18:39:19	423.2	749.9	120.7	20.2
38	16	79011	19: 6:30	596.3	1269.8	127.0	21.0	79011	19: 7:17	642.8	1429.3	126.4	21.1
41	16	79014	19: 6: 4	-210.6	314.4	115.9	20.0	79014	19: 7:16	-138.6	227.4	119.4	20.2
42	16	79015	19: 8:44	-309.5	490.7	112.0	19.9	79015	19:11: 2	-171.3	266.1	119.1	20.2
42	16	79015	19:21:32	458.9	854.6	133.9	21.3	79015	19:22:31	517.7	1027.1	133.2	21.3
43	16	79016	19:21:56	222.7	339.1	135.1	21.0	79016	19:24:17	363.7	612.4	136.0	21.2
43	16	79016	19:28:38	625.6	1380.2	132.5	21.6	79016	19:30:28	735.5	1775.5	130.0	21.8
44	16	79017	19:33:41	677.6	1551.1	132.4	21.8	79017	19:33:41	677.4	1550.4	132.4	21.8
46	16	79019	19:41:22	713.3	1686.4	133.4	22.1	79019	19:42:56	807.3	2044.7	130.6	22.2
49	16	79022	19:48:54	531.7	1073.8	141.7	22.1	79022	19:51:31	688.4	1602.6	136.8	22.4
50	16	79023	19:55:43	728.9	1754.1	136.3	22.5	79023	19:57:41	846.6	2208.1	132.1	22.7
52	16	79025	19:59:52	631.7	1389.9	141.2	22.6	79025	20: 4:19	898.4	2406.7	131.0	23.1
54	16	79027	20: 3:44	573.5	1200.1	145.3	22.8	79027	20: 7:23	792.5	1988.7	136.1	23.1
55	16	79028	20: 6:33	598.8	1287.2	145.0	22.9	79028	20: 6:57	622.0	1365.9	144.0	22.9
56	16	79029	20: 4:15	316.0	508.8	155.9	22.6	79029	20: 8:33	574.0	1208.6	146.9	23.0
57	16	79030	20: 8:35	431.3	787.3	153.9	22.9	79030	20:12:31	666.8	1528.3	143.2	23.2
68	16	79041	20:15:55	448.1	819.0	159.0	0.1	79041	20:17:21	534.2	1072.6	153.0	0.2
68	16	79041	20:20:36	729.9	1748.2	140.8	0.5	79041	20:21:24	777.1	1927.4	138.2	0.6
70	16	79043	20:13: 7	322.3	519.2	168.4	0.1	79043	20:14: 6	380.9	652.2	163.8	0.2
70	16	79043	20:18:38	653.6	1476.4	144.8	0.6	79043	20:22:15	870.1	2298.3	132.8	1.0
77	16	79050	19:44:23	-905.0	2438.0	100.6	20.0	79050	19:46:12	-795.3	2000.4	106.2	21.0
77	16	79050	19:54:40	-288.0	446.7	140.1	23.7	79050	19:56:13	-194.4	294.0	147.8	23.9
77	16	79050	20: 3:33	245.7	371.1	167.8	0.7	79050	20: 6:10	402.5	702.8	157.4	1.0
77	16	79050	20:10: 5	637.2	1416.8	141.9	1.4	79050	20:11:54	746.8	1814.8	135.6	1.5
79	16	79052	20: 4:18	483.0	908.8	149.7	1.3	79052	20: 5:36	561.3	1150.1	144.7	1.5
80	16	79053	19:59:54	368.9	606.2	156.1	1.3	79053	20: 0:41	415.9	723.6	153.1	1.3
80	16	79053	20: 4:36	650.9	1454.2	138.6	1.7	79053	20: 5:38	713.5	1680.9	135.1	1.8
82	16	79055	19:51:41	182.0	267.8	162.4	1.2	79055	19:53:33	293.6	448.1	157.9	1.4
85	16	79058	19:49:27	524.0	1029.7	141.0	2.0	79058	19:52: 3	680.4	1557.1	132.4	2.3
87	16	79060	19:38:30	264.5	389.6	151.7	1.8	79060	19:38:52	287.1	431.5	150.8	1.9
87	16	79060	19:38:30	264.3	389.3	151.8	1.8	79060	19:38:54	288.3	433.8	150.8	1.9
95	16	79068	19: 9: 9	189.5	284.7	141.5	2.6	79068	19: 9:41	221.6	329.9	140.7	2.6
95	16	79068	19:10:53	294.2	456.0	138.4	2.7	79068	19:10:57	298.2	463.9	138.3	2.7

95	16	79068	19:10:55	295.7	459.0	138.4	2.7	79068	19:11:10	310.8	489.3	137.8	2.8
98	16	79071	19: 3:53	523.5	1042.7	125.0	3.4	79071	19: 3:53	523.5	1042.7	125.0	3.4
104	16	79077	19:21:52	438.6	798.0	119.9	3.9	79077	19:23:42	548.4	1121.8	116.1	4.1
112	16	79085	20: 1: 6	624.1	1370.0	103.3	5.0	79085	20: 2: 9	686.7	1591.2	101.6	5.1
116	16	79089	19:54:50	-812.2	2064.4	106.6	1.2	79089	20: 3:19	-303.3	471.4	112.5	3.8
116	16	79089	20:13:29	307.1	479.0	105.7	5.0	79089	20:15:58	455.8	840.1	102.1	5.2
117	16	79090	20:17:32	287.8	440.1	104.6	5.0	79090	20:17:34	289.6	443.6	104.5	5.0
117	16	79090	20:17:33	289.3	443.0	104.5	5.0	79090	20:18:33	349.3	569.0	103.1	5.1
127	16	79100	20:58:57	257.9	380.1	89.6	6.0	79100	20:59:35	295.3	449.5	88.8	6.1
137	16	79110	21:22:47	-383.1	645.9	89.9	5.8	79110	21:23:50	-320.1	502.2	88.2	6.0
137	16	79110	21:25:47	-203.1	296.0	85.0	6.3	79110	21:25:47	-203.1	296.0	85.0	6.3
137	16	79110	21:34:34	323.2	508.8	72.9	7.2	79110	21:35:13	362.4	596.4	72.4	7.2
138	16	79111	21:23:50	-484.7	920.3	91.6	5.5	79111	21:24:37	-437.8	788.0	90.3	5.7
138	16	79111	21:18:21	-813.7	2068.5	98.6	3.5	79111	21:19: 8	-766.9	1886.8	97.7	3.9
138	16	79111	21:18:21	-813.5	2067.7	98.6	3.5	79111	21:19: 8	-766.7	1886.1	97.7	3.9
138	16	79111	21:36:54	299.2	460.1	71.7	7.3	79111	21:38:52	417.8	734.5	70.3	7.4
139	16	79112	21:28:36	-355.3	581.6	87.0	6.1	79112	21:28:48	-343.6	555.0	86.6	6.1
151	16	79124	21:36:45	-603.0	1297.7	84.8	6.3	79124	21:39:22	-446.5	816.8	78.1	7.0
151	16	79124	21:51:31	282.4	433.4	51.6	8.6	79124	21:51:42	293.5	454.9	51.4	8.6
151	16	79124	21:52: 6	318.1	504.6	51.3	8.7	79124	21:52: 6	318.1	504.6	51.3	8.7
152	16	79125	21:38:48	-444.9	814.6	77.1	7.2	79125	21:41:24	-288.9	448.5	69.6	7.6
161	16	79134	21:22:24	-411.9	735.0	67.0	8.2	79134	21:23:11	-365.0	619.7	64.2	8.4
162	16	79135	21:19:39	-413.1	741.4	66.1	8.3	79135	21:20:50	-342.9	572.9	61.9	8.5
162	16	79135	21:31: 9	276.7	438.6	34.5	9.8	79135	21:31:12	279.3	443.4	34.5	9.8
162	16	79135	21:31: 1	268.5	423.7	34.5	9.8	79135	21:31:12	280.0	444.7	34.5	9.8
164	16	79137	21:15: 1	-285.2	437.3	56.4	8.9	79137	21:15:59	-227.0	336.7	52.6	9.1
164	16	79137	21:23:17	211.0	312.6	31.8	9.9	79137	21:24:32	285.8	438.2	31.4	10.0
173	16	79146	20:31:16	-406.5	712.2	56.8	9.5	79146	20:31:16	-406.5	712.2	56.8	9.5
173	16	79146	20:42: 5	242.1	364.3	17.6	10.9	79146	20:42:41	278.7	428.4	18.1	11.0
175	16	79148	20:18:56	-382.9	661.3	53.6	9.8	79148	20:21:22	-237.1	365.3	42.5	10.2
175	16	79148	20:28:30	190.8	297.8	14.7	11.0	79148	20:28:56	217.4	335.0	14.5	11.1
185	16	79158	20:49:25	-513.9	1009.7	57.8	10.3	79158	20:54:51	-188.1	279.5	32.0	11.4
185	16	79158	21: 1:51	232.7	344.1	5.6	12.2	79158	21: 2:32	273.8	414.5	9.0	12.2
186	16	79159	20:57:21	-405.9	709.8	49.5	10.9	79159	20:57:45	-382.4	651.1	47.7	10.9
188	16	79161	21:10:42	-317.7	511.7	42.0	11.4	79161	21:12:54	-185.8	288.3	31.0	11.7
194	16	79167	21:42:13	-269.2	407.4	37.8	12.1	79167	21:43:18	-203.8	302.3	32.8	12.3
195	16	79168	21:45:26	-292.2	453.3	39.7	12.2	79168	21:46:28	-229.5	343.2	35.0	12.3
195	16	79168	21:54: 0	222.5	332.4	18.7	13.2	79168	21:54:39	261.2	395.9	20.4	13.3
198	16	79171	21:51:31	-525.3	1053.7	55.8	11.7	79171	21:52:57	-439.2	804.2	50.3	12.0
198	16	79171	22: 4:42	265.5	410.9	25.1	13.6	79171	22: 5:53	336.0	550.9	28.5	13.7
202	16	79175	22: 5:48	-246.3	366.0	39.4	13.1	79175	22: 6:36	-198.0	292.6	36.6	13.2
209	16	79182	22:11:45	-240.3	363.9	44.6	13.8	79182	22:12:47	-178.0	274.7	42.2	14.0
209	16	79182	22:18:50	184.7	283.0	39.9	14.7	79182	22:20:25	279.6	432.5	42.6	14.8
218	16	79191	22:11:35	-262.4	402.8	54.5	14.8	79191	22:12:36	-200.9	306.0	53.3	14.9
218	16	79191	22:19:29	212.3	322.1	54.9	15.7	79191	22:20:49	292.3	458.0	57.1	15.8
235	16	79208	21:59:48	-509.6	995.8	74.3	15.8	79208	21:59:48	-509.6	995.8	74.3	15.8
238	16	79211	22: 5: 8	-499.3	963.5	76.9	16.2	79211	22: 7:13	-373.6	623.8	77.8	16.6
297	16	79271	0:48:35	433.0	772.8	157.3	0.6	79271	0:48:35	432.9	772.6	157.3	0.6
316	16	79290	3: 3:59	496.9	960.9	133.7	2.7	79290	3: 5: 1	559.6	1155.1	130.6	2.8
320	16	79294	3:31:59	677.4	1559.5	120.7	3.4	79294	3:33: 2	740.2	1790.7	118.0	3.5
323	16	79297	3:45:57	402.1	702.8	128.4	3.3	79297	3:48:34	558.7	1155.3	122.0	3.5
334	16	79308	4:40:40	-328.7	527.4	119.5	3.1	79308	4:40:40	-328.7	527.4	119.5	3.1
334	16	79308	4:43:16	-172.7	264.0	121.3	3.5	79308	4:43:40	-148.7	237.2	121.4	3.5
334	16	79308	4:49: 8	179.3	272.1	118.3	4.1	79308	4:50:58	288.7	446.0	115.6	4.3

337	16	79311	5:10:50	408.7	714.9	107.8	4.8	79311	5:11:53	471.7	886.4	106.1	4.9
344	16	79318	5:51:29	402.5	694.8	96.7	5.6	79318	5:52: 1	433.9	777.1	96.0	5.6
348	16	79322	6:13:51	405.2	699.2	91.6	5.9	79322	6:14:54	468.1	869.7	90.4	6.0
354	16	79328	6:45:58	446.0	806.0	82.8	6.6	79328	6:46:21	469.4	871.8	82.5	6.6
379	16	79353	7:37:57	-518.9	1021.5	77.5	7.2	79353	7:39:59	-397.7	681.4	71.5	7.6
379	16	79353	7:51:36	300.1	460.4	45.7	9.1	79353	7:52:15	339.1	542.5	45.6	9.1
382	16	79356	7:36:43	-491.5	946.9	73.5	7.6	79356	7:37: 7	-468.1	879.2	72.2	7.7
382	16	79356	7:50:26	331.1	534.4	41.2	9.4	79356	7:51:29	394.1	681.2	41.6	9.5
384	16	79358	7:34:55	-498.8	974.0	72.1	7.8	79358	7:37: 8	-365.6	618.7	64.7	8.3
384	16	79358	7:46:21	187.5	292.0	38.9	9.4	79358	7:47:59	284.8	447.4	38.1	9.6
386	16	79360	7:34:12	-429.3	784.9	66.4	8.3	79360	7:37: 0	-261.3	412.0	56.3	8.8
386	16	79360	7:44:14	172.3	281.0	36.0	9.6	79360	7:45:37	255.3	401.7	35.0	9.7
402	16	80011	7: 1:43	-333.2	539.5	46.8	10.2	80011	7: 3:56	-200.0	301.8	36.1	10.6
403	16	80012	7: 7:56	-311.3	497.5	44.4	10.4	80012	7:10:10	-176.7	276.0	33.3	10.8
403	16	80012	7:16:32	204.5	312.3	9.0	11.5	80012	7:17:45	277.9	432.1	11.9	11.6
405	16	80014	7:18: 9	-389.0	680.6	49.2	10.4	80014	7:21:38	-180.1	288.6	32.2	11.0
405	16	80014	7:27:28	170.3	276.6	5.8	11.6	80014	7:29:45	307.7	497.8	12.6	11.8
410	16	80019	7:41:35	-368.1	620.7	45.3	11.0	80019	7:41:35	-368.1	620.7	45.3	11.0
414	16	80023	7:50:28	-689.7	1596.8	66.2	10.0	80023	7:58:11	-226.6	329.4	32.9	11.8
414	16	80023	8: 5: 5	188.1	274.4	9.6	12.6	80023	8: 6:29	272.1	406.3	14.7	12.8
423	16	80032	8: 1:52	-429.5	769.4	48.5	12.2	80032	8: 1:52	-429.5	769.4	48.5	12.2
434	16	80043	8:27:48	-247.5	381.4	44.8	13.9	80043	8:29: 7	-169.0	269.7	42.1	14.1
434	16	80043	8:34:53	177.6	280.1	41.1	14.7	80043	8:35:40	224.3	344.4	42.3	14.8
439	16	80048	8:47:23	-398.7	700.2	54.7	14.1	80048	8:47:59	-362.7	613.0	53.5	14.2
439	16	80048	8:59: 9	307.5	492.8	52.8	15.5	80048	8:59:24	323.0	524.9	53.4	15.5
444	16	80053	9: 5:56	-523.0	1046.8	62.2	14.2	80053	9: 6:19	-499.5	975.8	61.6	14.3
447	16	80056	9:36:12	597.6	1285.0	73.9	16.8	80056	9:36:12	597.6	1285.0	73.9	16.8
447	16	80056	9:17:48	-506.8	996.0	63.9	14.6	80056	9:18:59	-436.3	794.8	62.5	14.8
448	16	80057	9:23:37	-381.0	652.6	62.4	15.1	80057	9:23:37	-381.0	652.6	62.4	15.1
452	16	80061	9:34: 1	-598.4	1284.7	69.1	14.7	80061	9:34: 1	-598.4	1284.7	69.1	14.7
453	16	80062	9:39: 7	-488.8	938.9	68.5	15.3	80062	9:40:19	-416.8	739.1	67.8	15.5
461	16	80070	10: 3: 8	-405.2	704.3	76.2	16.4	80070	10: 3: 8	-405.2	704.3	76.2	16.4
461	16	80070	10:17:53	480.2	909.3	90.5	18.1	80070	10:17:53	480.2	909.3	90.5	18.1
462	16	80071	10: 6:40	-335.6	538.6	77.9	16.8	80071	10: 6:40	-335.6	538.6	77.9	16.8
464	16	80073	10: 9:13	-451.0	825.5	79.0	16.6	80073	10:12:23	-261.1	390.3	81.2	17.2
464	16	80073	10:21:57	313.1	490.0	92.0	18.2	80073	10:24:58	493.4	947.1	95.0	18.4
471	16	80080	10:20:47	-569.9	1185.5	83.9	16.9	80080	10:22:26	-470.9	882.0	85.8	17.3
471	16	80080	10:25:15	-301.6	467.0	89.5	17.8	80080	10:25:37	-279.4	424.0	90.1	17.9
472	16	80081	10:22:10	-594.2	1266.3	84.3	16.9	80081	10:24:31	-453.3	832.6	87.2	17.5
474	16	80083	10:25:41	-594.9	1269.5	85.9	17.1	80083	10:29:47	-348.2	568.3	92.0	18.0
474	16	80083	10:38: 6	150.3	236.6	105.1	19.0	80083	10:40: 6	270.5	409.7	107.2	19.2
479	16	80088	10:57:51	815.9	2082.1	115.1	20.6	80088	10:59:25	909.9	2459.7	114.2	20.7
490	16	80099	10:46:39	-700.4	1645.4	94.5	18.2	80099	10:48:54	-565.4	1179.3	100.3	19.0
490	16	80099	10:52:30	-349.4	579.7	110.6	19.7	80099	10:55:10	-189.5	292.4	118.5	20.1
490	16	80099	11: 0:44	143.8	239.8	131.0	20.7	80099	11: 5:35	434.8	791.5	132.5	21.2
490	16	80099	11: 7:53	573.5	1205.7	130.5	21.4	80099	11: 8:56	636.2	1416.8	129.3	21.5
496	16	80105	10:48:48	-590.7	1260.2	103.8	19.5	80105	10:50:48	-470.8	888.8	110.1	20.0
499	16	80108	11: 5:32	513.6	1001.3	142.2	22.3	80108	11: 5:32	513.6	1001.3	142.2	22.3
506	16	80115	10:58:24	741.4	1785.4	137.3	23.4	80115	11: 1: 1	897.8	2401.9	130.2	23.7
513	16	80122	10:29:41	216.3	309.4	168.6	23.3	80122	10:35:26	561.2	1150.6	148.6	23.9
520	16	80129	10: 6:47	550.7	1116.4	147.5	0.6	80129	10:10:18	762.5	1865.1	134.4	1.0
566	16	80175	12:51:39	-225.2	331.1	111.3	4.2	80175	12:52:47	-157.1	241.2	111.0	4.3
579	16	80188	13:58:53	-496.3	951.1	98.5	4.8	80188	13:58:53	-496.3	951.1	98.5	4.8
585	16	80194	14:26:33	-491.7	939.1	92.7	5.5	80194	14:28:24	-379.9	637.0	90.0	5.8

587	16	80196	14:35:23	-431.3	770.1	89.2	5.9	80196	14:36:35	-359.3	589.6	87.2	6.1
606	16	80215	15:32:41	-405.6	739.5	68.2	7.9	80215	15:33:30	-356.2	620.8	65.6	8.1
607	16	80216	15:32:30	-580.0	1249.7	76.3	7.4	80216	15:38:58	-191.9	327.4	55.6	8.6
607	16	80216	15:45:50	219.9	366.5	40.7	9.3	80216	15:46:39	269.4	447.4	40.3	9.4
608	16	80217	15:34:38	-615.1	1368.6	77.2	7.4	80217	15:39:57	-296.4	501.1	60.1	8.5
608	16	80217	15:48:31	217.7	366.7	39.1	9.4	80217	15:49:42	288.3	485.6	38.8	9.5
609	16	80218	15:40: 6	-450.9	867.5	67.8	8.1	80218	15:44:44	-173.4	311.6	52.0	8.8
609	16	80218	15:50:24	166.3	303.5	38.2	9.5	80218	15:51:13	215.7	367.5	37.5	9.5
612	16	80221	15:49:33	-378.8	693.1	60.7	8.7	80221	15:53:36	-135.8	283.6	45.9	9.2
612	16	80221	15:57:34	102.5	256.3	35.0	9.7	80221	16: 0:29	277.4	479.7	32.7	9.9
615	16	80224	15:58:21	-348.6	634.7	55.8	9.1	80224	16: 2:21	-108.6	273.2	40.4	9.6
615	16	80224	16: 5:25	75.1	252.0	31.1	9.9	80224	16: 7:13	183.1	347.0	28.4	10.1
616	16	80225	15:58:30	-506.4	1047.6	64.9	8.7	80225	15:58:54	-482.6	978.6	63.4	8.7
617	16	80226	16:12:45	181.3	353.1	25.2	10.3	80226	16:14:47	302.4	546.0	25.7	10.5
620	16	80229	16:10:35	-453.8	912.2	58.3	9.3	80229	16:12:35	-333.9	621.8	50.1	9.6
620	16	80229	16:21:54	224.9	424.5	20.4	10.7	80229	16:23:56	346.7	649.2	23.1	10.9
621	16	80230	16:15:29	-329.7	616.8	48.9	9.8	80230	16:16:31	-267.0	496.6	44.4	9.9
624	16	80233	16:21:17	-491.6	1030.8	57.9	9.6	80233	16:23:54	-333.9	637.0	46.7	10.1
624	16	80233	16:31:14	105.7	309.5	16.0	11.0	80233	16:33:25	236.4	458.4	14.7	11.2
625	16	80234	16:28: 9	-249.5	483.2	39.5	10.4	80234	16:29:10	-189.2	396.2	34.8	10.5
626	16	80235	16:31:10	-239.6	471.3	37.9	10.5	80235	16:34: 1	-69.2	296.4	24.4	10.9
628	16	80237	16:41:33	40.4	293.9	13.9	11.3	80237	16:45:46	293.5	571.7	12.8	11.7
629	16	80238	16:35:31	-493.2	1051.4	54.8	10.1	80238	16:39:37	-247.6	495.5	36.3	10.8
629	16	80238	16:33: 4	-640.4	1511.5	64.4	9.5	80238	16:33: 4	-640.3	1511.2	64.4	9.5
629	16	80238	16:48:45	301.1	589.7	12.8	11.8	80238	16:49: 1	317.0	620.8	13.9	11.8
631	16	80240	16:43:44	-344.8	685.5	42.8	10.8	80240	16:48:56	-32.9	304.0	16.9	11.5
631	16	80240	16:50:21	52.4	309.6	9.7	11.6	80240	16:52:48	199.1	432.3	4.8	11.9
632	16	80241	16:48:26	-234.7	486.2	33.4	11.2	80241	16:51:41	-40.0	309.5	16.9	11.6
633	16	80242	16:51: 1	-252.0	517.0	34.4	11.2	80242	16:54: 0	-73.2	325.8	19.3	11.6
633	16	80242	16:56:16	62.5	320.9	7.4	11.8	80242	16:57:52	158.5	391.6	0.9	12.0
636	16	80245	16:59:26	-265.0	548.3	34.4	11.5	80245	17: 0:33	-198.4	448.6	29.0	11.7
638	16	80247	17: 6:39	-178.3	430.6	27.1	11.9	80247	17: 9:19	-18.4	326.4	14.5	12.2
644	16	80253	17:21:57	-292.9	617.9	36.5	12.3	80253	17:22:59	-231.4	515.7	32.2	12.5
657	16	80266	17:56: 6	-441.3	961.8	50.7	13.3	80266	18: 0:14	-192.7	478.7	40.5	14.0
670	16	80279	18:30:23	-486.8	1080.4	61.6	14.6	80279	18:31:10	-439.7	954.5	60.6	14.8
670	16	80279	18:39:36	66.0	367.9	57.8	15.8	80279	18:43:47	316.5	674.5	63.3	16.2
671	16	80280	18:34:36	-391.9	836.3	60.6	15.0	80280	18:38: 6	-181.6	460.8	58.2	15.5
678	16	80287	18:54:57	-258.5	563.5	67.8	16.1	80287	18:56:57	-138.5	409.9	68.2	16.3
684	16	80293	19: 4:30	-601.0	1414.7	74.6	15.8	80293	19: 6: 4	-507.0	1128.7	74.6	16.1
692	16	80301	19:28:52	-347.1	724.8	85.0	17.4	80301	19:29: 3	-336.3	702.1	85.2	17.4
699	16	80308	19:41:31	-646.6	1565.6	86.4	17.2	80308	19:43:17	-540.0	1226.6	88.8	17.6
706	16	80315	20: 4:27	-342.4	727.8	102.5	18.9	80315	20: 4:37	-331.6	705.5	102.8	19.0

TO: Kent Hills
Code 633.0
FROM: W. T. Kasprzak
Code 615.1
DATE: 11-SEP-85
SUBJECT: Replacement tape for Pioneer Venus Neutral Mass Spectrometer (ONMS)

The new submitted tape replaces the previous tape submitted for ONMS. There have been a few updates in the data and for reference purposes the data set has been expanded to include spacecraft position data. The position data have been derived from the periapsis orbit elements assuming an elliptical orbit. The derived data are consistent with that provided by the Pioneer Venus Project on their individual data SEDR tapes. The positional data should be used only until data supplied by the Project to NSSDC, corresponding to the same times, becomes available. A set of times have been generated by the Project and given to all Pioneer Venus experimenters in order to provide a common time base for construction of representative data samples.

The format of the tape is similar to that used earlier and a new complete set of documentation has been supplied along with the tape. A tape dump of the first few blocks has also been included for reference purposes.

Any questions or problems with the data or the data tape should be communicated to:

H. B. Niemann 301-344-8706
W. T. Kasprzak 301-344-8253

PIONEER VENUS ORBITER
NEUTRAL MASS SPECTROMETER

DUMP OF FIRST FEW BLOCKS OF
11-SEP-85 TAPE

1089 PHYSICAL BLOCKS

```
;ALLOCATE TAPE DRIVE
>ALL MM2:
>;MOUNT TAPE AS FOREIGN WITH NO LABEL
>MOUNT MM2:/NOLABEL/DENS=1600
>;SET RECORD SIZE,BLOCK SIZE AND LIST TYPE
>MAG SET MM2:/RS=125./BS=1250./REWIND/CC=LIST
>;NOEW START DUMPING TAPE
>PIP TI:=MM2:X

 13 DHE  DO   DN2  DCO  DCO2 VVR1 NVR1 VVR3 NVR3 VALT VLAT VLST VSZA
 (I8,I9,I5,I6,1P5E9.2,2(1PE9.2,0PF4.0),0PF8.1,F6.1,F5.1,F7.1)
       0        0    0      0 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 0.00E-01  0.     0.0   0.0  0.0    0.0
 1978358 60862816   20   -168 0.00E-01 4.28E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 0.00E-01  0.   237.9  30.6 17.8   89.3
 1978358 60874816   20   -156 0.00E-01 7.82E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 0.00E-01  0.   225.1  29.6 17.9   89.6
 1978358 60886816   20   -144 8.69E+05 1.76E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 0.00E-01  0.   213.3  28.6 17.9   89.8
 1978358 60898816   20   -132 1.03E+06 4.38E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 0.00E-01  0.   202.5  27.6 17.9   90.1
 1978358 60910816   20   -120 1.27E+06 9.43E+06 0.00E-01 0.00E-01 1.02E+06 0.00E-01  0. 0.00E-01  0.   192.6  26.6 17.9   90.4
 1978358 60922816   20   -108 1.52E+06 2.12E+07 0.00E-01 0.00E-01 1.81E+06 0.00E-01  0. 0.00E-01  0.   183.8  25.5 18.0   90.6
 1978358 60934816   20    -96 1.73E+06 4.54E+07 1.78E+06 0.00E-01 3.50E+06 0.00E-01  0. 0.00E-01  0.   175.9  24.5 18.0   90.9
 1978358 60946816   20    -84 2.14E+06 9.50E+07 5.56E+06 9.80E+06 8.28E+06 3.86E-15 50. 0.00E-01  0.   169.1  23.5 18.0   91.2
 1978358 60958816   20    -72 2.40E+06 1.89E+08 1.41E+07 2.43E+07 2.04E+07 8.31E-15 50. 0.00E-01  0.   163.2  22.4 18.0   91.5
 1978358 60970816   20    -60 2.78E+06 2.98E+08 2.66E+07 4.94E+07 4.88E+07 1.50E-14 50. 0.00E-01  0.   158.4  21.4 18.1   91.7
 1978358 60982816   20    -48 3.02E+06 4.09E+08 4.85E+07 8.85E+07 1.10E+08 2.53E-14 50. 0.00E-01  0.   154.6  20.3 18.1   92.0
 1978358 60994816   20    -36 3.52E+06 5.24E+08 6.77E+07 1.25E+08 1.78E+08 3.59E-14 50. 0.00E-01  0.   151.9  19.3 18.1   92.3
 1978358 61006816   20    -24 3.55E+06 6.07E+08 8.85E+07 1.63E+08 2.60E+08 4.68E-14 50. 0.00E-01  0.   150.1  18.2 18.1   92.6
 1978358 61018816   20    -12 3.91E+06 6.99E+08 1.04E+08 1.99E+08 3.16E+08 5.58E-14 50. 0.00E-01  0.   149.4  17.2 18.1   92.8
 1978358 61021248   20      0 3.99E+06 7.12E+08 1.05E+08 2.05E+08 3.16E+08 5.65E-14 50. 0.00E-01  0.   149.4  17.1 18.1   92.9
 1978358 61030816   20     12 4.30E+06 7.17E+08 1.02E+08 1.90E+08 2.86E+08 5.35E-14 50. 0.00E-01  0.   149.7  16.2 18.2   93.1
 1978358 61042816   20     24 3.97E+06 5.66E+08 6.55E+07 1.24E+08 1.66E+08 3.60E-14 50. 0.00E-01  0.   151.0  15.1 18.2   93.4
 1978358 61054816   20     36 3.83E+06 4.68E+08 4.96E+07 9.05E+07 1.11E+08 2.71E-14 50. 0.00E-01  0.   153.4  14.1 18.2   93.6
 1978358 61066816   20     48 3.71E+06 5.26E+08 0.00E-01 0.00E-01 7.31E+07 0.00E-01  0. 0.00E-01  0.   156.8  13.0 18.2   93.9
 1978358 61090816   20     72 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 2.46E+06 14.   166.6  10.9 18.3   94.4
 1978358 61102816   20     84 2.16E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 2.46E+06 14.   173.0   9.9 18.3   94.7
 1978358 61114816   20     96 0.00E-01 4.08E+07 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   180.4   8.8 18.3   95.0
 1978358 61126816   20    108 1.42E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   188.9   7.8 18.3   95.2
 1978358 61138816   20    120 0.00E-01 8.12E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   198.3   6.8 18.3   95.5
 1978358 61162816   20    144 0.00E-01 1.44E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   220.2   4.7 18.4   96.0
 1978359 61366816   21   -156 0.00E-01 2.99E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   225.1  29.6 18.0   91.0
 1978359 61378816   21   -144 0.00E-01 5.20E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   213.3  28.6 18.0   91.3
 1978359 61390816   21   -132 0.00E-01 7.14E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   202.5  27.6 18.0   91.6
 1978359 61402816   21   -120 1.12E+06 2.13E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   192.7  26.5 18.1   91.9
 1978359 61414816   21   -108 1.38E+06 6.86E+06 0.00E-01 0.00E-01 8.93E+05 0.00E-01  0. 8.49E+05 14.   183.8  25.5 18.1   92.1
 1978359 61426816   21    -96 1.65E+06 1.69E+07 0.00E-01 0.00E-01 1.93E+06 0.00E-01  0. 8.49E+05 14.   176.0  24.5 18.1   92.4
 1978359 61438816   21    -84 2.40E+06 3.81E+07 0.00E-01 5.90E+06 4.45E+06 0.00E-01  0. 8.49E+05 14.   169.2  23.4 18.1   92.7
 1978359 61450816   21    -72 2.67E+06 6.79E+07 2.81E+06 9.80E+06 8.21E+06 3.01E-15 50. 8.49E+05 14.   163.4  22.4 18.1   93.0
 1978359 61462816   21    -60 2.26E+06 9.53E+07 4.03E+06 1.72E+07 1.41E+07 4.56E-15 50. 8.49E+05 14.   158.6  21.4 18.2   93.3
 1978359 61474816   21    -48 2.00E+06 1.28E+08 7.00E+06 2.91E+07 2.65E+07 7.04E-15 50. 8.49E+05 14.   154.8  20.3 18.2   93.6
 1978359 61486816   21    -36 2.45E+06 1.64E+08 1.22E+07 4.36E+07 4.74E+07 1.04E-14 50. 8.49E+05 14.   152.1  19.3 18.2   93.8
 1978359 61498816   21    -24 2.65E+06 2.08E+08 1.80E+07 5.83E+07 6.88E+07 1.41E-14 50. 8.49E+05 14.   150.3  18.2 18.2   94.1
 1978359 61510816   21    -12 2.62E+06 2.39E+08 2.19E+07 6.16E+07 8.44E+07 1.64E-14 50. 8.49E+05 14.   149.6  17.2 18.3   94.4
MCR>ABO PIP

09:15:30  Task "...PIP" terminated
          Aborted via directive or CLI
          And with pending I/O requests

;ABORT LIST PROCESS AFTER A FEW LINES OF OUTPUT
>;DISMOUNT TAP
>DMO MM2:
DMO -- TT0:     dismounted from MM2:     *** Final dismount initiated ***
```

COMMENTS ON ORBITS NOT ON THE NSSDC ONMS NEUTRAL ATMOSPHERE TAPE

The following is a list of orbits not contained in the data tape. Generally speaking the term 'NO DATA AVAILABLE FOR THIS ORBIT' means no telemetry tape was received or that, for this orbit, the telemetry format did not contain ONMS words. The term 'NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS' generally indicates that the telemetry format near periapsis did not contain ONMS words or that there was a loss of telemetry data; data were received at higher altitudes but well beyond the range of the sensible neutral atmosphere. Sweep mode (1/8 or unit) has very low data rate and it is difficult to fully correct the composition so that in many, but not all, cases where that mode is used there is no data. Special tests usually do not yield any useful atmospheric densities.

ORBIT	COMMENT
NOTE:	PERIAPSIS RAPIDLY LOWERED FOLLOWING ORBIT INSERTION AT ORBIT 0
1- 2	PERIAPSIS ALTITUDE TOO HIGH FOR ATMOSPHERE DETECTION
3-20	NOT IN DATA FILE; GAS SURFACE REACTIONS NOT STABILIZED
24	RPA SWEEP MODE TEST
31	ATTITUDE DATA NECESSARY FOR PROCESSING NOT AVAILABLE
32	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
34	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
40	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
47	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
48	RPA MODE SWEEP TEST
56	NO DATA AVAILABLE FOR ONMS NEAR PERIPSIS
64	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
65	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
69	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
71	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
72	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
80	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
88	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
89	NO DATA FOR THIS ORBIT
96	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
125	RPA MODE SWEEP TEST
142	ENGINEERING TEST
156	ENGINEERING TEST
163	ENGINEERING TEST
174	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
174	ENGINEERING TEST
182	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
192	ENGINEERING TEST
193	ENGINEERING TEST
196	NO DATA AVAILABLE NEAR PERIAPSIS
200	NO DATA AVAILABLE NEAR PERIAPSIS
201	UNIT SWEEP; LOW DATA RATE
217	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
225	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
233	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
241	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
243	1/8 UNIT SWEEP; LOW DATA RATE
252-281	ORBITER TURNED OFF DURING PIONEER-SATURN ENCOUNTER

282	NO DATA FOR THIS ORBIT
283	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
284	NO DATA FOR THIS ORBIT
286	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
290	ATTITUDE DATA NECESSARY FOR PROCESSING NOT AVAILABLE
293	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
294	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
303	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
317	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
321	NO DATA FOR THIS ORBIT
326	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
327	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
330	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
336	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
338	UNIT SWEEP; LOW DATA RATE
339	COMMANDS NOT PROPERLY LOADED
342	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
345	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
346	LOW DATA RATE
358	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
359	NO DATA FOR THIS ORBIT
362	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
364	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
378	NO DATA AVAILABLE FOR ONMS NEAR PERIPASIS
397	QUESTIONABLE TIME EPOCH FOR DATA SAMPLE; NOT GENERATED
398	NO DATA FOR THIS ORBIT
406	NO DATA FOR THIS ORBIT
418	COMMANDS NOT PROPERLY LOADED
432	RPA SWEEP MODE TEST
436	NO DATA FOR THIS ORBIT
438	ENGINEERING TEST
443	COMMANDS NOT PROPERLY LOADED
455	COMMANDS NOT PROPERLY LOADED
467	RPA MODE SWEEP TEST
469	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
470	1/8 UNIT SWEEP; LOW DATA RATE
484	ENGINEERING TEST
501	RPA MODE SWEEP TEST
503	1/8 UNIT SWEEP; LOW DATA RATE
510	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
518	NO DATA FOR THIS ORBIT
536	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
538	1/8 UNIT SWEEP; LOW DATA RATE
542	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
553	ENGINEERING TEST
565	1/8 UNIT SWEEP; LOW DATA RATE
570	NO DATA AVAILABLE FOR ONMS NEAR PERIAPSIS
587	ENGINEERING TEST
588	ENGINEERING TEST
600	1/8 UNIT SWEEP; LOW DATA RATE
NOTE:	PERIAPSIS NO LONGER BEING PUSHED TO LOWER ALTITUDES; AS IT RISES THE ATMOSPHERE SAMPLE APPROACHES THE LOWER LIMIT MEASUREMENT THRESHOLD OF ONMS
610	LOW ELECTRON ENERGY; DATA NEAR OR BELOW MEASUREMENT THRESHOLD
618-645	DATA BELOW MEASUREMENT THRESHOLD

11-SEP-85

Doc-1

NSSDC DOCUMENTATION FOR PIONEER VENUS ORBITER NEUTRAL MASS SPECTROMETER

I. The Orbiter Neutral Mass Spectrometer (ONMS)

The instrument was designed primarily to determine the composition of the neutral thermosphere/exosphere of Venus. The term composition includes both the kind of neutral gases present and their quantitative amount. The measurements begin at periapsis and extend to a limiting altitude at which the ambient signal becomes comparable to the noise and gas background. The neutral composition includes helium, atomic nitrogen, atomic oxygen, molecular nitrogen, carbon monoxide and carbon dioxide.

The ONMS instrument has been described in "Pioneer Venus Orbiter Neutral Gas Mass Spectrometer Experiment", IEEE Transactions in Geoscience and Remote Sensing, GE-18 (1), 1980. A discussion of the acquired data, the reduction to meaningful composition and examples of the composition and temperature of the thermosphere/exosphere for the first Venus diurnal cycle is given in "Mass Spectrometric Measurements of the Neutral Gas Composition of the Thermosphere and Exosphere of Venus", Journal of Geophysical Research, 85, 7817, 1980. An empirical model of ONMS composition which also incorporates an extension down to 100 km is described in "Global Empirical Model of the Venus Thermosphere," Journal of Geophysical Research, 88, 73-83, 1983. The papers are reproduced here for convenient reference. As of this date no known instrument anomalies have occurred which would indicate a malfunction of the ONMS instrument.

II. Reduction to Composition

Reference to the basic data reduction has been given Section I.

The source of data and their corrections are summarized below.

Gas	m/e used	Comments
He	4	
N	30	Surface recombined N and O
O	32	Surface recombined O to O_2; corrected for CO_2 fragmentation at m/e 32; corrected for surface loss of O to CO_2*.
N_2, CO	28, 14	m/e 14 corrected for NO, CO and CO fragmentation; m/e 28 corrected for CO_2 fragmentation.
CO_2	44	Corrected for surface reaction of O to CO_2*.

*A correction based on matching scale height temperatures of O and CO_2.

Erroneous points due to spacecraft antenna shadowing were eliminated by restricting the maximum angle of attack to 40°. All data used for the UADS insertion were obtained from the non-retarding potential mode of the instrument. Data from the retarding mode of the instrument are consistent with those obtained from the non-retarding mode and have not been included.

III. Description of ONMS Variables in the Unified Abstract Data System (UADS)

The following single variables are used for ONMS data storage:

Name	Description	Units
DCO	Particle density of carbon monoxide (CO)	CM-3
DCO2	Particle density of carbon dioxide (CO_2)	CM-3
DHE	Particle density of helium (HE)	CM-3
DN2	Particle density of molecular nitrogen (N_2)	CM-3
DO	Particle density of atomic oxygen (O)	CM-3

The following paired variables are used for ONMS data storage:

Pair	Name	Description	Units
1	VVR1	Total mass density	G/CM-3
	NVR1	Pseudo atomic mass number = 50	---
2	VVR2	Total number density	CM-3
	NVR2	Pseudo atomic mass number = 51	---
3	VVR3	Particle density of atomic nitrogen (N)	CM 3
	NVR3	Atomic mass number = 14	---
4	VVR4	Value of variable 4	TBD
	NVR4	Variable 4 code	TBD
5	VVRS	Value of variable 5	TBD
	NVRS	Variable 5 code	TBD

In general NVRX where X = variable number 1...5) is a code which indicates what variable is being placed in the value field VVRX. Variable pairs 1, 2, and 3 have been given permanent assignments while 4 and 5 have yet to be assigned.

The following variables are positional parameters of the spacecraft:

Name	Description	Units
VALT	Altitude above the mean surface of Venus	KM
VLAT	Latitude on surface of Venus	DEG N
VLST	Local solar time	HR
VSZA	Solar zenith angle	DEG

These variables have been included for convenience until superceded by positional parameters to be supplied by Ames Research Center.

IV. Criteria for Insertion of ONMS Data into UADS

Several criteria were invoked when inserting data for a given orbit: orbit and attitude parameters must exist, the spacecraft format/bit rate be appropriate for acquisition of data by ONMS and the command sequence of ONMS be such that useful atmospheric composition could be determined.

Cases where useful composition cannot be determined include special test modes (e.g. retarding potential sweeps, filament off, etc.) and normal modes

where needed composition corrections cannot be applied (e.g. unit amu sweep at low bit rate and 1/8 amu sweep).

Entire orbits where no useful composition data were obtained are not included in the data set. Sample spacing is nominally 12 seconds from -1800 to 1800 seconds periapsis time except for times associated with the -12, 0, and +12 time tags. Valid data for at least one species is required to output data for a given time tag. Time tags where no useful composition are obtained are not included in the data set. The universal time of the -1800 time tag, periapsis and of the +1800 time tag supplied by the Project were used to generate all of the required UADS times. Orbits 1-19 were not put into UADS because gas-surface processes in the ion source of the instrument had not stabilized and reliable composition data are not available.

Data values at the required time tags were constructed by using a 24 second weighted average of the high resolution data centered at the required time. Corrections to the number densities of CO_2 and O for surface reactions involving O were made at this time. The total mass density and total number density were determined only if all major constituents were present (i.e. CO_2, CO, N_2, and O). A minimum of 3 data points were required per species for the average at the specified UADS time to be present.

The actual altitude limit to which the data extends is variable depending on the gas, periapsis altitude, and the overall high altitude gas background. The high altitude data cut off for any given gas was set when the relative error in the value of the number density resulting from counting statistics and background signal exceeded 30%. An absolute altitude cut off of 250 km was used for all gases except He for which 350 km was used. These limits represent the best current estimate of regions where surface outgassing

becomes predominant or where the (noise/signal) becomes appreciable. Neutral composition data were acquired from orbits 1 to about 645 at which point sensible neutral measurements could no longer be made due to the high periapsis altitude.

The ONMS data set does not contain the factor of 1.6 increase in density (irrespective of gas species) needed to maintain compatibility with other data sets as discussed in "Global Empirical Model of the Venus Thermosphere."

V. Description of Summary Tapes

The data tape containing summary data for Pioneer Venus Orbiter Neutral Mass Spectrometer has the following characteristics:

MEDIUM:	MAGNETIC TAPE
FORMAT:	ASCII
DENSITY:	~~1600 BPI~~ 6250 BPI
TRACKS:	9
PHYSICAL BLOCKSIZE:	1250 BYTES
LOGICAL RECORD SIZE:	125 BYTES
PHYSICAL RECORD TYPE:	FIXED BLOCK
TAPE LABEL:	UNLABELED
COMPUTER USED:	DEC PDP 11/70
LANGUAGE:	FORTRAN 77

As much as possible the orbits on tape have been arranged sequentially. The format conforms to the description for the Pioneer Venus summary data submission which has been included for reference. In brief:

RECORD 1:

DESCRIPTION: number of variables and 4 character variable names used.

FORMAT = (I3, <N> (1X,A4) where <N> is the expected maximum number of items to be read.

CURRENT DATA TAPE: <N> = 13 items.

EXAMPLE READ:

```
PARAMETER (NVAR=17)
INTEGER *4 NAMES(NVAR)
READ(UNIT,'(13, <NV> (1X,A4))') NV, (NAMES(I),I=1,NV)
```

```
RECORD 2:
   DESCRIPTION:  Format of main data record.
   FORMAT:       (<M>A1)
   CURRENT DATA TAPE:  <M> = maximum number of bytes per logical record.
   EXAMPLE READ:
     PARAMETER(MAXBYT=125)
     BYTE FORMAT(MAXBYT)
     READ(UNIT, (<MAXBYT>A1)') FORMAT

RECORD 3:
   DESCRIPTION:  Fill data definition (i.e. non-useable data) for the
                 data value fields.

NOTE:  fill is used where:  (a) no data is available for the field
                            (b) to fill out the physical block
   FORMAT:       format contained in record 2.
   CONTENTS:     YYYDOY where YYY = year! DOY = day of year.
   UT            the universal time in milliseconds of day.
   ORBIT         orbit number assigned to data.
   TIMTAG        time tag associated with data (nominal periapsis
                 time).
   FILL          fill values for each of the variables indicated in
                 record 1.
EXAMPLE READ:
   PARAMETER(NVAR=17)
   INTEGER*2 ORBIT,TIMTAG
   INTEGER*4 YYYDOY,UT
   REAL*4 FILL(NVAR)
   READ(UNIT,FORMAT) YYYDOY,UT,ORBIT,TIMTAG,(FILL(I),I=1,NV)

RECORD 4...:
   DESCRIPTION:     summary data for ONMS.
   FORMAT:          format contained in record 2.
   NOTE:  data values except where fill is being used.
   EXAMPLE READ:
      PARAMETER(NVAR=17)
      INTEGER*2 ORBIT,TIMTAG
      INTEGER*4 YYYDOY,UT
      REAL*4 DATA(NVAR)
      READ(UNIT,FORMAT) YYYDOY,UT,ORBIT,TIMTAG, (DATA(I),I=1,NV)
```

Purpose of Revised Pioneer Venus NSSDC Data Format

1. standardize and improve the data formats for each experiment so that the tapes can be easily read by a requestor.

2. store the data by experiment,

3. provide for orderly updating of data,

4. provide for ultimate replacement of existing UADS generated archival tapes.

A new format was designed which is to be used by each experimenter for PVO NSSDC data experimenter, and can be easily read by computers expected to be accessible to a requester. One major difference between this and the existing LFD format is the use of text (ASCII) data formats, eliminating both binary and IBM floating point formats.

The proposed new submission format is self-defining in the sense that the first three records on each tape define the data parameters, value representations, and missing data (file) indicators. The first tape record defines the order in which the variables appear in the subsequent data records, in a manner similar to that used for SEDR trajectory data (SEDR file 5). The second tape record will contain a FORTRAN-compatible format list describing the field sizes and representations of each data value in the order defined in record 1. This format may be used to decode all subsequent records on the tape.

The third tape record will define a unique value associated with filler (missing) data for all variable fields. It is formatted according to the format used in record 2, and is immediately followed by the start of actual data records (records 4 and beyond).

The following is the proposed new format, with examples as applied to OETP instructions.

PROPOSED PIONEER VENUS NSSDC LOW-FREQUENCY DATA FORMAT

This document describes a suggested format to be used by all investigators for the submission of their data to the National Space Sciences Data Center. The overall specification will require that all data be coded into ASCII, and written onto standard 1/2 inch 1600-bpi 9-track tapes. The logical record length will be fixed for a given tape, as well as the physical blocksize. Blocksizes should be large enough to avoid wasting tape, but should not exceed 8000 bytes in order to avoid making excessive demands on user programs for memory. The first three records of any of these tapes will be formatted as follows:

Record 1: The format to be used is (I3,n(1X,A4)) where "n" is the number of data items in each record.

```
*4  ELTE  ELNE  MI    VS                                  (for OETP)
 7  ETEM  SPOT  TONE  TTWO  XVEL  YVEL  ZVEL              (for ORPA)
 ↑   ↑    ↑     ↑     ↑     ↑     ↑     ↑
 3   5    10    15    20    25    30    35
```

Example 1: The first record in each tape file. Note that new value types with new 4-character designations can be added as necessary. The date, time, orbit and time-tag items are not included in the list, because they are common to all data records.

* number of data items "n"

Record 2: This record contains the format in which all succeeding records are written. The first 4 format items specify the date, time, orbit, and time-tag, and will appear in the same format on all tapes.

```
(I8,I9,I5,I6,4F9.2)          (Appropriate for OETP)
↑
1
```

Example 2: The second record in each tape file

Record 3: This record will contain zeroes for the first four fields (date, time, orbit, and time-tag), and in addition will have a fill value in each data value location. This value will be used by any program reading the data to identify fill data in subsequent input records.

```
0      0   0    0999999.99999999.99999999.99999999.99
↑      ↑   ↑    ↑        ↑        ↑        ↑        ↑
8      17  22   28       37       46       55       64
```

Example 3: The third record in each tape file. (Appropriate for OETP).

Record 4 to : These records contain the date, time, orbit, and time-tag for each time which has any non-fill data.

```
1981207 43527786  879 -1788  2345.67 78543.89999999.99   16.20
      ↑        ↑    ↑     ↑        ↑        ↑        ↑      ↑
      8       17   22    28       37       46       55     64
```

Example 4: All records after the third in a tape file. (Appropriate for OETP).

As can be inferred from the above example, the date is coded as YEAR, DAY OF YEAR (1-366) with 19 included in the year. The time is in milliseconds of the day, orbit number is self-explanatory, and the time tag is the usual value ranging of the day from -1800 to 1800 in increments of 12.

The project-provided tape of SEDR information would be the source of the official dates and times to be used by all other investigators.

Nothing in the above format would preclude investigators from producing a tape containing the data from more than one experiment.

The external label on the tape should be type-written, and contain the following information:

- Full name of experiment data contained on tape.[1]
- Start date, time, and orbit number of data on the tape.
- Stop date, time, and orbit number of data on the tape.
- Production date of the tape.
- The density (1600-bpi) and number of tracks (9) at which the tape was recorded.
- An estimate of the amount of tape used.
- The physical blocksize used in writing the tape.
- A name and phone number of the individual responsible for the tape.

---

[1] Example: "Pioneer Venus Orbiter Electron Temperature Probe".

```
>@TAPDMP
>$
>$        Dump of ONMS NSSDC Data Tape
>$
>$        Set Tape Drive Number
>$
>$
>$        Allocate Tape Drive
>$
>ALLOCATE MM1:
>$
>$        Mount Unlabeled Tape, Density 1600 BPI
>$
>MOUNT MM1:/NOLABEL/DENS=1600
>$
>$        Set Record Size RS=112. Bytes and Block Size=1120. Bytes
>$        Rewind to Beginning, Skip Over 0 Tape Marks, and Set to List Tape
>$
>MAG SET MM1:/RS=112./BS=1120./REWIND/CC=LIST/POS=0
>$
>$        List Tape, X is a Dummy File Name; TI: is List to User Terminal
>$
>PIP TI:=MM1:X
 11 DHE   DO    DN2   DCO   DCO2 VVR1 NVR1 VVR2 NVR2 VVR3 NVR3
 (I8,I9,I5,I6,1P5E9.2,3(1PE9.2,OPF4.0))
       0         0     0      0 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978358 60862816    20  -168 0.00E-01 4.28E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978358 60874816    20  -156 0.00E-01 7.82E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978358 60886816    20  -144 8.69E+05 1.76E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978358 60898816    20  -132 1.03E+06 4.38E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978358 60910816    20  -120 1.27E+06 9.43E+06 0.00E-01 0.00E-01 1.02E+06 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978358 60922816    20  -108 1.52E+06 2.12E+07 0.00E-01 0.00E-01 1.81E+06 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978358 60934816    20   -96 1.73E+06 4.54E+07 1.78E+06 0.00E-01 3.50E+06 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978358 60946816    20   -84 2.14E+06 9.50E+07 5.56E+06 9.80E+06 8.28E+06 3.86E-15  50. 1.21E+08  51. 0.00E-01   0.
 1978358 60958816    20   -72 2.40E+06 1.89E+08 1.41E+07 2.43E+07 2.04E+07 8.31E-15  50. 2.50E+08  51. 0.00E-01   0.
 1978358 60970816    20   -60 2.78E+06 2.98E+08 2.66E+07 4.94E+07 4.88E+07 1.50E-14  50. 4.26E+08  51. 0.00E-01   0.
 1978358 60982816    20   -48 3.02E+06 4.09E+08 4.85E+07 8.85E+07 1.10E+08 2.53E-14  50. 6.59E+08  51. 0.00E-01   0.
 1978358 60994816    20   -36 3.52E+06 5.24E+08 6.77E+07 1.25E+08 1.78E+08 3.59E-14  50. 8.98E+08  51. 0.00E-01   0.
 1978358 61006816    20   -24 3.55E+06 6.07E+08 8.85E+07 1.63E+08 2.60E+08 4.68E-14  50. 1.12E+09  51. 0.00E-01   0.
 1978358 61018816    20   -12 3.91E+06 6.99E+08 1.04E+08 1.99E+08 3.16E+08 5.58E-14  50. 1.32E+09  51. 0.00E-01   0.
 1978358 61021248    20     0 3.99E+06 7.12E+08 1.05E+08 2.05E+08 3.16E+08 5.65E-14  50. 1.34E+09  51. 0.00E-01   0.
 1978358 61030816    20    12 4.30E+06 7.17E+08 1.02E+08 1.90E+08 2.86E+08 5.35E-14  50. 1.30E+09  51. 0.00E-01   0.
 1978358 61042816    20    24 3.97E+06 5.66E+08 6.55E+07 1.24E+08 1.66E+08 3.60E-14  50. 9.25E+08  51. 0.00E-01   0.
 1978358 61054816    20    36 3.83E+06 4.68E+08 4.96E+07 9.05E+07 1.11E+08 2.71E-14  50. 7.23E+08  51. 0.00E-01   0.
 1978358 61066816    20    48 3.71E+06 5.26E+08 0.00E-01 0.00E-01 7.31E+07 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978358 61090816    20    72 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 2.46E+06  14.
 1978358 61102816    20    84 2.16E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978358 61114816    20    96 0.00E-01 4.08E+07 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 8.49E+05  14.
 1978358 61126816    20   108 1.42E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978358 61138816    20   120 0.00E-01 8.12E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978358 61162816    20   144 0.00E-01 1.44E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978359 61366816    21  -156 0.00E-01 2.99E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978359 61378816    21  -144 0.00E-01 5.20E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978359 61390816    21  -132 0.00E-01 7.14E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978359 61402816    21  -120 1.12E+06 2.13E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978359 61414816    21  -108 1.38E+06 6.86E+06 0.00E-01 0.00E-01 8.93E+05 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978359 61426816    21   -96 1.65E+06 1.69E+07 0.00E-01 0.00E-01 1.93E+06 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978359 61438816    21   -84 2.40E+06 3.81E+07 0.00E-01 5.90E+06 4.45E+06 0.00E-01   0. 0.00E-01   0. 0.00E-01   0.
 1978359 61450816    21   -72 2.67E+06 6.79E+07 2.81E+06 9.80E+06 8.21E+06 3.01E-15  50. 9.14E+07  51. 0.00E-01   0.
 1978359 61462816    21   -60 2.26E+06 9.53E+07 4.03E+06 1.72E+07 1.41E+07 4.56E-15  50. 1.33E+08  51. 0.00E-01   0.
 1978359 61474816    21   -48 2.00E+06 1.28E+08 7.00E+06 2.91E+07 2.65E+07 7.04E-15  50. 1.93E+08  51. 0.00E-01   0.
 1978359 61486816    21   -36 2.45E+06 1.64E+08 1.22E+07 4.36E+07 4.74E+07 1.04E-14  50. 2.69E+08  51. 0.00E-01   0.
```

ASCII Data

PIONEER VENUS ORBITER
NEUTRAL MASS SPECTROMETER

DUMP OF FIRST FEW BLOCKS OF
11-SEP-85 TAPE

1089 PHYSICAL BLOCKS

```
 ;ALLOCATE TAPE DRIVE
>ALL MM2:
>;MOUNT TAPE AS FOREIGN WITH NO LABEL
>MOUNT MM2:/NOLABEL/DENS=1600
>;SET RECORD SIZE,BLOCK SIZE AND LIST TYPE
>MAG SET MM2:/RS=125./BS=1250./REWIND/CC=LIST
>;NOEW START DUMPING TAPE
>PIP TI:=MM2:X
```

```
 13 DHE  DO   DN2  DCO  DCO2 VVR1 NVR1 VVR3 NVR3 VALT VLAT VLST VSZA
 (I8,I9,I5,I6,1P5E9.2,2(1PE9.2,0PF4.0),0PF8.1,F6.1,F5.1,F7.1)
       0        0    0      0 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 0.00E-01  0.     0.0   0.0  0.0    0.0
 1978358 60862816   20   -168 0.00E-01 4.28E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 0.00E-01  0.   237.9  30.6 17.8   89.3
 1978358 60874816   20   -156 0.00E-01 7.82E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 0.00E-01  0.   225.1  29.6 17.9   89.6
 1978358 60886816   20   -144 8.69E+05 1.76E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 0.00E-01  0.   213.3  28.6 17.9   89.8
 1978358 60898816   20   -132 1.03E+06 4.38E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 0.00E-01  0.   202.5  27.6 17.9   90.1
 1978358 60910816   20   -120 1.27E+06 9.43E+06 0.00E-01 0.00E-01 1.02E+06 0.00E-01  0. 0.00E-01  0.   192.6  26.6 17.9   90.4
 1978358 60922816   20   -108 1.52E+06 2.12E+07 0.00E-01 0.00E-01 1.81E+06 0.00E-01  0. 0.00E-01  0.   183.8  25.5 18.0   90.6
 1978358 60934816   20    -96 1.73E+06 4.54E+07 1.78E+06 0.00E-01 3.50E+06 0.00E-01  0. 0.00E-01  0.   175.9  24.5 18.0   90.9
 1978358 60946816   20    -84 2.14E+06 9.50E+07 5.56E+06 9.80E+06 8.28E+06 3.86E-15 50. 0.00E-01  0.   169.1  23.5 18.0   91.2
 1978358 60958816   20    -72 2.40E+06 1.89E+08 1.41E+07 2.43E+07 2.04E+07 8.31E-15 50. 0.00E-01  0.   163.2  22.4 18.0   91.5
 1978358 60970816   20    -60 2.78E+06 2.98E+08 2.66E+07 4.94E+07 4.88E+07 1.50E-14 50. 0.00E-01  0.   158.4  21.4 18.1   91.7
 1978358 60982816   20    -48 3.02E+06 4.09E+08 4.85E+07 8.85E+07 1.10E+08 2.53E-14 50. 0.00E-01  0.   154.6  20.3 18.1   92.0
 1978358 60994816   20    -36 3.52E+06 5.24E+08 6.77E+07 1.25E+08 1.78E+08 3.59E-14 50. 0.00E-01  0.   151.9  19.3 18.1   92.3
 1978358 61006816   20    -24 3.55E+06 6.07E+08 8.85E+07 1.63E+08 2.60E+08 4.68E-14 50. 0.00E-01  0.   150.1  18.2 18.1   92.6
 1978358 61018816   20    -12 3.91E+06 6.99E+08 1.04E+08 1.99E+08 3.16E+08 5.58E-14 50. 0.00E-01  0.   149.4  17.2 18.1   92.8
 1978358 61021248   20      0 3.99E+06 7.12E+08 1.05E+08 2.05E+08 3.16E+08 5.65E-14 50. 0.00E-01  0.   149.4  17.1 18.1   92.9
 1978358 61030816   20     12 4.30E+06 7.17E+08 1.02E+08 1.90E+08 2.86E+08 5.35E-14 50. 0.00E-01  0.   149.7  16.2 18.2   93.1
 1978358 61042816   20     24 3.97E+06 5.66E+08 6.55E+07 1.24E+08 1.66E+08 3.60E-14 50. 0.00E-01  0.   151.0  15.1 18.2   93.4
 1978358 61054816   20     36 3.83E+06 4.68E+08 4.96E+07 9.05E+07 1.11E+08 2.71E-14 50. 0.00E-01  0.   153.4  14.1 18.2   93.6
 1978358 61066816   20     48 3.71E+06 5.26E+08 0.00E-01 0.00E-01 7.31E+07 0.00E-01  0. 0.00E-01  0.   156.8  13.0 18.2   93.9
 1978358 61090816   20     72 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 2.46E+06 14.   166.6  10.9 18.3   94.4
 1978358 61102816   20     84 2.16E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 2.46E+06 14.   173.0   9.9 18.3   94.7
 1978358 61114816   20     96 0.00E-01 4.08E+07 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   180.4   8.8 18.3   95.0
 1978358 61126816   20    108 1.42E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   188.9   7.8 18.3   95.2
 1978358 61138816   20    120 0.00E-01 8.12E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   198.3   6.8 18.3   95.5
 1978358 61162816   20    144 0.00E-01 1.44E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   220.2   4.7 18.4   96.0
 1978359 61366816   21   -156 0.00E-01 2.99E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   225.1  29.6 18.0   91.0
 1978359 61378816   21   -144 0.00E-01 5.20E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   213.3  28.6 18.0   91.3
 1978359 61390816   21   -132 0.00E-01 7.14E+05 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   202.5  27.6 18.0   91.6
 1978359 61402816   21   -120 1.12E+06 2.13E+06 0.00E-01 0.00E-01 0.00E-01 0.00E-01  0. 8.49E+05 14.   192.7  26.5 18.1   91.9
 1978359 61414816   21   -108 1.38E+06 6.86E+06 0.00E-01 0.00E-01 8.93E+05 0.00E-01  0. 8.49E+05 14.   183.8  25.5 18.1   92.1
 1978359 61426816   21    -96 1.65E+06 1.69E+07 0.00E-01 0.00E-01 1.93E+06 0.00E-01  0. 8.49E+05 14.   176.0  24.5 18.1   92.4
 1978359 61438816   21    -84 2.40E+06 3.81E+07 0.00E-01 5.90E+06 4.45E+06 0.00E-01  0. 8.49E+05 14.   169.2  23.4 18.1   92.7
 1978359 61450816   21    -72 2.67E+06 6.79E+07 2.81E+06 9.80E+06 8.21E+06 3.01E-15 50. 8.49E+05 14.   163.4  22.4 18.1   93.0
 1978359 61462816   21    -60 2.26E+06 9.53E+07 4.03E+06 1.72E+07 1.41E+07 4.56E-15 50. 8.49E+05 14.   158.6  21.4 18.2   93.3
 1978359 61474816   21    -48 2.00E+06 1.28E+08 7.00E+06 2.91E+07 2.65E+07 7.04E-15 50. 8.49E+05 14.   154.8  20.3 18.2   93.6
 1978359 61486816   21    -36 2.45E+06 1.64E+08 1.22E+07 4.36E+07 4.74E+07 1.04E-14 50. 8.49E+05 14.   152.1  19.3 18.2   93.8
 1978359 61498816   21    -24 2.65E+06 2.08E+08 1.80E+07 5.83E+07 6.88E+07 1.41E-14 50. 8.49E+05 14.   150.3  18.2 18.2   94.1
 1978359 61510816   21    -12 2.62E+06 2.39E+08 2.19E+07 6.16E+07 8.44E+07 1.64E-14 50. 8.49E+05 14.   149.6  17.2 18.3   94.4
MCR>ABO PIP

09:15:30  Task "...PIP" terminated
          Aborted via directive or CLI
          And with pending I/O requests

;ABORT LIST PROCESS AFTER A FEW LINES OF OUTPUT
>;DISMOUNT TAP
>DMO MM2:
DMO -- TT0:    dismounted from MM2:    *** Final dismount initiated ***
```