

PN 11 PASS 3519 PR14 #5/12 S/W SK.0 DSS 14A RCVR AGC -141.1 FILE 11-1425 PS 11/15/82  
 SPACECRAFT ATTITUDE ON DAY 319 NOV 14,1982 2100 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C. *POST-PRECESSION*

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.0657 RCSPHAK = 241.4500  
 SPACECRAFT-EARTH DIRECTION: CLAT = -14.0623 CLON = 45.1400  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.8639 CLON = 46.2190

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PN 11 PASS 3519 PR14 #5/12 S/W SK.0 DSS 14A RCVR AGC -141.1 FILE 11-1425 PS 11/15/82  
 SPACECRAFT ATTITUDE ON DAY 319 NOV 14,1982 2100 GMT  
 SPIN PERIOD = 7.454833 SEC RTLT = 3 HR 49 MIN 26.04 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-13.8639	46.2190	-	-
SUN	2.0588	217.9387	-15.1238	44.5371	0.19216431D 10	12.8452079
EARTH	1.0657	190.8604	-14.0623	45.1400	0.20634773D 10	13.7932975
JUPITER	132.2021	347.0673	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	56.3151	321.3534				
BETELGEUSE(R)	40.7356	351.4137				
CANCPUS(B)	69.0877	282.8972				
ARCTURUS(R)	153.4055	43.1211				
RIGIL KENTAURUS	122.3115	258.7565				
ANTARES(R)	150.5262	217.1113				
CAPELLA(R)	50.4147	46.3323				
VEGA(B)	116.7234	116.9479				
ALDEBARAN(R)	24.3436	17.8994				
RIGEL(B)	32.6679	323.0224				
GAMMA CRUCIS(R)	117.6862	277.4460				
SPICA(B)	152.4044	326.5076				
ACHERNAR(B)	63.6495	240.0985				
DENEK(B)	92.9138	118.3853				
PROCYON(B)	66.5862	348.3000				

STAR DELAY: 1.0789 SEC 276.2080 PULSES DECIMAL = 4. COARSE + 20. FINE  
 52.1028 DEG 04 24 PULSES OCTAL CKAH SUB C = 217.9387 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3523 PR14 #0/0 S/W SK.0 DSS 42 RCVR AGC -139.7 FILE 11-1426 PD  
 SPACECRAFT ATTITUDE ON DAY 323 NOV 19,1982 0230 GMT

11/22/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7010 RCSPHAK = 247.7500

SPACECRAFT-EARTH DIRECTION: CLAT = -14.0848 CLON = 45.4761

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.8411 CLON = 46.1534

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PN 11 PASS 3523 PR14 #0/0 S/W SK.0 DSS 42 RCVR AGC -139.7 FILE 11-1425 PD  
 SPACECRAFT ATTITUDE ON DAY 323 NOV 19,1982 0230 GMT  
 SPIN PERIOD = 7.454955 SEC RTLT = 3 HR 49 MIN 34.62 SEC

11/22/82

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-13.8411	46.1534	-	-
SUN	1.9523	221.7570	-15.1365	44.6448	0.19242762D 10	12.8628088
EARTH	0.7010	200.4280	-14.0848	45.4761	0.20647635D 10	13.8018951
JUPITER	132.2693	347.0588	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	56.3791	321.3524				
BETELGEUSE(R)	40.8020	351.3829				
CANOPUS(B)	69.1241	282.9033				
ARCTURUS(R)	153.4363	43.2257				
RIGIL KENTAURUS	122.3214	258.6984				
ANTARES(R)	150.4891	216.9955				
CAPELLA(R)	50.4422	46.2655				
VEGA(B)	116.6742	116.9555				
ALDEBARAN(R)	24.3972	17.7926				
RIGEL(B)	32.7325	323.0380				
GAMMA CRUCIS(R)	117.7170	277.3986				
SPICA(B)	152.4701	326.4610				
ACHERNAR(B)	63.6375	240.1158				
DENEK(B)	92.8634	118.3719				
PROCYON(B)	66.6532	348.2802				

STAR DELAY: 1.0788 SEC 276.1805 PULSES DECIMAL = 4. COARSE + 20. FINE  
 52.0967 DEG 04 24 PULSES OCTAL CKAH SUB C = 221.7570 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3540 PR14 0/0 S/W SK.0 DSS 63A RCVR AGC -138.18 FILE 11-1426A CJ  
SPACECRAFT ATTITUDE ON DAY 339 DEC 5,1982 1100 GMT

12/08/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSCRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.0274 RCSPHAK = 133.1100

SPACECRAFT-EARTH DIRECTION: CLAT = -14.2393 CLON = 47.1239

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -15.0371 CLON = 46.4549

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PN 11 PASS 3540 PR14 0/0 S/W SK.0 DSS 63A RCVR AGC -138.18 FILE 11-1426 CJ  
SPACECRAFT ATTITUDE ON DAY 339 DEC 5,1982 1100 GMT  
SPIN PERIOD = 7.455321 SEC RTLT = 3 HR 49 MIN 39.01 SEC

12/08/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-15.0371	46.4549	-	-
EARTH	1.2359	187.7222	-15.1997	45.1858	0.19376665D 10	12.9523162
JUPITER	1.0274	50.8636	-14.2393	47.1239	0.20654216D 10	13.8062941
SIRIUS(B)	131.7080	346.1477	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	55.4079	321.9400				
CANOPIUS(B)	40.3480	352.7946				
ARCTURUS(R)	67.8931	282.9718				
RIGIL KENTAURUS	154.0228	41.1075				
ANTARES(R)	121.2040	259.0937				
CAPELLA(R)	149.9825	219.0331				
VEGA(B)	51.1128	47.1836				
ALDEBARAN(R)	117.8721	117.1772				
RIGEL(B)	24.5143	20.5630				
GAMMA CRUCIS(R)	31.7890	324.3665				
SPICA(B)	116.4932	277.5425				
ACHERNAR(B)	151.5551	324.9859				
DENEK(B)	62.7487	239.7605				
PROCYON(B)	94.0543	118.4660				
	66.1297	348.8425				

STAR DELAY: 1.0775 SEC 275.8305 PULSES DECIMAL = 4. COARSE + 20. FINE  
52.0282 DEG 04 24 PULSES OCTAL CKAH SUB C = 187.7222 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3540 PR14 #73 S/W SK.0 DSS 14A RCVR AGC -134.9 FILE 11-1427 CJ 12/06/82  
 SPACECRAFT ATTITUDE CN DAY 339 DEC 5,1982 1500 GMT

RCLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180 NEW ATTITUDE  
 POST-PRECESSION

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9289 RCSPHAK = 247.8200

SPACECRAFT-EARTH DIRECTION: CLAT = -14.2418 CLON = 47.0187

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -14.2749 CLON = 47.9765

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PN 11 PASS 3540 PR14 #73 S/W SK.0 DSS 14A RCVR AGC -134.9 FILE 11-1427 CJ 12/06/82  
 SPACECRAFT ATTITUDE ON DAY 339 DEC 5,1982 1500 GMT  
 SPIN PERIOD = 7.449828 SEC RTLT = 3 HR 49 MIN 38.73 SEC

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-14.2749	47.9765	-	-
SUN	2.8480	199.3120	-15.2003	45.1914	0.193780370 10	12.9532333
EARTH	0.9289	178.0758	-14.2418	47.0187	0.206537980 10	13.8060147
JUPITER	130.4486	347.4724	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	54.7275	321.2691				
BETELGEUSE(R)	38.9893	352.0341				
CANOPUS(B)	68.3091	282.7118				
ARCTURUS(R)	152.4112	40.7235				
RIGIL KENTAURUS	122.2174	260.2893				
ANTARES(R)	151.6030	220.0430				
CAPELLA(R)	49.5574	48.0441				
VEGA(B)	117.8593	116.6858				
ALDEBARAN(R)	22.8684	20.4978				
RIGEL(B)	31.0631	322.3121				
GAMMA CRUCIS(R)	117.0396	278.7170				
SPICA(B)	150.7482	328.0002				
ACHERNAR(B)	64.1490	239.7021				
DENER(B)	94.0898	118.7330				
PROCYON(B)	64.8337	348.7560				

STAR DELAY: 1.0821 SEC 277.0051 PULSES DECIMAL = 4. COARSE + 21. FINE  
 52.2882 DEG 04 25 PULSES OCTAL CKAH SUB C = 199.3120 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3547 PR14 #0/0 S/W SK.0 DSS 42A RCVR AGC -139.7 FILE 11-1428 PS  
 SPACECRAFT ATTITUDE ON DAY 346 DEC 12, 1982 2300 GMT

12/13/82

RCLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7039 RCSPHAK = 317.6200

SPACECRAFT-EARTH DIRECTION: CLAT = -14.3320 CLON = 47.8371

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.6397 CLON = 47.9680

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PN 11 PASS 3547 PR14 #0/0 S/W SK.0 DSS 42A RCVR AGC -139.7 FILE 11-1428 PS  
 SPACECRAFT ATTITUDE ON DAY 346 DEC 12, 1982 2300 GMT  
 SPIN PERIOD = 7.449950 SEC RTLT = 3 HR 49 MIN 20.18 SEC

12/13/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-13.6397	47.9680	-	-
EARTH	2.9250	213.1964	-15.2279	45.4315	0.194383760 10	12.9935668
JUPITER	0.7039	259.6223	-14.3320	47.8371	0.206259890 10	13.7874258
SIRIUS(B)	130.5516	347.9994	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	55.1328	320.9237				
CANOPUS(B)	39.0898	351.2586				
ARCTURUS(R)	68.9306	282.6583				
RIGIL KENTAUROS	151.9992	41.6388				
ANTARES(R)	122.8420	260.2135				
CAPELLA(R)	152.0014	219.1179				
VEGA(B)	49.0920	47.6705				
ALDEBARAN(R)	117.2877	116.5390				
RIGEL(B)	22.6612	19.0646				
GAMMA CRUCIS(R)	31.4615	321.4950				
SPICA(B)	117.6687	278.7606				
ACHERNAR(B)	151.0873	328.9640				
DENEK(B)	64.6937	239.8565				
PROCYON(B)	93.5287	118.7111				
	64.9673	348.4630				

STAR DELAY: 1.0832 SEC 277.2930 PULSES DECIMAL = 4. COARSE + 21. FINE  
 52.3417 DEG 04 25 PULSES OCTAL CKAH SUB C = 213.1964 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3553 PR14 #0/0 S/W SK.0 DSS 63P RCVR AGC -134.9 FILE 11-1429 RS 12/27/82  
 SPACECRAFT ATTITUDE ON DAY 352 DEC 18,1982 0921 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.8477 RCSPHAK = 346.6620

SPACECRAFT-EARTH DIRECTION: CLAT = -14.4076 CLON = 48.3197

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.6141 CLON = 48.0123

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PN 11 PASS 3553 PR14 #0/0 S/W SK.0 DSS 63P RCVR AGC -134.9 FILE 11-1429 RS 12/27/82  
 SPACECRAFT ATTITUDE ON DAY 352 DEC 18,1982 0921 GMT  
 SPIN PERIOD = 7.450072 SEC RTLT = 3 HR 48 MIN 58.81 SEC

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-13.6141	48.0123	-	-
SUN	2.8440	215.3603	-15.2480	45.6086	0.19483185D 10	13.0235
EARTH	0.8477	290.5615	-14.4076	48.3197	0.20593955D 10	13.7660
JUPITER	130.5548	348.0389	0.0000	180.0000	0.00000000	0.0000
SIRIUS(B)	55.1155	320.9014				
BETELGEUSE(R)	39.0511	351.2297				
CANOPIUS(B)	68.9461	282.6504				
ARCTURUS(R)	151.9500	41.6314				
RIGIL KENTAURIUS	122.8746	260.2485				
ANTARES(R)	152.0509	219.1422				
CAPELLA(R)	49.0441	47.6936				
VEGA(B)	117.2840	116.5276				
ALDEBARAN(R)	22.6121	19.0508				
RIGEL(B)	31.4438	321.4288				
GAMMA CRUCIS(R)	117.6874	278.7954				
SPICA(B)	151.0636	329.0543				
ACHERNAR(B)	64.7375	239.8555				
DENEK(B)	93.5270	118.7185				
PROCYON(B)	64.9302	348.4577				

STAR DELAY: 1.0834 SEC 277.3395 PULSES DECIMAL = 4. COARSE + 21. FINE  
 52.3496 DEG 04 25 PULSES OCTAL CKAH SUB C = 215.3603 EPSILON= 0.0000 SC

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PN 10 PASS 3930 PR23 #0/0 S/W SK.0 DSS 63A RCVR AGC -130.2 FILE 10-1209 PS  
 SPACECRAFT ATTITUDE ON DAY 328 NCV 24,1982 1830 GMT

11/26/82

RCLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SCUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPUS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6394 RCSPHAK = 274.4800

SPACECRAFT-EARTH DIRECTION: CLAT = -3.2411 CLON = 245.6655

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.5086 CLON = 246.2472

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PN 10 PASS 3930 PR23 #0/0 S/W SK.0 DSS 63A RCVR AGC -130.2 FILE 10-1209 PS  
 SPACECRAFT ATTITUDE ON DAY 328 NCV 24,1982 1830 GMT  
 SPIN PERIOD = 13.035640 SEC RTLT = 7 HR 41 MIN 38.42 SEC

11/26/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-3.5086	246.2472	-	-
SUN	0.8109	152.1795	-3.1299	245.5290	0.42989913D 10	28.7365729
EARTH	0.6394	155.2811	-3.2411	245.6655	0.41518894D 10	27.7532714
JUPITER	66.2945	178.4573	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.8433	235.1649				
BETELGEUSE(R)	150.6512	222.3406				
CANOPUS(B)	57.6028	261.1830				
ARCTURUS(R)	52.9609	126.5212				
RIGIL KENTAURUS	39.5867	261.7958				
ANTARES(R)	3.3172	341.2963				
CAPELLA(R)	155.6590	126.0095				
VEGA(B)	71.6411	71.8206				
ALDEBARAN(R)	170.4773	250.5114				
RIGEL(B)	144.0215	255.0189				
GAMMA CRUCIS(R)	51.2117	244.5982				
SPICA(B)	42.7398	179.2277				
ACHERNAR(B)	51.3861	300.2440				
DENEK(B)	52.3957	59.8866				
PROCYON(B)	127.6083	203.3369				

STAR DELAY: 2.6729 SEC 684.2678 PULSES DECIMAL = 10. COARSE + 44. FINE  
 73.8170 DEG 12 54 PULSES OCTAL CKAH SUB C = 141.6454 EPSILON=10.5341 SCN=10

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DN-10 GUSCHAU

FILE # 1209-1213

NO SOLUTION - SUN ANGLE TOO CLOSE



PN 10 PASS 3951 PR23 #0/0 S/W SK.0 DSS 63 RCVR AGC -129.7 FILE 10-1214 BD  
SPACECRAFT ATTITUDE CN DAY 350 DEC 16,1982 0230 GMT

12/16/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.3834 RCSPHAK = 212.8300

SPACECRAFT-EARTH DIRECTION: CLAT = -3.2344 CLON = 245.0080

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.3435 CLON = 245.3762

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PN 10 PASS 3951 PR23 #0/0 S/W SK.0 DSS 63 RCVR AGC -129.7 FILE 10-1214 BD  
SPACECRAFT ATTITUDE ON DAY 350 DEC 16,1982 0230 GMT  
SPIN PERIOD = 13.038320 SEC RTLT = 7 HR 45 MIN 9.90 SEC

12/16/82

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.3435	245.3762	-	-
SUN	0.3263	40.9622	-3.1295	245.6229	0.43233711D 10	28.8995394
EARTH	0.3834	163.4809	-3.2344	245.0080	0.41835899D 10	27.9651731
JUPITER	65.4209	178.4688	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.4779	234.5555				
BETELGEUSE(R)	150.1118	221.0542				
CANOPUS(B)	97.6314	261.0127				
ARCTURUS(R)	52.2180	136.1011				
RIGIL KENTAURUS	39.6340	262.8117				
ANTARES(R)	4.1955	342.9188				
CAPELLA(R)	155.0076	127.2621				
VEGA(B)	71.7580	71.4784				
ALDEPARAN(R)	170.3033	245.3320				
RIGEL(B)	143.9465	253.7537				
GAMMA CRUCIS(R)	50.9927	245.2381				
SPICA(B)	41.8683	179.3453				
ACHERNAR(B)	91.9663	300.1724				
DENEVB(B)	92.6891	59.8717				
PROCYON(B)	126.8735	202.9098				

STAR DELAY: 2.6796 SEC 685.9879 PULSES DECIMAL = 10. COARSE + 46. FINE  
73.9873 DEG 12 56 PULSES OCTAL CKAH SUB C = 28.3724 EPSILON=12.5899 SCN=10

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PN 10 PASS 3957 PR23 #0/0 S/W SK.0 DSS 14A RCVR AGC -128.7 FILE 10-1215 CJ  
SPACECRAFT ATTITUDE ON DAY 356 DEC 22,1982 0730 GMT

12/22/82

RCLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5637 RCSPHAK = 228.0810

SPACECRAFT-EARTH DIRECTION: CLAT = -3.2294 CLON = 244.8311

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.3077 CLON = 245.3903

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PN 10 PASS 3957 PR23 #0/0 S/W SK.0 DSS 14A RCVR AGC -128.7 FILE 10-1215 CJ  
SPACECRAFT ATTITUDE ON DAY 356 DEC 22,1982 0730 GMT  
SPIN PERIOD = 13.039420 SEC RTLT = 7 HR 46 MIN 37.17 SEC

12/22/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-3.3077	245.3903	-	-
SUN	0.3147	34.5125	-3.1294	245.6500	0.43304515D 10	28.9468683
EARTH	0.5637	172.0304	-3.2294	244.8311	0.41966709D 10	28.0526130
JUPITER	65.4340	178.4861	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.5151	234.5500				
BETELGEUSE(R)	150.1459	221.0242				
CANOPIUS(B)	57.6689	261.0146				
ARCTURUS(R)	52.2035	136.1295				
RIGIL KENTAURUS	39.6711	262.8010				
ANTARES(R)	4.1927	342.3975				
CAPELLA(R)	154.9877	127.1925				
VEGA(B)	71.7197	71.4799				
ALCEBARAN(R)	170.3417	245.3206				
RIGEL(B)	143.9848	253.7595				
GAMMA CRUCIS(R)	51.0310	245.2406				
SPICA(B)	41.8820	179.3861				
ACHERNAR(B)	91.9901	300.1742				
DENEK(B)	92.6512	59.8728				
PROCYON(B)	126.9004	202.8901				

STAR DELAY: 2.6798 SEC 686.0277 PULSES DECIMAL = 10. COARSE + 46. FINE  
73.9854 DEG 12 56 PULSES OCTAL CKAH SUB C = 21.8680 EPSILON=12.6445 SCN=10

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PN 11 PASS 3519 PR14 #0/0 S/W SK.0 DSS 61A RCVR AGC -154.8 FILE 11-1424 PS 11/15/82  
 SPACECRAFT ATTITUDE ON DAY 318 NOV 14,1982 1630 GMT

RCLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C. PRE-PRECESSION

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9316 RCSPHAK = 142.4700

SPACECRAFT-EARTH DIRECTION: CLAT = -14.0547 CLON = 45.0150

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -14.9679 CLON = 44.8249

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PN 11 PASS 3519 PR14 #0/0 S/W SK.0 DSS 61A RCVR AGC -154.8 FILE 11-1424 PS 11/15/82  
 SPACECRAFT ATTITUDE ON DAY 318 NOV 14,1982 1630 GMT  
 SPIN PERIOD = 7.461302 SEC RTLT = 3 HR 49 MIN 22.18 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-14.9679	44.8249	-	-
SUN	0.3508	205.5742	-15.1191	44.4971	0.19206689D 10	12.8386959
EARTH	0.9316	78.5830	-14.0547	45.0150	0.20628999D 10	13.7894378
JUPITER	133.2513	345.4332	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	56.6918	322.1334				
BETELGEUSE(R)	41.9184	352.5244				
CANOPUS(B)	68.3165	283.1600				
ARCTURUS(R)	155.1457	43.0138				
RIGIL KENTAURIUS	120.9555	257.7335				
ANTARES(R)	148.7835	216.8823				
CAPELLA(R)	52.1464	45.8195				
VEGA(B)	117.0879	117.4663				
ALDEBARAN(R)	25.9732	18.8760				
RIGEL(B)	33.1160	325.2821				
GAMMA CRUCIS(R)	116.7522	276.3412				
SPICA(B)	152.8689	322.9115				
ACHERNAR(B)	62.0192	240.0694				
DENER(B)	93.2469	118.1304				
PROCYON(B)	67.6872	348.5233				

STAR DELAY: 1.0744 SEC 275.0534 PULSES DECIMAL = 4. COARSE + 19. FINE  
 51.8400 DEG 04 23 PULSES OCTAL. CKAH SUB C = 205.5742 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3240 PRI4 #070 S/W SK 0 DSS 42A RCVR AGC 138.1 FILE 11-1376 PS  
 SPACECRAFT ATTITUDE ON DAY 40 FEB 9, 1982 2000 GMT

02/09/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/O,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.0983 RCSPHAK = 122.5000

SPACECRAFT-EARTH DIRECTION: CLAT = -13.9296 CLON = 39.0984

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -14.3603 CLON = 38.0565

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PN 11 PASS 3240 PRI4 #070 S/W SK 0 DSS 42A RCVR AGC 138.1 FILE 11-1376 PS  
 SPACECRAFT ATTITUDE ON DAY 40 FEB 9, 1982 2000 GMT  
 SPIN PERIOD = 7.48937 SEC RTLT = 3 HR 6 MIN 20.86 SEC

02/09/82

S/C +Z AXIS	ENA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-14.3603	38.0565	-	-
EARTH	1.9045	169.9553	-13.6469	34.1000	0.170997960 10	11.4303449
JUPITER	1.0983	22.9619	-13.9896	39.0984	0.167596970 10	11.2030060
SIRIUS(B)	138.7118	342.4219	0.0000	180.0000	0.000000000	0.0000000
BETELGEUSE(R)	62.2973	322.4979				
CANOPUS(B)	48.4860	351.1368				
ARCTURUS(R)	70.4349	283.7907				
RIGIL KENTAURUS	158.0606	53.8932				
ANTARES(R)	119.8421	252.2110				
CAPELLA(R)	143.6115	209.0737				
VEGA(B)	50.5096	40.5651				
ALDEBARAN(R)	111.4831	118.3532				
RIGEL(B)	32.1103	12.8778				
GAMMA CRUCIS(R)	36.9197	327.8389				
SPICA(B)	117.7941	271.2743				
ACHERNAB(B)	158.1376	312.4926				
DENEK(B)	50.3618	241.7359				
PROCYON(B)	89.6976	116.5579				
	78.2154	347.0811				

STAR DELAY: 1.0650 SEC 272.6408 PULSES DECIMAL = 4, COARSE + 17, FINE  
 51.2093 DEG 04 21 PULSES OCTAL CKAH SUB C = 169.9553 EPSILON# 0.0000 SCN#11

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PN 11 PASS 3247 PR14 #070 S/W SK,0 DSS 42G HCVR AGC 141.1 FILE 11-1377 TS  
 SPACECRAFT ATTITUDE ON DAY 47 FEB 16, 1982 1800 GMT

02/16/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1,1488 RCSPHAK = 111,5400

SPACECRAFT-EARTH DIRECTION: CLAT = -14,1162 CLON = 39,2253

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -14,3593 CLON = 38,0670

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PN 11 PASS 3247 PR14 #070 S/W SK,0 DSS 42G HCVR AGC 141.1 FILE 11-1377 TS  
 SPACECRAFT ATTITUDE ON DAY 47 FEB 16, 1982 1800 GMT  
 SPIN PERIOD = 7.48937 SEC RTLT = 3 HR 5 MIN 4.42 SEC

02/16/82

	ONA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-14,3593	38,0670		
SUN	0,6316	169,8923	-13,6939	34,3871	0,17147890D 10	11,4624933
EARTH	0,1488	12,0753	-14,1162	39,2253	0,16645113D 10	11,7264124
JUPITER	139,7024	342,4289	0,0000	180,0000	0,00000000	0,0000000
SIRIUS(B)	64,2398	322,4968				
BETELGEUSE(R)	48,4761	351,1371				
CANOPUS(B)	70,4335	283,7897				
ARCTURUS(R)	158,0537	53,8760				
RIGIL KENTAURUS	119,8462	252,2190				
ANTARES(B)	143,6210	209,0818				
CAPELLA(R)	94,5011	40,5716				
VEGA(B)	111,4870	118,3517				
ALDEBARAN(R)	32,1001	12,8824				
RIGEL(B)	38,9117	327,8336				
GAMMA CRUCIS(R)	117,7949	271,2823				
SPICA(B)	158,1315	312,5157				
ACHERNAN(B)	58,3675	241,7335				
DENE(B)	89,7012	116,5602				
PROCYON(B)	74,2057	347,0828				

STAR DELAY: 7,0650 SEC 272,6461 PULSES DECIMAL # 4, COARSE + 17, FINE  
 51,2103 DEG 04 21 PULSES OITAL CKAH SUB C # 169,8923 EPSILON# 0,0000 SCN#11

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PN 11 PASS 3254 PR14 #070 S/W SK,0 DSS 42A RCVR AGC -138.7 FILE 11-1378 PS  
 SPACECRAFT ATTITUDE ON DAY 54 FEB 23, 1982 1850 GMT

02/23

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR ROSSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCOTROS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.2045 ROSSPHAK = 102.4300

SPACECRAFT-EARTH DIRECTION: CLAT = -14.3023 CLON = 39.2803

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -14.3593 CLON = 38.0385

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PN 11 PASS 3254 PR14 #070 S/W SK,0 DSS 42A RCVR AGC -138.7 FILE 11-1378 PS  
 SPACECRAFT ATTITUDE ON DAY 54 FEB 23, 1982 1850 GMT  
 SPIN PERIOD = 7.486927 SEC RTLT = 3 HR 3 MIN 51.27 SEC

02/23/82

S/C +Z AXIS	RNA	CKA	CLAT	CLON	R (KM)	R (AU)
SUN	0.0000	0.0000	-14.3593	38.0385	-	-
EARTH	1.3190	169.6746	-13.7409	34.6770	0.171969650 10	11.4952975
JUPITER	1.2045	2.5588	-14.3023	39.2803	0.165354540 10	11.0931110
SIRIUS(B)	128.7287	342.4120	0.0000	180.0000	0.000000000	0.0000000
BETELGEUSE (R)	68.2617	322.4986				
CANOPUS (B)	48.5034	351.1338				
ARCTURUS (R)	70.4401	283.7921				
RIGIL KENTAURUS	156.0899	53.9272				
ANTARES (R)	119.8378	252.1969				
CAPELLA (R)	143.5969	209.0569				
VEGA (B)	56.5221	40.5526				
ALDEBARAN (R)	111.4739	118.3552				
RIGEL (B)	32.1270	12.8659				
GAMMA CRUCIS (R)	38.9350	327.8447				
SPICA (B)	117.7956	271.2606				
ACHERNAR (B)	158.1502	312.4580				
DENEK (B)	58.3545	241.7408				
PROCYON (B)	89.6888	116.5530				
	74.2326	347.0775				

STAR DELAY: 1.0650 SEC 272.6330 PULSES DECIMAL = 4, COARSE + 17, FINE  
 51.2079 DEG 04 21 PULSES OCTAL CKAH SUB C = 169.6746 EPSILON = 0.0000 SUN = 11

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PN 11 PASS 3261 PRI4 #050 S/W SK,0 DSS 14A RCVR AGC -131.0 FILE 11-1379 TO 03/02/82  
 SPACECRAFT ATTITUDE ON DAY 61 MAR 3, 1982 1500 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/W.

REFERENCE FOR RCSRPHAK IS TOWARD SOUTH-ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPGRRS # 100 RCSTPOS # 180

AMPLITUDE AND PHASE ANGLE: RCBANGAK # 1.0801 RCBPHAK # 92.6140

SPACECRAFT-EARTH DIRECTION: CLAT # -14.4773 CLON # -39.2647

SPACECRAFT XZ AXIS ATTITUDE: CLAT # -14.3509 CLON # -38.1571

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PN 11 PASS 3261 PRI4 #050 S/W SK,0 DSS 14A RCVR AGC -131.0 FILE 11-1379 TO 03/02/82  
 SPACECRAFT ATTITUDE ON DAY 61 MAR 3, 1982 1500 GMT  
 SPIN PERIOD # 7.488937 SEC RTCT # 3 HR 2 MIN 46.14 SEC

	ANA	GKA	CLAT	CLON	R (KM)	R (AU)
S/C XZ AXIS	0.0000	0.0000	-14.3509	-38.1571		
SUN	0.1552	170.0797	-13.7860	-38.9568	0.172448330 10	11.8272948
EARTH	1.0801	353.1372	-14.4773	-39.2647	0.164278290 10	10.4878936
JUPITER	135.6216	342.4917	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	60.1797	322.4876				
BETELGEUSE(R)	40.3911	381.1402				
CANOPUS(B)	70.4209	283.7811				
ARCTURUS(R)	158.9953	93.7279				
RIGIL KENTAURUS	119.8869	252.2877				
ANTARES(B)	141.7814	209.1519				
CAPELLA(B)	55.4293	40.6279				
VEGA(B)	111.5211	118.3369				
ALDEBARAN(R)	32.0131	12.9228				
RIGEL(B)	38.8422	327.7894				
GAMMA CRUCIS(R)	117.8614	271.3508				
SPICA(B)	158.0786	312.7122				
ACHERNAR(B)	59.4163	241.7127				
DENEK(B)	89.7327	116.5829				
PROCYON(B)	74.1229	347.0973				

STAR DELAY: 1.0692 SEC 272.6919 PULSES DECIMAL # 4 COARSE + 17 FINE  
 01.2189 DEG 04 21 PULSES OCTAL CKAH SUB C # 170.0797 EPSILON# 0.0000 SCNR#11

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PN 11 PASS 1868 PRI 4 #070 S/W SK 0 DSS 14A RCVR AGC 134.9 FILE 11-1380 TG  
 SPACECRAFT ATTITUDE ON DAY 68 MAR 9, 1968 1230 GMT

03/09/68

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR ROLPHEN IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPGRRB # 180 RGTPOB # 180

AMPLITUDE AND PHASE ANGLE: RCRANGAK # 1.0965 RCRPHAK # 83.1877

SPACECRAFT-EARTH DIRECTION: CLAT # -14.6476 CLON # 39.1829

SPACECRAFT +Z AXIS ATTITUDE: CLAT # -14.3833 CLON # 39.1011

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PN 11 PASS 1868 PRI 4 #070 S/W SK 0 DSS 14A RCVR AGC 134.9 FILE 11-1380 TG  
 SPACECRAFT ATTITUDE ON DAY 68 MAR 9, 1968 1230 GMT  
 SPIN PERIOD IS 7.442937 SEC RTGT # 37RB TMR 48.22 SEC

03/09/68

S/C +Z AXIS	GNA	GKA	CLAT	CLON	R (KM)	R (AU)
SUN	0.0000	0.0000	-14.3833	39.1011	0.172938250 10	11.8600434
EARTH	0.0969	342.6597	-13.8310	39.2403	0.163095070 10	10.9288148
JUPITER	138.6817	342.4098	-14.6476	39.1829	0.000000000	0.0000000
SIRIUS (S)	62.2359	322.4796	0.0000	180.0000		
BETELGEUSE (R)	48.4490	351.1096				
CARORUS (S)	20.4606	285.7837				
ARCTURUS (R)	198.0852	93.8702				
RIGIL KENTAURUS	110.8906	252.2392				
ANTARES (S)	121.6673	209.0693				
CARELLA (S)	58.4926	48.9761				
VEGA (S)	11.4710	118.3401				
ALDEBARAN (R)	32.0699	12.8466				
RIGEL (S)	38.9029	327.7825				
GAMMA GRYCIS (R)	117.8102	271.3086				
SPICA (S)	180.1357	312.6454				
ACHERNAB (S)	40.4149	241.7348				
DENEK (S)	89.6838	116.5687				
PROCYON (S)	78.1816	347.0742				

STAR DELAYS: 0.0651 SEC 272.6780 PULSES DECIMAL IN 4, COARSE + 17, FINE  
 0.2163 DEC 04 21 PULSES OCTAL CKAH SUB C # 170.2967 EPSILON# 0.0000 MCN# 11

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PN 11 PASS 3275 PRI4 #000 8/W SK,0 DSS 2A RCVR AGC 139.7 FILE 11-1301 CJ  
 SPACECRAFT ATTITUDE ON DAY 74 MAR 19, 1968 1100 GMT

03/19/68

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF 8/0.

REFERENCE FOR RCSRPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPGRRS # 100 RGTPOS # 100

AMPLITUDE AND PHASE ANGLE: RCBANGAK # 1.0866 RCBPHAK # 77.4654

SPACECRAFT-EARTH DIRECTION: CLAT # -14.7892 CLON # 39.0637

SPACECRAFT #Z AXIS ATTITUDE: CLAT # -14.3455 CLON # 38.0371

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PN 11 PASS 3275 PRI4 #000 8/W SK,0 DSS 2A RCVR AGC 139.7 FILE 11-1301 CJ  
 SPACECRAFT ATTITUDE ON DAY 74 MAR 19, 1968 1100 GMT  
 SPIN PERIOD # 7.088937 SEC RTCT # 3 HR 1 MIN 30.00 SEC

03/19/68

	BNA	CKA	CLAT	CLON	R(KM)	R(AU)
8/C #Z AXIS	0.0000	0.0000	-14.3455	38.0371		
SUN	0.0000	169.4465	-13.8597	38.4817	0.173359480 10	11.5882005
EARTH	1.0866	339.9976	-14.7892	39.0637	0.162842680 10	10.8852066
JUPITER	118.7341	342.4267	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	08.2712	322.4929				
BETELGEUSE(R)	48.5068	351.1216				
CANOPUS(B)	70.4539	283.7911				
ARCTURUS(R)	09.0996	03.9909				
RIGIL KENTAURUS	110.8505	252.1934				
ANTARES(B)	143.6024	209.0389				
CARELLA(R)	58.8141	40.5478				
VEGA(B)	113.4611	118.3523				
ALDEBARAN(R)	38.1253	12.8432				
RIGEL(B)	38.9439	327.8308				
GAMMA CRUCIS(R)	117.8094	271.2598				
SPICA(B)	182.5613	312.4784				
ACHERNAR(B)	58.3660	241.7490				
DENEK(B)	89.6739	116.5927				
PROCYON(B)	74.2370	347.0734				

STAR DELAY: 1.0650 SEC 272.6380 PULSES DECIMAL # 4 COARSE + 17 FINE  
 5.2089 DEC 04 21 PULSES OCTAL CKAH SUB C # 169.4465 ERBILON# 0.0000 SCN#11

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PN 11 PASS 3282 PRI4 #050 S/W 8K,0 DSS 2A RCVR AGC #136,0 FILE 11-1382 TG 03/23/82  
 SPACECRAFT ATTITUDE ON DAY 82 MAR 23, 1982 1030 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPGRNS = 180 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RC8ANGAK = 0.9909 RC8PHAK = 62.3176  
 SPACECRAFT-EARTH DIRECTION: CLAT = -14.9556 CLON = 38.8385  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -14.3343 CLON = 38.0406

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PN 11 PASS 3282 PRI4 #050 S/W 8K,0 DSS 2A RCVR AGC #136,0 FILE 11-1382 TG 03/23/82  
 SPACECRAFT ATTITUDE ON DAY 82 MAR 23, 1982 1030 GMT  
 SPIN PERIOD = 7.488927 SEC HTGT = 3 HR 0 MIN 16.66 SEC

	RNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-14.3343	38.0406		
SUN	169.4727	169.4727	-13.9205	35.8045	0.173928450 10	11.6262333
EARTH	321.0710	321.0710	-14.9556	38.8385	0.162137780 10	10.8380836
JUPITER	135.7343	342.4414	0.0000	100.0000	0.000000000	0.0000000
SIRIUS(B)	62.2753	322.4880				
BETELGEUSE(R)	43.5052	351.1122				
CANOPUS(H)	70.4639	283.7898				
ARCTURUS(R)	156.0489	53.9618				
RIGIL KENTAURUS	119.8622	252.1941				
ANTARES(R)	143.6108	209.0287				
CAPELLA(R)	50.5043	40.5415				
VEGA(B)	117.4529	118.3498				
ALDEBARAN(B)	32.1198	12.8279				
RIGEL(B)	38.9466	327.8177				
GAMMA CRUCIS(R)	117.8205	271.2625				
SPICA(B)	150.1672	312.5043				
ACHERNAH(B)	58.3774	241.7473				
DENEK(B)	89.6674	116.5536				
PROCYON(B)	74.2362	347.0710				

STAR DELAY: 1.0650 SEC 272.6493 PULSES DECIMAL # 4, COARSE + 17, FINE  
 5.2102 DEG 04 21 PULSES OCTAL CKAH SUB C # 169.4727 EPSILON = 0.0000 SCNR#11

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PN 11 PASS 3289 PRI4 #070 S/W SK.0 DSS 14A RCVR AGC 130.6 FILE 11-1383 CJ  
 SPACECRAFT ATTITUDE ON DAY 89 MAR 30, 1988 1200 GMT

04/01/88

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C,

REFERENCE FOR ROSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRHS = 180 ROSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9276 ROSPHAK = 45.3629

SPACECRAFT EARTH DIRECTION: CLAT = +15.0899 CLON = 38.5847

SPACECRAFT +Z AXIS ATTITUDE: CLAT = +14.3208 CLON = 38.0486

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PN 11 PASS 3289 PRI4 #070 S/W SK.0 DSS 14A RCVR AGC 130.6 FILE 11-1383 CJ  
 SPACECRAFT ATTITUDE ON DAY 89 MAR 30, 1988 1200 GMT  
 SPIN PERIOD = 7.488937 SEC RTLT = 2 HR 59 MIN 47.24 SEC

04/01/88

	NA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	+14.3208	38.0486	-	-
SUN	1.9338	169.6373	+13.9849	36.0889	0.17443469D 10	11.6600789
EARTH	0.9276	303.9186	+15.0899	38.5847	0.16169824D 10	10.8087059
JUPITER	128.7309	342.4614	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	62.2774	322.4819				
BETELGEUSE(R)	44.4996	351.1013				
CANOPUS(B)	70.4752	283.7880				
ARCTURUS(R)	158.0330	53.9681				
RIGIL KENTAURUS	119.8775	252.1980				
ANTARES(R)	143.6241	209.0198				
CAPELLA(R)	58.4896	40.5400				
VEGA(B)	113.4447	118.3460				
ALDEBARAN(R)	133.1089	12.8117				
RIGEL(B)	138.9472	327.8009				
GAMMA CRUCIS(R)	117.8338	271.2688				
SPICA(B)	150.1719	312.9435				
ACHERNAB(B)	58.3930	241.7490				
DENEK(B)	89.6588	116.5556				
PROCYON(B)	70.2317	347.0688				

STAR DELAY: 0.0651 SEC 272.6550 PULSES DECIMAL # 4, COARSE + 17, FINE  
 57.2120 DEG 04 21 PULSES OCTAL CKAH SUB C = 169.6373 EPSILON# 0.0000 SCN#11

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PN 11 PASS 3296 PRI4 #050 S/W SK,0 DSS 43P RCVR AGC 134.9 FILE 11-1384 TS  
 SPACECRAFT ATTITUDE ON DAY 96 APR 6, 1982 1630 GMT

04/08/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9025 RCSPHAK = 23.9190

SPACECRAFT-EARTH DIRECTION: CLAT = 15.2086 CLON = 38.2843

SPACECRAFT +Z AXIS ATTITUDE: CLAT = 14.3273 CLON = 38.0831

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PN 11 PASS 3296 PRI4 #050 S/W SK,0 DSS 43P RCVR AGC 134.9 FILE 11-1384 TS  
 SPACECRAFT ATTITUDE ON DAY 96 APR 6, 1982 1630 GMT  
 SPIN PERIOD = 7.48937 SEC RTLT = 2 HR 59 MIN 30.45 SEC

04/08/82

	RNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-14.3273	38.0831	-	-
SUN	0.6855	169.3421	-14.0095	36.3759	0.17495239D 10	11.6946785
EARTH	0.9025	282.4187	-15.2086	38.2843	0.116144501D 10	10.7917787
JUPITER	136.6971	342.4744	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	62.2469	322.4824				
BETELGEUSE(R)	48.4656	351.1110				
CANOPUS(B)	70.4609	283.7856				
ARCTURUS(R)	158.0186	53.8962				
RIGIL KENTAURUS	119.8814	252.2260				
ANTARES(R)	143.6502	209.0581				
CAPELLA(R)	58.4684	40.5662				
VEGA(B)	112.4663	118.3431				
ALDEBARAN(R)	32.0778	12.8422				
RIGEL(B)	32.9155	327.7938				
GAMMA CRUCIS(R)	117.8266	271.2949				
SPICA(B)	158.1445	312.6024				
ACHERNAR(B)	59.4031	241.7383				
DENEK(B)	89.6796	116.5643				
PROCYON(B)	74.1976	347.0770				

STAR DELAY: 7.0651 SEC 272.6680 PULSES DECIMAL = 4, COARSE + 17, FINE  
 51.2144 DEC 04 21 PULSES OCTAL CKAH SUB C = 169,3421 EPSILON = 0.0000 SCN#11

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PN 11 PASS 3302 PR14 #070 S/W SKO DSS 43 RCVR AGC #136.6 FILE 11-1385 RC  
 SPACECRAFT ATTITUDE ON DAY 101 APR 11, 1982 1400 GMT

04/11/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF SKO.

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE.

PRE-PRECESSION

ROLL REFERENCE PARAMETERS: ASPSGRRS # 180 RCSTRUS # 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK # 0.9415 RCSPHAK # 9.1900

SPACECRAFT-EARTH DIRECTION: CLAI # -15.2782 CLON # 38.0604

SPACECRAFT +Z AXIS ATTITUDE: CLAT # -14.3383 CLON # 38.1177

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PN 11 PASS 3302 PR14 #070 S/W SKO DSS 43 RCVR AGC #136.6 FILE 11-1385 RC  
 SPACECRAFT ATTITUDE ON DAY 101 APR 11, 1982 1400 GMT  
 SPIN PERIOD # 7.48937 SEC RLTT # 2 HR 59 MIN 20.80 SEC

04/13/82

S/C +Z AXIS	ONA	CKA	CLAT	CLON	R (KM)	R (AU)
SUN	0.0000	0.0000	-14.3383	38.1177		
EARTH	0.5292	168.9214	-14.0395	35.9708	0.175306500 10	11.7183509
JUPITER	0.9415	266.6383	-15.2782	35.0604	0.161398300 10	10.7881217
SIRIUS(B)	139.6619	342.4824	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	63.2136	322.4849				
CANOPUS(H)	48.4308	351.1246				
ARCTURUS(H)	70.4422	283.7835				
RIGIL KENTAURUS	156.0078	53.8173				
ANTARES(R)	119.8811	252.2548				
CAPELLA(R)	143.6741	209.1019				
VEGA(B)	58.4502	40.5948				
ALDEBARAN(R)	113.4919	118.3412				
RIGEL(B)	335.0476	12.8798				
GAMMA CRUCIS(R)	330.8813	327.7918				
SPICA(B)	119.8147	271.3210				
ACHERNAN(B)	158.1137	312.6536				
DENEK(B)	58.4092	241.7263				
PROCYON(B)	89.7044	116.5730				
	74.1625	347.0865				

STAR DELAY: 1.0652 SEC 272.6789 PULSES DECIMAL # 4 COARSE + 17 FINE  
 51.2165 DEG 04 21 PULSES OCTAL CKAH SUB C # 168.9214 EPSILON# 0.0000 SCN#11

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PN 11 PASS 3302 PRI4 #5711 S/W SKO DSS 63 RCVR AGC #134.9 FILE 11-1386 RC  
 SPACECRAFT ATTITUDE ON DAY 101 APR 11, 1982 2300 GMT

04/13/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/O, NEW ATTITUDE  
 REFERENCE FOR ROCPHAK IS TOWARD SOUTH ECLIPTIC POLE, POST-PRECSSION

ROLL REFERENCE PARAMETERS: ASPSGRRS # 180 RCSTPOS # 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK # 1,1330 ROCPHAK # 209,3900  
 SPACECRAFT-EARTH DIRECTION: CLAT # -15,2832 CLON # 38,0428  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT # -18,0504 CLON # 37,1769

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PN 11 PASS 3302 PRI4 #5711 S/W SKO DSS 63 RCVR AGC #134.9 FILE 11-1386 RC  
 SPACECRAFT ATTITUDE ON DAY 101 APR 11, 1982 2300 GMT  
 SPIN PERIOD # 7.480711 SEC RTCT # 2 HR 59 MIN 28.76 SEC

04/13/82

S/C +Z AXIS	GNA	CKA	CLAT	CLON	H (KM)	H (AU)
SUN	0,0000	0,0000	+16,0504	37,1769	-	-
EARTH	1,1330	42,8031	+14,0418	36,5857	0,175333700 10	11,7201671
JUPITER	129,9706	339,9703	+15,2832	38,0428	0,161389700 10	10,7880889
SIRIUS(B)	61,9040	323,2530	0,0000	180,0000	0,000000000	0,0000000
BETELGEUSE(R)	49,0854	352,4774				
CANOPUS(B)	67,9983	284,0146				
ARCTURUS(B)	160,9230	52,7600				
RIGIL KENTAURUS	117,9726	251,8226				
ANTARES(B)	142,0377	210,2262				
CAPELLA(B)	58,2549	40,8009				
VEGA(B)	114,5611	118,8151				
ALDEBARAN(B)	37,3400	14,8837				
RIGEL(B)	38,7733	329,9497				
GAMMA CRUCIS(B)	111,1181	270,5979				
SPICA(B)	157,3956	308,0045				
ACHERNAB(B)	59,4714	241,4701				
DENEK(B)	90,8328	116,3338				
PROCYON(B)	74,6694	347,3616				

STAR DELAY: 1,0595 SEC 271,2230 PULSES DECIMAL # 4, COARSE + 19, FINE  
 50,9854 DEG 04 17 PULSES OCTAL CKAH SUB C # 105,9459 EPSILON# 0,0000 RCN#11

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PN 11 PASS 3304 PRI4 #050 S/W SKO DSS 42 RCVR AGC #139.7 FILE 11-1387 RC  
 SPACECRAFT ATTITUDE ON DAY 104 APR 14, 1982 1900 GMT

04/14/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/O,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS # 180 RCSTPOS # 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK # 1.0604 RCSPHAK # 210.5600

SPACECRAFT-EARTH DIRECTION: CLAT # -15.3186 CLON # 37.9072

SPACECRAFT +Z AXIS ATTITUDE: CLAT # -18.0423 CLON # 37.1022

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PN 11 PASS 3304 PRI4 #050 S/W SKO DSS 42 RCVR AGC #139.7 FILE 11-1387 RC  
 SPACECRAFT ATTITUDE ON DAY 104 APR 14, 1982 1900 GMT  
 SPIN PERIOD # 7.488834 SEC RTLT # 2 HR 59 MIN 27.96 SEC

04/14/82

S/C +Z AXIS	JNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	+16.0423	37.1022	"	"
EARTH	0.0213	101.1836	+14.0590	36.6981	0.17553924D 10	11.7339064
JUPITER	0.0604	42.9282	+15.3186	37.9072	0.16140761D 10	10.7892787
SIRIUS(B)	140.0408	339.9294	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	61.9664	323.2518				
CANOPUS(B)	49.1577	352.4579				
ARCTURUS(B)	69.0236	284.0199				
RIGIL KENTAURUS	168.9600	52.9192				
ANTARES(B)	117.9578	251.7644				
CAPELLA(B)	141.9797	210.1503				
VEGA(B)	54.3040	40.7471				
ALDEBARAN(R)	114.5194	118.8214				
RIGEL(B)	33.4074	14.8232				
GAMMA CRUCIS(R)	38.8396	329.9661				
SPICA(B)	116.1269	270.5420				
ACHERNAK(B)	157.4461	307.8595				
DENEK(B)	57.4443	241.4922				
PROCYON(B)	90.7937	116.3140				
	74.7413	347.3431				

STAR DELAY: 1.0594 SEC 271,1991 PULSES DECIMAL # 4, COARSE + 15, FINE  
 50.9801 DEG 04 17 PULSES OCTAL CKAH SUB C # 101.1836 EPSILON# 0.0000 SCN#11

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PN 11 PASS 3311 PRI4 #070 S/W SK,0 DSS 63A RCVR AGC .58,0 FILE 11-1388 TS  
 SPACECRAFT ATTITUDE ON DAY 111 APR 21/1982 2030 GMT

04/22/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C,

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 ROSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,7961 RCSPHAK = 233,2920

SPACECRAFT-EARTH DIRECTION: CLAT = -15,3928 CLON = 37,5574

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -16,0768 CLON = 37,1346

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PN 11 PASS 3311 PRI4 #070 S/W SK,0 DSS 63A RCVR AGC .138,0 FILE 11-1388 TS  
 SPACECRAFT ATTITUDE ON DAY 111 APR 21,1982 2030 GMT  
 SPIN PERIOD = 7,488834 SEC RTLT = 2 HR 59 MIN 40,70 SEC

04/22/82

	NA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-16,0768	37,1346	-	-
SUN	94,9810	94,4237	-14,1016	36,9771	0,17605294D 10	11,7682447
EARTH	0,7961	59,2012	-15,3925	37,5574	0,16199862D 10	10,8020468
JUPITER	139,9997	339,9125	0,0000	180,0000	0,00000000	0,0000000
SIRIUS(B)	67,9208	323,2655				
BETELGEUSE(R)	48,1222	352,4924				
CANOPUS(B)	68,9826	284,0205				
ARCTURUS(R)	160,9586	52,7958				
RIGIL KENTAURUS	119,9348	251,7948				
ANTARES(R)	141,9893	210,2174				
CAPELLA(R)	58,3029	40,7847				
VEGA(B)	114,9646	118,8255				
ALDEBARAN(R)	31,3861	14,8948				
RIGEL(B)	38,7953	329,9917				
GAMMA CRUCIS(R)	116,0922	270,5661				
SPICA(B)	157,3998	307,8768				
ACHERNAH(B)	55,4289	241,4731				
DENEK(B)	90,8384	116,3228				
PROCYON(B)	74,7033	347,3594				

STAR DELAY: 0,0594 SEC 271,1961 PULSES DECIMAL # 4, COARSE + 15, FINE  
 50,9795 DEG 04 17 PULSES OCTAL CKAH SUB C = 94,4237 EPSILON = 0,0000 SCN#11

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HALJRP, COMP1, R10, T7447  
IBM 360/67 TBS 9:0 PTE07U  
BSN=8448 LOGON AT 21:57 ON 04/37/87  
LOADING SAMJRB, LOGON, MESSAGE  
NEW DATA SET \*FILE DFFAUL1 NAME SET

EOF  
TOP RECORD  
EOF

CALL MAINSS  
NO CONVERGED SOLUTION FOR THIS SET OF INPUT DATA

WON'T GET ONE, SUBS  
PERPENDICULAR TO S/L - *AK*

FILE 11-1389

20

RAN DECK - GOT THIS  
MESSAGE. PECC'S LOOK  
OK. PLEASE LOOK INTO IT.

PN 11 PASS 3324 PRI 0 NO 0 S/W SKO DSS 43A RCVR AGC #13322 FILE 11-1390 RC  
 SPACECRAFT ATTITUDE ON DAY 124 MAY 4, 1982 1430 GMT

0570012

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCS PHK IS TOWARD SOUTH-ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6303 RCSPHAK = 298.8700

SPACECRAFT-EARTH DIRECTION: CLAT = -15.4721 CLON = 36.9121

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -14.8469 CLON = 36.9949

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 PN 11 PASS 3324 PRI 0 NO 0 S/W SKO DSS 43A RCVR AGC #13322 FILE 11-1390 RC 0570012  
 SPACECRAFT ATTITUDE ON DAY 124 MAY 4, 1982 1430 GMT  
 SPIN PERIOD = 7.48834 SEC RTLT = 6 HR 0 MIN 39.97 SEC

S/C +Z AXIS	NA	CA	CLAT	CLON	PKM	R'AD
SUN	0.0000	0.0000	-14.8469	36.9949	0.17698722	11.830694
EARTH	8.166	-5.0551	-14.8469	36.9949	0.16248709	11.8611345
JUPITER	6.303	262.7324	-15.4721	36.9121	0.00000000	0.00000000
SIRIUS(B)	4.5360	341.2168	0.0000	180.0000		
BETELGEUSE(R)	6.7683	322.7560				
CANOPUS(B)	4.4277	351.235				
ARCTURUS(R)	7.2085	283.8214				
RIGIL KENTAURUS	16.0537	55.1115				
ANTARES(R)	110.0596	251.4778				
CAPELLA(R)	14.4770	208.7125				
VEGA(R)	57.6076	40.1069				
ALDEBARAN(R)	113.4212	118.5779				
RIGEL(B)	37.2204	12.9911				
GAMMA CRUCIS(R)	39.5380	328.7396				
SPICA(B)	17.3232	270.4667				
ACHERNAR(B)	159.4442	309.4752				
DENEK(B)	58.4476	241.8787				
PROCYON(B)	89.6762	116.2836				
	75.1075	347.0067				

REMOVED  
SEE 114390A

STAR DELAY: 1.0614 SEC 271.7232 PULSES DECIMAL # 4. CHARS # 16 FINE  
 51.0786 DEG 04 20 PULSES OCTAL CKAH SIB C = 55.0551 FRACTION 0.0000 RENT 11

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PN 11 PASS 3324 PRI4 #070 S/W SKO DSS 43A RCVR AGC -133.2 FILE 11-1390A RC  
 SPACECRAFT ATTITUDE ON DAY 124 MAY 4, 1982 1430 GMT

05/05/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

**REVISED**

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6307 RCSPHAK = 118.8700  
 SPACECRAFT-EARTH DIRECTION: CLAT = -15.4721 CLON = 36.9121  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -16.0761 CLON = 37.1009

REPLACES FILE NO. 1390

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PN 11 PASS 3324 PRI4 #070 S/W SKO DSS 43A RCVR AGC -133.2 FILE 11-1390A RC 05/05/82  
 SPACECRAFT ATTITUDE ON DAY 124 MAY 4, 1982 1430 GMT  
 SPIN PERIOD = 7.488834 SEC RTLT = 3 HR 0 MIN 39.97 SEC

S/C +Z AXIS	NA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-16.0761	37.1009	-	-
EARTH	0.9336	79.1173	-14.1770	37.4773	0.17698722D 10	11.8306965
JUPITER	0.6307	106.7621	-15.4721	36.9121	0.16248709D 10	10.8614365
SIRIUS(B)	14.0304	339.8906	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	61.9471	323.2663				
CANOPUS(B)	49.1545	352.4867				
ARCTURUS(R)	62.9911	284.0231				
RIGIL KENTAURUS	162.9877	52.8626				
ANTARES(R)	113.9253	251.7690				
CAPELLA(R)	141.9616	210.1865				
VEGA(B)	52.3270	40.7620				
ALDEBARAN(R)	114.5484	118.8290				
RIGEL(B)	33.4173	14.8719				
GAMMA CRUCIS(R)	33.8237	330.0018				
SPICA(B)	116.0932	270.5409				
ACHERNAH(B)	157.4202	307.8069				
DENEK(B)	57.4140	241.4822				
PROCYON(B)	90.8234	116.3139				
	72.7351	347.3518				

STAR DELAY: 7.0593 SEC 271.1819 PULSES DECIMAL = 4, COARSE + 15, FINE  
 52.9769 DEG 04 17 PULSES OCTAL CKAH SUB C = 79.1173 EPSILON = 0.0000 SCN = 11

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PN 11 PASS 3328 PRI4 #070 S/W SK.0 DSB 61A RCVR AGC 136.0 FILE 11-1391 PS

05/11

SPACECRAFT ATTITUDE ON DAY 128 MAY 8, 1982 0000 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF 070.

PRE-PRECESSION

REFERENCE FOR ROBPFAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 ROBTPOS = 180

AMPLITUDE AND PHASE ANGLE: RGSANGAK = 0.0517 ROBPFAK = 136.0600

SPACECRAFT-EARTH DIRECTION: CLAT = -15.4817 CLON = 36.7443

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -16.0447 CLON = 37.0855

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PN 11 PASS 3328 PRI4 #070 S/W SK.0 DSB 61A RCVR AGC 136.0 FILE 11-1391 PS

05/11/82

SPACECRAFT ATTITUDE ON DAY 128 MAY 8, 1982 0000 GMT

SPIN PERIOD = 7.48834 SEC RTLT = 3 HR 1 MIN 1.92 SEC

	RNA	GKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-16.0447	37.0855	-	-
SUN	1.9160	74.6160	-14.1968	37.6097	0.177237260 10	11.8474104
EARTH	0.6517	120.2988	-15.4817	36.7443	0.162840110 10	10.8850341
JUPITER	140.0551	339.9155	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	61.9778	323.2533				
BETELGEUSE(R)	46.1733	352.4572				
CANOPUS(B)	69.0251	284.0219				
ARCTURUS(H)	163.9716	52.9478				
RIGIL KENTAURUS	117.9505	251.7521				
ANTARES(R)	141.9646	210.1380				
CAPELLA(R)	58.3178	40.7371				
VEGA(B)	118.5138	118.8237				
ALDEBARAN(R)	31.4235	14.8159				
RIGEL(B)	38.8522	329.9730				
GAMMA CRUCIS(R)	116.1247	270.5295				
SPICA(B)	157.4541	307.8209				
ACHERNAB(B)	57.4349	241.4958				
DENEK(B)	90.7887	116.3096				
PROCYON(B)	77.7564	347.3401				

STAR DELAY: 7.0593 SEC 271,1907 PULSES DECIMAL = 4, COARSE + 15, FINE  
50.9785 DEG 04 17 PULSES OCTAL GNAM SUB C = 74,6160 EPSILON = 0.0000 SCN#11

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PN 11 PASS 328 PRI4 #479 S/W SK,0 DSS 14A RCVR AGC 139.7 FILE 11-1392 AG  
 SPACECRAFT ATTITUDE ON DAY 128 MAY 8, 1982 0000 GMT

05/11

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

NEW ATTITUDE  
 POST-PRECSSION

ROLL REFERENCE PARAMETERS: ASPSGRRS # 0 ROSTPOS # 180

AMPLITUDE AND PHASE ANGLE: RCBANGAK # 0.9423 RCSPHAK # 45.2300

SPACECRAFT-EARTH DIRECTION: CLAT # -15.4822 CLON # 36.7321

SPACECRAFT +Z AXIS ATTITUDE: CLAT # -15.2789 CLON # 35.7778

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PN 11 PASS 328 PRI4 #479 S/W SK,0 DSS 14A RCVR AGC 139.7 FILE 11-1392 AG  
 SPACECRAFT ATTITUDE ON DAY 128 MAY 8, 1982 0600 GMT  
 SPIN PERIOD # 7.473951 SEC RTLT # 3 HR 1 MIN 9.41 SEC

05/11/82

	NA	GKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	*15.2789	35.7778	"	"
SUN	0.0832	31.0130	*14.1982	37.6194	0.177255690 10	11.8486424
EARTH	0.9423	347.4167	*15.4822	36.7321	0.162868440 10	10.8869278
JUPITER	14.5006	339.9138	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	63.4445	322.9742				
BETELGEUSE(R)	53.5264	351.6116				
CANOPUS(B)	78.0734	284.0547				
ARCTURUS(R)	167.0689	56.8711				
RIGIL KENTAURUS	118.2694	250.6309				
ANTARES(R)	141.2379	208.1672				
CAPELLA(R)	58.7869	39.5297				
VEGA(B)	113.2360	118.7957				
ALDEBARAN(R)	30.4626	12.9099				
RIGEL(B)	48.3257	329.5862				
GAMMA CRUCIS(R)	118.8913	269.5487				
SPICA(B)	158.8231	306.1078				
ACHERNAB(B)	57.5140	242.0812				
DENEK(B)	89.5467	115.9589				
PROCYON(B)	71.1547	346.8663				

STAR DELAY: 7.0580 SEC 270.8371 PULSES DECIMAL # 4, COARSE + 15, FINE  
 58.9453 DEG 04 17 PULSES OCTAL CHAN BUB C # 31.0130 EPSILON= 0.0000 SCN#11

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PN 11 PAS 3331 PRI4 #070 S/W SK,0 DSS 42B RCVR AGC 138.1 FILE 11-1393 CU 05/11/82

SPACECRAFT ATTITUDE ON DAY 131 MAY 11, 1982 1330 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRHS = 0 RGSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCBANGAK = 0.9147 RCSPHAK = 42.3991

SPACECRAFT-EARTH DIRECTION: CLAT = +15.4866 CLON = 36.5725

SPACECRAFT +Z AXIS ATTITUDE: CLAT = +15.1466 CLON = 35.6920

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PN 11 PASS 3331 PRI4 #070 S/W SK,0 DSS 42B RCVR AGC 138.1 FILE 11-1393 CU 05/11/82

SPACECRAFT ATTITUDE ON DAY 131 MAY 11, 1982 1330 GMT

SPIN PERIOD = 7.47683 SEC RTLT = 3 HR 1 MIN 31.76 SEC

	HNA	GKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	+15.1466	35.6920	-	-
SUN	0.1953	24.7792	+14.2174	37.7482	0.177500170 10	11.8649846
EARTH	0.9147	338.0677	+15.4866	36.9725	0.163063330 10	10.9133242
JUPITER	147.6237	340.0121	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	63.5902	322.9239				
BETELGEUSE(R)	54.6277	351.4915				
CANOPUS(B)	70.2218	284.0496				
ARCTURUS(R)	161.0029	57.2601				
RIGIL KENTAURUS	118.3667	250.5422				
ANTARES(R)	141.2271	207.9508				
CAPELLA(R)	58.7667	39.4134				
VEGA(B)	113.0802	118.7770				
ALDEBARAN(R)	30.5140	12.6730				
RIGEL(B)	40.4641	329.4790				
GAMMA CRUCIS(R)	117.0229	269.4836				
SPICA(B)	158.9788	306.1141				
ACHERNAK(B)	57.5923	242.1446				
DENEB(B)	89.3915	115.9362				
PROCYON(B)	72.2654	346.8168				

STAR DELAY: 7.0582 SEC 270.8908 PULSES DECIMAL = 4, COARSE + 15, FINE  
58.9504 DEG 04 17 PULSES OCTAL CKAH SUB C = 24.7792 EPSILON = 0.0000 SCNF=11

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PN 11 PA 3339 PRI4 #070 S/W SK 0 DSS 63A RCVR A 136.6 FILE 11-1394 P8 05/19/82

SPACECRAFT ATTITUDE ON DAY 139 MAY 19, 1982 0000 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 ROOTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6475 RCSPHAN = 30.8810

SPACECRAFT-EARTH DIRECTION: CLAT = -15.4805 CLON = 36.2329

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -15.0792 CLON = 35.7060

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PN 11 PASS 3339 PRI4 #070 S/W SK 0 DSS 63A RCVR AGC -136.6 FILE 11-1394 P8 05/19/82

SPACECRAFT ATTITUDE ON DAY 139 MAY 19, 1982 0000 GMT

SPIN PERIOD = 7.476805 SEC RTLT = 3 HR 2 MIN 41.78 SEC

	MNA	GKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-15.0792	35.7060	-	-
SUN	3.3983	19.6778	-14.8599	38.0360	0.17805093D 10	11.9018001
EARTH	0.6475	321.6453	-15.4805	36.2329	0.16431303D 10	10.9834913
JUPITER	147.6340	340.1016	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	63.6201	322.8969				
BETELGEUSE(R)	57.6243	351.4388				
CANOPUS(B)	78.2839	284.0426				
ARCTURUS(H)	168.9389	57.3364				
RIGIL KENTAURUS	118.4347	250.5406				
ANTARES(R)	141.2706	207.8882				
CAPELLA(R)	58.7135	39.3906				
VEGA(B)	113.0276	118.7618				
ALDEBARAN(R)	34.4861	12.5852				
RIGEL(B)	47.4867	329.4066				
GAMMA CRUCIS(R)	117.0904	269.4938				
SPICA(B)	159.0252	306.2498				
ACHERNAB(B)	57.6582	242.1606				
DENEBA(B)	89.3368	115.9403				
PROCYON(B)	72.2676	346.8036				

STAR DELAY: 1.0583 SEC 270.9320 PULSES DECIMAL = 4, COARSE + 15, FINE  
 53.9574 DEG 04 17 PULSES OCTAL CKAH SUB C = 19.6778 EPSILON = 0.0000 SCN = 11

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PN 11 PASS 3348 PRI4 #0/0 S/W SK.0 DSS 61A RCVR AGC -138.1 FILE 11-1395 TS  
 SPACECRAFT ATTITUDE ON DAY 147 MAY 27,1982 2130 GMT

06/01/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4020 RCSPHAK = 7.1151

SPACECRAFT-EARTH DIRECTION: CLAT = -15.4456 CLON = 35.8743

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -15.0782 CLON = 35.7050

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PN 11 PASS 3348 PRI4 #0/0 S/W SK.0 DSS 61A RCVR AGC -138.1 FILE 11-1395 TS  
 SPACECRAFT ATTITUDE ON DAY 147 MAY 27,1982 2130 GMT  
 SPIN PERIOD = 7.476927 SEC RTLT = 3 HR 4 MIN 24.71 SEC

06/01/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-15.0782	35.7050	-	-
EARTH	2.6973	16.2043	-14.3101	38.3781	0.178713060 10	11.9460602
JUPITER	0.4020	293.9384	-15.4456	35.8743	0.165855800 10	11.0866176
SIRIUS(B)	141.6352	340.1021	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	63.6215	322.8965				
CANOPUS(B)	50.6254	351.4379				
ARCTURUS(R)	70.2852	284.0426				
RIGIL KENTAURUS	160.9385	57.3400				
ANTARES(R)	118.4354	250.5397				
CAPELLA(R)	141.2702	207.8862				
VEGA(B)	58.7136	39.3895				
ALDEBARAN(R)	113.0263	118.7617				
RIGEL(B)	34.4869	12.5832				
GAMMA CRUCIS(R)	40.4881	329.4059				
SPICA(B)	117.0914	269.4930				
ACHERNAR(B)	159.0266	306.2491				
DENEK(B)	57.6586	242.1612				
PROCYON(B)	89.3355	115.9401				
	76.2688	346.8032				

STAR DELAY: 1.058? SEC 270.9365 PULSES DECIMAL = 4. COARSE + 15. FINE  
 50.9574 DEG 04 17 PULSES OCTAL CKAH SUB C = 16.2043 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3353 PR14 #0/0 S/W SK.0 DSS 63A RCVR AGC -134.9 FILE 11-1396 AG  
 SPACECRAFT ATTITUDE ON DAY 152 JUN 1,1982 1900 GMT

06/01/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPUS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.3386 RCSPHAK = 343.9600

SPACECRAFT-EARTH DIRECTION: CLAT = -15.4150 CLON = 35.7060

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -15.0764 CLON = 35.7077

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PN 11 PASS 3353 PR14 #0/0 S/W SK.0 DSS 63A RCVR AGC -134.9 FILE 11-1396 AG  
 SPACECRAFT ATTITUDE ON DAY 152 JUN 1,1982 1900 GMT  
 SPIN PERIOD = 7.477049 SEC RLTL = 3 HR 5 MIN 29.22 SEC

06/01/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-15.0764	35.7077	-	-
EARTH	2.8601	14.6155	-14.3371	38.5642	0.17907661D 10	11.9703616
JUPITER	0.3386	269.7308	-15.4150	35.7060	0.16692280D 10	11.1512567
SIRIUS(B)	141.6334	340.1061	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	63.6205	322.8957				
CANOPUS(B)	50.6232	351.4368				
ARCTURUS(R)	70.2863	284.0423				
RIGIL KENTAURUS	160.9356	57.3373				
ANTARES(R)	118.4379	250.5413				
CAPELLA(R)	141.2733	207.8864				
VEGA(B)	58.7104	39.3903				
ALDEBARAN(R)	113.0259	118.7611				
RIGEL(B)	34.4840	12.5822				
GAMMA CRUCIS(R)	40.4868	329.4033				
SPICA(B)	117.0932	269.4950				
ACHERNAR(B)	159.0265	306.2579				
DENEB(B)	57.6614	242.1610				
PROCYON(B)	89.3350	115.9408				
	76.2667	346.8033				

STAR DELAY: 1.0584 SEC 270.9428 PULSES DECIMAL = 4. COARSE + 15. FINE  
 50.9577 DEG 04 17 PULSES OCTAL CKAH SUB C = 14.6155 EPSILON= 0.0000 SCN=11

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PN 11 3359 PRI4 #070 87W SK0 DSS 42A RCVR #138.1 FILE 11-1397 RC 06/08/82  
 SPACECRAFT ATTITUDE ON DAY 159 JUN 8, 1982 1230 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF 87C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.3629 RCSPHAK = 303.0400

SPACECRAFT-EARTH DIRECTION: CLAT = -15.3606 CLON = 35.5103

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -15.0960 CLON = 35.7677

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PN 11 PASS 3359 PRI4 #070 87W SK0 DSS 42A RCVR AGC -138.1 FILE 11-1397 RC 06/08/82  
 SPACECRAFT ATTITUDE ON DAY 159 JUN 8, 1982 1230 GMT  
 SPIN PERIOD = 7.477171 SEC RTLT = 3 HR 7 MIN 7.74 SEC

	CNA	CRA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-15.0960	35.7677	-	-
SUN	3.0403	13.3410	-14.3743	38.8216	0.17958370D 10	12.0042580
EARTH	0.3629	226.8434	-15.3606	35.5103	0.16829958D 10	11.2499719
JUPITER	141.5723	340.1233	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	63.5625	322.9017				
BETELGEUSE(R)	50.5630	351.4612				
CANOPUS(B)	70.2532	284.0394				
ARCTURUS(R)	160.9208	57.1814				
RIGIL KENTAURUS	118.4387	250.5900				
ANTARES(R)	141.3153	207.9575				
CAPELLA(R)	58.6781	39.4375				
VEGA(B)	113.0710	118.7591				
ALDEBARAN(R)	34.4317	12.6440				
RIGEL(B)	40.4270	329.4041				
GAMMA CRUCIS(R)	117.0741	269.5403				
SPICA(B)	158.9765	306.3649				
ACHERNAR(B)	57.6711	242.1384				
DENEK(B)	89.3779	115.9569				
PROCYON(B)	76.2059	346.8204				

STAR DELAY = 1.0584 SEC 270.9623 PULSES DECIMAL = 4, COARSE + 15, FINE  
 50.9606 DEG 04 17 PULSES OCTAL CKAH SUB C = 13.3410 EPSILON = 0.0000 SCN=11

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PN 11 PASS 3369 PR14 #0/0 S/W SK.0 DSS 61A RCVR AGC -138.1 FILE 11-1398 AG  
 SPACECRAFT ATTITUDE ON DAY 168 JUN 17,1982 2100 GMT

06/17/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4716 RCSPHAK = 277.2500

SPACECRAFT-EARTH DIRECTION: CLAT = -15.2767 CLON = 35.3361

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -15.1179 CLON = 35.7963

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PN 11 PASS 3369 PR14 #0/0 S/W SK.0 DSS 61A RCVR AGC -138.1 FILE 11-1398 AG  
 SPACECRAFT ATTITUDE ON DAY 168 JUN 17,1982 2100 GMT  
 SPIN PERIOD = 7.477171 SEC RLTL = 3 HR 9 MIN 22.40 SEC

06/17/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-15.1179	35.7963	-	-
EARTH	3.3056	11.7678	-14.4195	39.1377	0.18021311D 10	12.0463309
JUPITER	0.4716	199.7277	-15.2767	35.3361	0.17031813D 10	11.3849017
SIRIUS(B)	141.5389	340.1166	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	63.5273	322.9056				
CANOPUS(B)	50.5324	351.4831				
ARCTURUS(R)	70.2253	284.0392				
RIGIL KENTAURUS	160.9242	57.0874				
ANTARES(R)	118.4272	250.6155				
CAPELLA(R)	141.3294	208.0053				
VEGA(B)	58.6707	39.4659				
ALDEBARAN(R)	113.1035	118.7607				
RIGEL(B)	34.4056	12.6915				
GAMMA CRUCIS(R)	40.3920	329.4172				
SPICA(B)	117.0525	269.5620				
ACHERNAR(B)	158.9424	306.3963				
DENEK(B)	57.6647	242.1239				
PROCYON(B)	89.4097	115.9645				
	76.1740	346.8315				

STAR DELAY: 1.0585 SEC 270.9637 PULSES DECIMAL = 4. COARSE + 15. FINE  
 50.9608 DEG 04 17 PULSES OCTAL CKAH SUB C = 11.7678 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3376 PRI4 #070 S/W SK,0 DSS 63A RCVR AGC -136.6 FILE 11-1399 AG 06/24/82  
 SPACECRAFT ATTITUDE ON DAY 175 JUN 24,1982 2200 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5097 RCSPHAK = 264.6400

SPACECRAFT-EARTH DIRECTION: CLAT = -15.1816 CLON = 35.2464

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -15.1421 CLON = 35.7728

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PN 11 PASS 3376 PRI4 #070 S/W SK,0 DSS 63A RCVR AGC -136.6 FILE 11-1399 AG 06/24/82  
 SPACECRAFT ATTITUDE ON DAY 175 JUN 24,1982 2200 GMT  
 SPIN PERIOD = 7.077293 SEC RTLT = 3 HR 11 MIN 43.87 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-15.1421	35.7728	-	-
SUN	3.6101	10.3803	-14.4624	39.4401	0.18082189D 10	12.0870247
EARTH	0.5097	184.5121	-15.1816	35.2464	0.17243875D 10	11.5266544
JUPITER	141.5519	340.0721	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	63.5308	322.9199				
BETELGEUSE(R)	50.5512	351.4995				
CANOPUS(B)	70.2073	284.0431				
ARCTURUS(R)	160.9568	57.0982				
RIGIL KENTAURUS	118.3969	250.6022				
ANTARES(R)	141.8980	208.0126				
CAPELLA(R)	58.7036	39.4624				
VEGA(B)	113.1138	118.7680				
ALDEBARAN(R)	34.4370	12.7126				
RIGEL(B)	40.3992	329.4491				
GAMMA CRUCIS(R)	117.0281	269.5444				
SPICA(B)	158.9364	306.3057				
ACHERNAR(B)	57.6327	242.1233				
DENEK(B)	89.4215	115.9581				
PRUCYON(B)	76.1905	346.8324				

STAR DELAY: 1.0584 SEC 270.9475 PULSES DECIMAL = 4. COARSE + 15. FINE  
 50.9569 DEG 04 17 PULSES OCTAL CKAH SUB C = 10.3803 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3381 PRI4 #070 S/W SK,0 DSS 61A RC AGC -138,1 FILE 11-1400 AG 06/29/82  
 SPACECRAFT ATTITUDE ON DAY 180 JUN 29, 1982 2000 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,  
 REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,5270 RCSPHAK = 260,3700  
 SPACECRAFT-EARTH DIRECTION: CLAT = -15,1181 CLON = 35,2317  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -15,1336 CLON = 35,7773

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PN 11 PASS 3381 PRI4 #070 S/W SK,0 DSS 61A RCVR AGC -138,1 FILE 11-1400 AG 06/29/82  
 SPACECRAFT ATTITUDE ON DAY 180 JUN 29, 1982 2000 GMT  
 SPIN PERIOD = 7,478270 SEC RTLT = 3 HR 13 MIN 15,20 SEC

	CKA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-15,1336	35,7773	-	-
SUN	3,7744	9,3486	-14,4883	39,6241	0,18119549D 10	12,1119980
EARTH	0,5270	178,3891	-15,1181	35,2317	0,17380767D 10	11,6181598
JUPITER	141,5507	340,0853	0,0000	180,0000	0,00000000	0,0000000
SIRIUS(B)	63,5324	322,9164				
BETELGEUSE(R)	50,5482	351,4932				
CANOPUS(B)	70,2145	284,0420				
ARCTURUS(R)	166,9473	57,1022				
RIGIL KENTAURUS	118,4064	250,6041				
ANTARES(R)	141,3059	208,0069				
CAPELLA(R)	58,6948	39,4613				
VEGA(B)	113,1084	118,7658				
ALDEBARAN(R)	34,4308	12,7030				
RIGEL(B)	40,3998	329,4390				
GAMMA CRUCIS(R)	117,0367	269,5478				
SPICA(B)	158,9407	306,3291				
ACHERNAR(B)	57,6423	242,1246				
DENE(B)	87,4158	115,9593				
PROCYON(B)	76,1882	346,8313				

STAR DELAY: 1,0585 SEC 270,9886 PULSES DECIMAL = 4, COARSE + 15, FINE  
 50,9580 DEG 04 17 PULSES OCTAL CKAH SUB C = 9,3486 EPSILON = 0,0000 SCN=11

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PN PASS 3388 PRI4 #174 S/W SK,0 DSS 63 RCVR AGC -136.6 FILE 11-1401 PD  
SPACECRAFT ATTITUDE ON DAY 187 JUL 6,1982 2300 GMT

07/06/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5185 RCSPHAK = 246.5300

SPACECRAFT-EARTH DIRECTION: CLAT = -15.0208 CLON = 35.2658

SPACERAFI +Z AXIS ATTITUDE: CLAT = -15.1655 CLON = 35.7815

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PN 11 PASS 3388 PRI4 #1/4 S/W SK,0 DSS 63 RCVR AGC -136.6 FILE 11-1401 PD

07/06/82

SPACECRAFT ATTITUDE ON DAY 187 JUL 6,1982 2300 GMT  
SPIN PERIOD = 7.478270 SEC RTLT = 3 HR 15 MIN 32.82 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-15.1655	35.7815	-	-
SUN	4.0219	8.6281	-14.5253	39.8893	0.181738710 10	12.1483095
EARTH	0.5185	163.8674	-15.0208	35.2658	0.175870620 10	11.7568575
JUPITER	141.5361	340.0504	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	63.5100	322.9289				
BETELGEUSE(R)	50.5395	351.5197				
CANOPUS(B)	70.1826	284.0445				
ARCTURUS(R)	160.9719	57.0433				
RIGIL KENTAURUS	118.3776	250.6129				
ANTARES(R)	141.2945	208.0455				
CAPELLA(R)	58.7120	39.4789				
VEGA(B)	113.1383	118.7720				
ALDEBARAN(R)	34.4340	12.7508				
RIGEL(B)	40.3801	329.4700				
GAMMA CRUCIS(R)	117.0048	269.5510				
SPICA(B)	158.9126	306.2896				
ACHERNAR(B)	57.6160	242.1139				
DENEK(B)	89.4462	115.9603				
PROCYON(B)	76.1770	346.8398				

STAR DELAY: 1.0585 SEC 270.9755 PULSES DECIMAL = 4, COARSE + 15, FINE  
50.9555 DEG 04 17 PULSES OCTAL CKAH SUB C = 8.6281 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3394 PRI4 #0/0 S/W SK,0 DSS 43A RCVR -134.9 FILE 11-1402 TS  
SPACECRAFT ATTITUDE ON DAY 194 JUL 13, 1982 1000 GMT

07/14/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTROS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4695 RCSPHAK = 236.5600

SPACECRAFT-EARTH DIRECTION: CLAT = -14.9289 CLON = 35.3541

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -15.1451 CLON = 35.7856

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PN 11 PASS 3394 PRI4 #0/0 S/W SK,0 DSS 43A RCVR ABC -134.9 FILE 11-1402 TS  
SPACECRAFT ATTITUDE ON DAY 194 JUL 13, 1982 1000 GMT  
SPIN PERIOD = 1.478392 SEC RTLT = 3 HR 17 MIN 41.96 SEC

07/14/82

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-15.1451	35.7856	-	-
SUN	4.2386	7.3948	-14.5585	40.1286	0.18223306D 10	12.1813543
EARTH	0.4695	152.6344	-14.9289	35.3541	0.17780628D 10	11.8854465
JUPITER	141.5393	340.0773	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	63.5191	322.9207				
BETELGEUSE(R)	50.5385	351.5038				
CANDRUS(B)	70.2014	284.0424				
ARCTURUS(R)	160.9526	57.0668				
RIGIL KENTAURUS	118.3982	250.8124				
ANTARES(R)	141.3076	208.0265				
CAPELLA(R)	58.6959	39.4720				
VEGA(B)	113.1224	118.7674				
ALDEBARAN(R)	34.4256	12.7242				
RIGEL(B)	40.3870	329.4480				
GAMMA CRUCIS(R)	117.0252	269.5541				
SPICA(B)	158.9266	306.3303				
ACHERNAR(B)	59.6358	242.1188				
DENEK(B)	89.4296	115.9615				
PROCYON(B)	76.1778	346.8358				

STAR DELAY: 1.0586 SEC 270.9911 PULSES DECIMAL = 4, COARSE + 15, FINE  
50.9576 DEG 04 17 PULSES OCTAL CKAH SUB C = 7,3948 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3402 PRI4 #070 S/W SK.0 DSS 61A RCVR AGC =138.1 FILE 11-1403A AG  
 SPACECRAFT ATTITUDE ON DAY 201 JUL 20,1982 2000 GMT

08/17/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4283 RCSPHAK = 207.0500

SPACECRAFT-EARTH DIRECTION: CLAT = +14.8211 CLON = 35.5228

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -15.1828 CLON = 35.7603

REVISED  
 REPLACES FILE NO. 11-1403

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PN 11 PASS 3402 PRI4 #070 S/W SK.0 DSS 61A RCVR AGC =138.1 FILE 11-1403A AG  
 SPACECRAFT ATTITUDE ON DAY 201 JUL 20,1982 2000 GMT

08/17/82

SPIN PERIOD = 7.778514 SEC RTLT = 3 HR 20 MIN 13.91 SEC

	EPA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-15.1828	35.7603	-	-
SUN	4.5236	6.8526	-14.5860	40.4016	0.182802840 10	12.2194412
EARTH	0.4283	122.4095	-14.8211	35.5228	0.180083980 10	12.0376979
JUPITER	141.5494	340.0155	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	63.5159	322.9364				
BETELGEUSE(R)	50.5572	351.5308				
CANOPUS(B)	70.1708	284.0476				
ARCTURUS(R)	160.9976	57.0603				
RIGIL KENTAURUS	118.3545	250.6001				
ANTARES(R)	141.2682	208.0470				
CAPELLA(R)	58.7388	39.4736				
VEGA(B)	118.1436	118.7776				
ALDEBARAN(R)	34.4578	12.7633				
RIGEL(B)	40.3890	329.4942				
GAMMA CRUCIS(R)	118.9873	269.5351				
SPICA(B)	150.9107	306.2146				
ACHERNAR(B)	57.5911	242.1147				
DENEK(B)	89.4528	115.9545				
PROCYON(B)	76.1930	346.8396				

STAR DELAY: 1.0585 SEC 270.9677 PULSES DECIMAL = 4, COARSE + 15, FINE  
 50.9524 DEG 04 17 PULSES OCTAL CKAH SUB C = 6.8526 EPBILON= 0.0000 SCN=1

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PN 11 PASS 3409 PRI4 #070 S/W SK.0 DSS 61A RCVR AGC =139.7 FILE 11=1404A P8 08/17/82  
 SPACECRAFT ATTITUDE ON DAY 208 JUL 27,1982 1900 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 ROSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4611 R0SPHAK = 172.9300

SPACECRAFT-EARTH DIRECTION: CLAT = -14.7197 CLON = 35.7463

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -15.1804 CLON = 35.7263

REVISED  
 REPLACES FILE NO. 11-1404

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 PN 11 PASS 3409 PRI4 #070 S/W SK.0 DSS 61A RCVR AGC =139.7 FILE 11=1404A P8 08/17/82  
 SPACECRAFT ATTITUDE ON DAY 208 JUL 27,1982 1900 GMT  
 SPIN PERIOD = 7.478636 SEC RTLT = 3 HR 22 MIN 38.97 SEC

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-15.1804	35.7263	"	"
EARTH	4.7958	5.9424	-14.6307	40.6564	0.18333954D 10	12.2553168
JUPITER	0.4611	87.5902	-14.7197	35.7463	0.18225238D 10	12.1826444
SIRIUS(B)	741.5811	339.9953	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	83.5435	322.9364				
CANOPUS(B)	50.5900	351.5239				
ARCTURUS(R)	70.1811	284.0499				
RIGIL KENTAURUS	161.0133	57.1353				
ANTARES(R)	118.3459	250.5740				
CAPELLA(R)	141.2404	208.0162				
VEGA(B)	88.7626	39.4509				
ALDEBARAN(R)	113.1257	118.7805				
RIGEL(B)	34.4892	12.7404				
GAMMA CRUCIS(R)	40.4185	329.5024				
SPICA(B)	116.9895	269.5095				
ACHERNAR(B)	158.9321	306.1407				
DENEK(B)	57.5779	242.1250				
PROCYON(B)	89.4363	115.9453				
	76.2255	346.8319				

STAR DELAY: 1.0584 SEC 270.9596 PULSES DECIMAL = 4. COARSE + 15. FINE  
 50.9501 DEG 04 17 PULSES OCTAL CKAH SUB C = 5.9424 EPSILON = 0.0000 SCN=1

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PN 11 PASS 3419 PRI4 #070 S/W SK.0 DSS 61A RCVR AGC =138.1 FILE 11-1405A AG  
SPACECRAFT ATTITUDE ON DAY 218 AUG 6, 1982 1430 GMT

08/17/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7375 RCSPHAK = 141.2100

SPACECRAFT-EARTH DIRECTION: CLAT = -14.8799 CLON = 36.1648

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -15.1858 CLON = 35.7296

REVISED

REPLACES FILE NO. 11-1405

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PN 11 PASS 3419 PRI4 #070 S/W SK.0 DSS 61A RCVR AGC =138.1 FILE 11-1405A AG  
SPACECRAFT ATTITUDE ON DAY 218 AUG 6, 1982 1430 GMT  
SPIN PERIOD = 7.278758 SEC RTLT = 3 HR 26 MIN 3.14 SEC

08/17/82

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-15.1858	35.7296	-	-
SUN	5.1303	4.9853	-14.6780	41.0134	0.18409977D 10	12.3061344
EARTH	0.7375	55.1766	-14.8799	36.1648	0.18531889D 10	12.3876237
JUPITER	141.5762	339.9912	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	63.5377	322.9384				
BETELGEUSE(R)	50.5860	351.5288				
CANOPUS(B)	70.1750	284.0502				
ARCTURUS(R)	101.0161	57.1196				
RIGIL KENTAURUS	118.3418	250.5775				
ANTARES(R)	141.2407	208.0250				
CAPELLA(R)	58.7635	39.4555				
VEGA(B)	113.1320	118.7813				
ALDEBARAN(R)	34.4873	12.7500				
RIGEL(B)	40.4129	329.5068				
GAMMA CRUCIS(R)	115.9841	269.5121				
SPICA(B)	156.9257	306.1401				
ACHERNAR(B)	57.5746	242.1224				
DENEK(B)	85.4426	115.9462				
PROCYON(B)	76.2211	346.8339				

STAR DELAY: 1.0584 SEC 270.9628 PULSES DECIMAL = 4. COARSE + 15. FINE  
50.9498 DEG 04 17 PULSES OGTAL CKAH SUB C = 4.9853 EPSILON = 0.0000 SCN=11

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PN 11 PASS 3023 PRI4 #070 S/W SK,0 DSS 61A RCVR AGC =138.1 FILE 11-1406A PS 08/17/82  
 SPACECRAFT ATTITUDE ON DAY 222 AUG 10,1982 1900 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.  
 REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPGRRS # 0 RCSTPOS # 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK # 0.9062 RCSPHAK # 132.2800  
 SPACECRAFT-EARTH DIRECTION: CLAT # +14.5224 CLON # 36.3786  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT # +15.1662 CLON # 35.7188

REVISED  
 REPLACES FILE NO. 11-1406

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 PN 11 PASS 3023 PRI4 #070 S/W SK,0 DSS 61A RCVR AGC =138.1 FILE 11-1406A PS 08/17/82  
 SPACECRAFT ATTITUDE ON DAY 222 AUG 10,1982 1900 GMT  
 SPIN PERIOD # 7.078580 SEC RTLT # 3 HR 27 MIN 29.86 SEC

	ENA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	+15.1662	35.7188	-	-
SUN	5.2826	4.3656	+14.5992	41.1648	0.18442541D 10	12.3279017
EARTH	0.9062	45.1851	+14.5224	36.3786	0.18661877D 10	12.4745167
JUPITER	141.5927	340.0071	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	63.5579	322.9309				
BETELGEUSE(R)	50.5992	351.5112				
CANOPUS(B)	70.1966	284.0493				
ARCTURUS(R)	161.0053	57.1733				
RIGIL KENTAURUS	118.3569	250.5659				
ANTARES(R)	141.2407	207.9944				
CAPELLA(R)	58.7591	39.4395				
VEGA(B)	113.1098	118.7783				
ALDEBARAN(R)	34.4931	12.7159				
RIGEL(B)	46.4319	329.4904				
GAMMA CRUCIS(R)	117.0036	269.5038				
SPICA(B)	158.9478	306.1454				
ACHERNAR(B)	59.5871	242.1313				
DENEK(B)	89.4203	115.9434				
PROCYON(B)	78.2358	346.8270				

STAR DELAY: 1.0584 SEC 270.9612 PULSES DECIMAL # 4, COARSE + 15, FINE  
 50.9507 DEG 04 17 PULSES OCTAL CKAH SUB C # 4.3656 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3430 PRI4 #0/0 S/W SK.0 DSS 61A RCVR AGC -142.5 FILE 11-1407A AG  
SPACECRAFT ATTITUDE ON DAY 229 AUG 17,1982 1300 GMT

08/27/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

REVISED

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

REPLACES FILE NO. 1407

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.2545 RCSPHAK = 121.9100

SPACECRAFT-EARTH DIRECTION: CLAT = -14.4332 CLON = 36.7657

PRE-PRECESSION

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -15.1354 CLON = 35.6906

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PN 11 PASS 3430 PRI4 #0/0 S/W SK.0 DSS 61A RCVR AGC -142.5 FILE 11-1407A AG  
SPACECRAFT ATTITUDE ON DAY 229 AUG 17,1982 1300 GMT  
SPIN PERIOD = 7.478800 SEC RTLT = 3 HR 29 MIN 47.95 SEC

08/27/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-15.1354	35.6906	-	-
SUN	5.5388	3.4414	-14.7315	41.4079	0.18495181D 10	12.3630889
EARTH	1.2545	33.9032	-14.4332	36.7657	0.18868868D 10	12.6129797
JUPITER	141.6288	340.0244	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	63.5981	322.9195				
BETELGEUSE(R)	50.6307	251.4822				
CANOPUS(B)	70.2331	284.0487				
ARCTURUS(R)	160.9942	57.2808				
RIGIL KENTAURUS	118.3768	250.5391				
ANTARES(R)	141.2311	207.9373				
CAPELLA(R)	58.7606	39.4072				
VEGA(B)	113.0697	118.7748				
ALDEBARAN(R)	34.5130	12.6562				
RIGEL(B)	40.4710	329.4682				
GAMMA CRUCIS(R)	117.0341	269.4824				
SPTCA(B)	158.9887	306.1280				
ACHERNAR(B)	57.6015	242.1483				
DENEK(B)	89.3808	115.9359				
PROCYON(B)	76.2692	346.8138				

STAR DELAY: 1.0585 SEC 270.9721 PULSES DECIMAL = 4. COARSE + 15. FINE  
50.9512 DEG 04 17 PULSES OCTAL CKAH SUB C = 3.4414 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3430 PRI4 #6/8 S/W SK.0 DSS 61A RCVR AGC -139.7 FILE 11-1408A AG  
 SPACECRAFT ATTITUDE ON DAY 229 AUG 17,1982 1600 GMT

08/27/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REVISED

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

REPLACES FILE NO. 1408

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9115 RCSPHAK = 316.6500

SPACECRAFT-EARTH DIRECTION: CLAT = -14.4316 CLON = 36.7733

NEW ATTITUDE  
 POST-PRECSSION

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.9180 CLON = 37.5501

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PN 11 PASS 3430 PRI4 #6/8 S/W SK.0 DSS 61A RCVR AGC -139.7 FILE 11-1408A AG  
 SPACECRAFT ATTITUDE ON DAY 229 AUG 17,1982 1600 GMT  
 SPIN PERIOD = 7.473021 SEC RTLT = 3 HR 29 MIN 50.48 SEC

08/27/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-13.9180	37.5501	-	-
EARTH	3.8297	347.2537	-14.7321	41.4124	0.18496157D 10	12.3637413
JUPITER	0.9115	214.3870	-14.4316	36.7733	0.18872663D 10	12.6154164
SIRIUS(B)	140.3130	342.6250	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	62.9062	322.3477				
CANOPUS(B)	49.0407	350.6982				
ARCTURUS(R)	70.9816	283.7970				
RIGIL KENTAURUS	158.9834	55.4816				
ANTARES(R)	120.1108	251.7390				
CAPELLA(R)	143.3920	208.1074				
VEGA(B)	56.5981	40.0088				
ALDEBARAN(R)	112.8607	118.3246				
RIGEL(B)	32.4950	11.9040				
GAMMA CRUCIS(R)	39.5712	327.5785				
SPICA(B)	118.2457	270.8937				
ACHERNAR(B)	158.7954	312.2043				
DENEK(B)	59.5203	241.9910				
PROCYON(B)	89.0826	116.4312				
	74.7935	346.8686				

STAR DELAY: 1.0629 SEC 272.1005 PULSES DECIMAL = 4. COARSE + 16. FINE  
 51.2030 DEG 04 20 PULSES OCTAL CKAH SUB C = 347.2537 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3437 PRI4 #070 S/W SK.0 DSS 61A RCVR AGC =1.7 FILE 11-1409 PS 08/24/82  
 SPACECRAFT ATTITUDE ON DAY 236 AUG 24, 1982 1900 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/W.

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPGRRS = 0 ROSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9411 R0SPHAK = 337.2200

SPACECRAFT-EARTH DIRECTION: CLAT = -14.3435 CLON = 37.2369

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.8957 CLON = 37.5501

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PN 11 PASS 3437 PRI4 #070 S/W SK.0 DSS 61A RCVR AGC =139.7 FILE 11-1409 PS 08/24/82  
 SPACECRAFT ATTITUDE ON DAY 236 AUG 24, 1982 1900 GMT  
 SPIN PERIOD = 7.873143 SEC RLTL = 3 HR 32 MIN 12.70 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-13.8957	37.5501	-	-
SUN	4.0830	347.1925	-14.7897	41.6675	0.18551918D 10	12.4010147
EARTH	0.9411	235.8887	-14.3435	37.2369	0.19085847D 10	12.7579191
JUPITER	140.3196	342.6507	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	62.9198	322.3386				
BETELGEUSE(R)	49.0443	350.6791				
CANOPUS(B)	71.0033	283.7951				
ARCTURUS(R)	58.9650	55.5143				
RIGIL KENTAURUS	120.1320	251.7350				
ANTARES(R)	143.4026	208.0810				
CAPELLA(R)	56.5837	39.9976				
VEGA(B)	118.8411	118.3202				
ALDEBARAN(R)	32.4904	11.8698				
RIGEL(B)	39.5831	327.5557				
GAMMA CRUCIS(R)	118.2680	270.8940				
SPICA(B)	158.8118	312.2431				
ACHERNAR(B)	59.5400	241.9972				
DENE(B)	69.0627	116.4314				
PROCYON(B)	74.7985	346.8627				

WARNING: ROLL REFERENCE BODY IS NEAR EDGE OF FOV OF STAR SENSOR

STAR DELAY: 1.0629 SEC 272.1147 PULSES DECIMAL = 4, COARSE + 18, FINE  
 51.2049 DEG 04 20 PULSES OOTAL CKAH SUB C = 347.1925 EPSILON = 0.0000 SCN = 11

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PN 11 PASS 3443 PR14 #0/0 S/W SK.0 DSS 14 RCVR AGC -136.6 FILE 11-1410 PD  
SPACECRAFT ATTITUDE ON DAY 243 AUG 31,1982 0215 GMT

08/31/82

RCLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4096 RCSPHAK = 36.8310

SPACECRAFT-EARTH DIRECTION: CLAT = -14.2718 CLON = 37.6895

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.9012 CLON = 37.5097

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PN 11 PASS 3443 PR14 #0/0 S/W SK.0 DSS 14 RCVR AGC -136.6 FILE 11-1410 PD  
SPACECRAFT ATTITUDE ON DAY 243 AUG 31,1982 0215 GMT  
SPIN PERIOD = 7.473143 SEC RTLT = 3 HR 34 MIN 14.35 SEC

08/31/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-13.9012	37.5097	-	-
SUN	4.3384	347.5734	-14.7950	41.8919	0.186013830 10	12.4340795
EARTH	0.4096	295.1741	-14.2718	37.6895	0.192681940 10	12.8798088
JUPITER	140.3554	342.6205	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	62.9474	322.3434				
BETELGEUSE(R)	49.0821	350.6796				
CANOPUS(B)	71.0072	283.7990				
ARCTURUS(R)	158.9918	55.5806				
RIGIL KENTAURUS	120.1144	251.7047				
ANTARES(R)	143.3654	208.0530				
CAPELLA(R)	56.6173	39.9740				
VEGA(B)	112.8273	118.3261				
ALDEBARAN(R)	32.5299	11.8559				
RIGEL(B)	39.6132	327.5771				
GAMMA CRUCIS(R)	118.2630	270.8631				
SPICA(B)	158.8341	312.1488				
ACHERNAR(B)	59.5167	242.0063				
DENE(B)	89.0502	116.4211				
PRCCYON(B)	74.8355	346.8569				

WARNING: ROLL REFERENCE BODY IS NEAR EDGE OF FOV OF STAR SENSOR

STAR DELAY: 1.0629 SEC 272.0942 PULSES DECIMAL = 4. COARSE + 16. FINE

51.2010 DEG 04 20 PULSES DCIAL CKAH SUB C = 347.5734 EPSILON= 0.0000 SCN=1

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PN 11 PASS 3452 PR14 #0/0 S/W SK.0 DSS 42B RCVR AGC -138.1 FILE 11-1411 AG  
SPACECRAFT ATTITUDE ON DAY 252 SEP 9,1982 0730 GMT

09/10/82

RCLL REFERENCE BODY IS SUN SUN IS DN LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9098 RCSPHAK = 87.8840

SPACECRAFT-EARTH DIRECTION: CLAT = -14.1789 CLON = 38.4177

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.9690 CLON = 37.5050

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PN 11 PASS 3452 PR14 #0/0 S/W SK.0 DSS 42B RCVR AGC -138.1 FILE 11-1411 AG  
SPACECRAFT ATTITUDE ON DAY 252 SEP 9,1982 0730 GMT  
SPIN PERIOD = 7.473265 SEC RTLT = 3 HR 37 MIN 3.76 SEC

09/10/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-13.9690	37.5050	-	-
EARTH	4.6468	348.6507	-14.8373	42.2182	0.18674070D 10	12.4826671
JUPITER	0.9098	346.5551	-14.1789	38.4177	0.19522129D 10	13.0495515
SIRIUS(B)	140.3395	342.5396	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	62.9096	322.3711				
CANOPUS(B)	49.0756	350.7372				
ARCTURUS(R)	70.9425	283.8050				
RIGIL KENTAURUS	159.0503	55.4892				
ANTARES(R)	120.0486	251.7134				
CAPELLA(R)	143.3294	208.1294				
VEGA(B)	56.6644	40.0052				
ALDEBARAN(R)	112.8848	118.3402				
RIGEL(B)	32.5483	11.9574				
GAMMA CRUCIS(R)	39.5807	327.6482				
SPICA(B)	118.1953	270.8590				
ACHERNAR(B)	158.7868	312.0217				
DENEK(B)	59.4547	241.9888				
PROCYON(B)	89.1089	116.4194				
	74.8245	346.8740				

STAR DELAY: 1.0628 SEC 272.0669 PULSES DECIMAL = 4. COARSE + 16. FINE  
51.1950 DEG 04 20 PULSES OCTAL CKAH SUB C = 348.6507 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3456 PRI4 0/0 S/W SK,0 DSS 148 RCVR A 134.9 FILE 11-1412 AG  
 SPACECRAFT ATTITUDE ON DAY 255 SEP 12, 1982 2230 GMT

0971

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/W.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

PRE-PRECESSION

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.1375 ROSPHAK = 91.5200  
 SPACECRAFT-EARTH DIRECTION: CLAT = -14.1470 CLON = 38.7188  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.9324 CLON = 37.5673

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PN 11 PASS 3456 PRI4 0/0 S/W SK,0 DSS 148 RCVR AGC \*134.9 FILE 11-1412 AG 09/16/82  
 SPACECRAFT ATTITUDE ON DAY 255 SEP 12, 1982 2230 GMT  
 SPIN PERIOD = 7.471387 SEC RTLT = 3 HR 30 MIN 2.03 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-13.9324	37.5673	-	-
SUN	4.7213	348.1679	-14.8530	42.3482	0.18694615D 10	12.4964004
EARTH	1.1375	348.9839	-14.1470	38.7188	0.19609469D 10	13.1079311
JUPITER	140.2927	342.6186	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	62.8842	322.3524				
BETELGEUSE(R)	49.0219	350.7123				
CANOPUS(B)	70.9636	283.7967				
ARCTURUS(R)	158.9858	55.4286				
RIGIL KENTAURUS	120.1024	251.7550				
ANTARES(R)	143.4000	208.1393				
CAPELLA(B)	56.5945	40.0273				
VEGA(B)	112.8813	118.3254				
ALDEBARAN(R)	38.4816	11.9357				
RIGEL(B)	39.5493	327.5869				
GAMMA CRUCIS(R)	118.2310	270.9068				
SPICA(B)	158.7735	312.2156				
ACHERNAR(B)	59.5154	241.9825				
DENEK(B)	80.1029	116.4355				
PROCYON(B)	74.7740	346.8756				

STAR DELAY: 1.0630 SEC 272,1153 PULSES DECIMAL = 4, COARSE + 16, FINE  
 \$1.2033 DEG 04 20 PULSES OCTAL CKAH SUB C = 348,1679 EPSILON = 0.0000 SCN = 11

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PN 11 PASS 3456 PRI4 #16/1087W SK.0 DSS 43 RCVR AGC -139.7 FILE 11-1413 P  
 SPACECRAFT ATTITUDE ON DAY 256 SEP 13, 1982 0520 GMT

09/16/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 ROSTROS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.3390 R0SPHAK = 316.9500

SPACECRAFT-EARTH DIRECTION: CLAT = -14.1441 CLON = 38.7478

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.6846 CLON = 40.0434

NEW ATTITUDE  
 POST-PRECESSION

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PN 11 PASS 3456 PRI4 #16/1087W SK.0 DSS 43 RCVR AGC -139.7 FILE 11-1413 P

09/16/82

SPACECRAFT ATTITUDE ON DAY 256 SEP 13, 1982 0520 GMT  
 SPIN PERIOD = 7.268016 SEC RTLT = 3 HR 30 MIN 11.95 SEC

	CNA	CRA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-13.6846	40.0434	-	-
SUN	2.5282	332.1418	-14.6580	48.3558	0.18704969D 10	12.5033215
EARTH	1.3390	200.2283	-14.1441	38.7478	0.19624343D 10	13.1178763
JUPITER	138.0583	344.2777	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	61.1357	322.0561				
BETELGEUSE(R)	46.6887	350.7312				
CANOPIUS(B)	70.6359	283.5536				
ARCTURUS(R)	157.3548	51.5608				
RIGIL KENTAURUS	121.0539	253.6594				
ANTARES(R)	145.6217	210.0672				
CAPELLA(R)	54.6122	41.5657				
VEGA(B)	118.7969	117.9511				
ALDEBARAN(R)	30.0802	12.9825				
RIGEL(B)	37.6691	326.2742				
GAMMA CRUCIS(R)	118.4010	272.7973				
SPICA(B)	157.2523	317.4641				
ACHERNAR(B)	60.8736	241.4278				
DENEK(B)	89.9637	117.0450				
PROCYON(B)	72.4860	347.2375				

STAR DELAY: 1.0672 SEC 273.2106 PULSES DECIMAL = 4, COARSE + 17, FINE  
 51.4464 DEG 04 21 PULSES OCTAL CNAH SUB C = 332.1418 EPSILON = 0.0000 SCN = 11

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PN 11 PASS 3464 PR14 #0/0 S/W SK.0 DSS 12 RCVR AGC -138.1 FILE 11-1414A PD  
 SPACECRAFT ATTITUDE CN DAY 264 SEP 21,1982 0245 GMT

10/13/82

RCLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD NCRTH ECLIPTIC POLE.

REVIS

RCLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

REPLACES FILE NO. 2

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6887 RCSPHAK = 147.8600.

1414

SPACECRAFT-EARTH DIRECTION: CLAT = -14.0832 CLON = 39.4486.

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.7105 CLON = 40.0451

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PN 11 PASS 3464 PR14 #0/0 S/W SK.0 DSS 12 RCVR AGC -138.1 FILE 11-1414 PD  
 SPACECRAFT ATTITUDE CN DAY 264 SEP 21,1982 0245 GMT  
 SPIN PERIOD = 7.470335 SEC RTLT = 3 HR 40 MIN 21.97 SEC

10/13/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-13.7105	40.0451	-	-
EARTH	2.7704	334.4816	-14.8902	42.6320	0.18767493D 10	12.5451156
JUPITER	0.6887	212.8410	-14.0832	39.4486	0.19819238D 10	13.2481537
SIRIUS(B)	138.0497	344.2509	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	61.1185	322.0672				
CANCPUS(B)	46.6829	350.7554				
ARCTURUS(R)	70.6103	283.5556				
RIGIL KENTAURUS	157.3741	51.5195				
ANTARES(R)	121.0255	253.6651				
CAPELLA(R)	145.6102	210.1016				
VEGA(B)	54.6281	41.5807				
ALDEBARAN(R)	113.8206	117.9562				
RIGEL(B)	30.0844	13.0271				
GAMMA CRUCIS(R)	37.6533	326.3013				
SPICA(B)	118.3750	272.7979				
ACHERNAR(B)	157.2335	317.4217				
DENEK(B)	60.8516	241.4205				
PROCYON(B)	89.9875	117.0454				
	72.4786	347.2457				

STAR DELAY: 1.0675 SEC 272.2850 PULSES DECIMAL = 4. COARSE + 17. FINE  
 51.4444 DEG 04 21 PULSES OCTAL CKAH SUB C = 334.4816 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3473 PR14 #0/0 S/W SK.0 DSS 12 RCVR AGC -138.1 FILE 11-1415A PD  
 SPACECRAFT ATTITUDE CN DAY 273 SEP 30,1982 0250 GMT

10/13/82

RCLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD NORTH ECLIPTIC POLE.

REVISI

RCLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4497 RCSPHAK = 250.3300

REPLACES FILE NO. 14

1415

SPACECRAFT-EARTH DIRECTION: CLAT = -14.0299 CLON = 40.2979

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.7333 CLON = 39.9497

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PN 11 PASS 3473 PR14 #0/0 S/W SK.0 DSS 12 RCVR AGC -138.1 FILE 11-1415 PD  
 SPACECRAFT ATTITUDE CN DAY 273 SEP 30,1982 0250 GMT  
 SPIN PERIOD = 7.468138 SEC RTLT = 3 HR 42 MIN 36.54 SEC

10/13/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R (KM)	R (AU)
SUN	0.0000	0.0000	-13.7333	39.9497	-	-
EARTH	3.1392	337.2314	-14.9297	42.9453	0.18839164D 10	12.5930241
JUPITER	0.4497	318.6975	-14.0299	40.2979	0.20020949D 10	13.3829873
SIRIUS(B)	138.1327	344.1756	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	61.1776	322.0859				
CANCPUS(B)	46.7708	350.7680				
ARCTURUS(R)	70.6098	283.5666				
RIGIL KENTAURUS	157.4496	51.6374				
ANTARES(R)	120.9814	253.5929				
CAPELLA(R)	145.5185	210.0400				
VEGA(B)	54.7127	41.5265				
ALDEBARAN(R)	113.7972	117.9744				
RIGEL(B)	30.1799	13.0068				
GAMMA CRUCIS(R)	37.7179	326.3698				
SPICA(B)	118.3567	272.7246				
ACHERNAR(B)	157.2862	317.2090				
DENEK(B)	60.7872	241.4373				
PROCYON(B)	89.9657	117.0227				
	72.5641	347.2365				

STAR DELAY: 1.0670 SEC 273.1463 PULSES DECIMAL = 4. COARSE + 17. FINE  
 51.4334 DEG 04 21 PULSES OCTAL CKAH SUB C = 337.2314 EPSILON= 0.0000 SCN=11

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CATHY

PN 11 PASS 3478 PRI4 NO/O S/W SK.0 DSS 12 RCVR AGC -11.1 FILE 11-1416 PD  
SPACECRAFT ATTITUDE ON DAY 278 OCT 5, 1982 0130 GMT

10/07/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR ROCPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRS = 0 RCSIPUS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.8228 ROCPHAK = 91.4100

SPACECRAFT-EARTH DIRECTION: CLAT = -14.0082 CLON = 40.7879

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.6259 CLON = 39.9999

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PN 11 PASS 3478 PRI4 NO/O S/W SK.0 DSS 12 RCVR AGC -14.1 FILE 11-1416 PD  
SPACECRAFT ATTITUDE ON DAY 278 OCT 5, 1982 0130 GMT

10/07/82

SPIN PERIOD = 7.470924 SEC RILT = 3 HR 43 MIN 43.74 SEC

S/C +Z AXIS	CMA	CKA	CLAT	CLON	P (KM)	R (AU)
SUN	2.0000	0.0000	-13.6959	39.9999	-	-
EARTH	2.2704	337.0484	-14.9512	43.1157	0.189787450 10	12.6194970
JUPITER	0.8228	337.5292	-14.0082	40.7839	0.201216800 10	13.4503279
SIRIUS (R)	139.0959	344.2425	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE (R)	41.1622	322.0650				
RETFELGISE (R)	46.7286	350.7378				
CANCER (R)	72.6348	283.5587				
ARCTURUS (R)	157.3000	51.6132				
PIGIL KENTAIRUS	121.0311	253.6266				
ANTARES (R)	145.5794	210.0407				
CAPELLA (R)	54.5513	41.5415				
VEGA (R)	113.7871	117.9556				
ALDEBARAN (R)	30.1240	12.9748				
RIGEL (R)	37.6980	326.3064				
GAMMA CRUCIS (R)	118.3917	272.7638				
SPICA (R)	157.2758	317.3656				
ACHERNAR (R)	60.8434	241.4352				
DENEK (R)	89.9545	117.0347				
PROCYON (R)	72.5248	347.2336				

STAR DELAY: 1.0675 SEC 273.2863 PULSES DECIMAL = 4. COARSE + 17. FINE  
51.4413 DEG 04 21 PULSES OCTAL CKAH SUB C = 337.0484 EPSILON = 0.0000 SCN = 11

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PN 11 PASS 3478 PR14 #0/0 S/W SK.0 DSS 43A RCVR AGC -136.6 FILE 11-1417 AG  
 SPACECRAFT ATTITUDE ON DAY 278 CCT 5,1982 0800 GMT

10/07/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

NEW ATTITUDE  
 POST-PRECESSION

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.2342 RCSPHAK = 351.3900

SPACECRAFT-EARTH DIRECTION: CLAT = -14.0072 CLON = 40.8117

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.4059 CLON = 41.9211

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PN 11 PASS 3478 PR14 #0/0 S/W SK.0 DSS 43A RCVR AGC -136.6 FILE 11-1417 AG  
 SPACECRAFT ATTITUDE ON DAY 278 CCT 5,1982 0800 GMT  
 SPIN PERIOD = 7.466063 SEC RTLT = 3 HR 43 MIN 47.36 SEC

10/07/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-13.4059	41.9211	-	-
EARTH	1.9383	306.9290	-14.9524	43.1264	0.188839830 10	12.6229833
JUPITER	1.2342	209.2858	-14.0072	40.8117	0.201271040 10	13.4539465
SIRIUS(R)	136.3684	345.5220	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	59.8712	321.7345				
CANOPUS(B)	44.9325	350.6161				
ARCTURIUS(R)	70.4823	283.3439				
RIGIL KENTAURUS	155.9751	49.1528				
ANTARES(R)	121.8134	255.1281				
CAPELLA(R)	147.3323	211.5574				
VEGA(B)	53.0719	42.7500				
ALDEBARAN(R)	114.4013	117.6103				
RIGEL(B)	28.2397	13.6911				
GAMMA CRUCIS(R)	36.3189	325.0415				
SPICA(B)	118.5672	274.2351				
ACHERNAR(B)	156.0493	321.1511				
DENER(B)	61.9960	241.0692				
PROCYON(B)	90.5522	117.4769				
	70.7659	347.4541				

STAR DELAY: 1.0712 SEC 274.2528 PULSES DECIMAL = 4. COARSE + 18. FINE  
 51.6561 DEC 04 22 PULSES OCTAL CKAH SUB C = 306.9290 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3853 PR14 #0/0 S/W SK.0 DSS 12A RCVR AGC -139.7 FILE 11-1418 AG 10/22/82  
 SPACECRAFT ATTITUDE ON DAY 292 OCT 19,1982 2200 GMT

RCLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7485 RCSPHAK = 78.4710

SPACECRAFT-EARTH DIRECTION: CLAT = -13.9778 CLON = 42.3009

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.3682 CLON = 41.8538

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PN 11 PASS 3853 PR14 #0/0 S/W SK.0 DSS 12A RCVR AGC -139.7 FILE 11-1418 AG 10/22/82  
 SPACECRAFT ATTITUDE ON DAY 292 OCT 19,1982 2200 GMT

SPIN PERIOD = 7.466551 SEC RTLT = 3 HR 46 MIN 33.28 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-13.3682	41.8538	-	-
SUN	2.3800	316.0282	-15.0143	43.6270	0.18998028D 10	12.6992166
EARTH	0.7485	305.4228	-13.9778	42.3009	0.20375814D 10	13.6201965
JUPITER	136.4412	345.5276	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	59.9459	321.7253				
BETELGEUSE(R)	45.0032	350.5740				
CANOPUS(B)	70.5341	283.3477				
ARCTURUS(R)	155.9893	49.3047				
RIGIL KENTAURUS	121.8330	255.0672				
ANTARES(R)	147.2962	211.4384				
CAPELLA(R)	53.0944	42.6802				
VEGA(B)	114.3375	117.6131				
ALDEBARAN(R)	28.2944	13.5787				
RIGEL(B)	36.3941	325.0349				
GAMMA CRUCIS(R)	118.6096	274.1854				
SPICA(B)	156.1239	321.1091				
ACHERNAR(B)	61.9974	241.0938				
DENEK(B)	90.4885	117.4617				
PROCYON(B)	70.8380	347.4307				

STAR DELAY: 1.0713 SEC 274.2501 PULSES DECIMAL = 4. COARSE + 18. FINE  
 51.6523 DEG 04 22 PULSES OCTAL CKAH SUB C = 316.0282 EPSILON = 0.0000 SCN=11

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PN 11 PASS 1419 PR14 #0/0 S/W SK.0 DSS 14A RCVR AGC -134.9 FILE 11-1419 AG 10/26/82  
 SPACECRAFT ATTITUDE ON DAY 296 OCT 23,1982 2030 GMT

RCLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

*PRE-PRECISION*

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RC SANGAK = 0.9815 RCSPHAK = 94.0140

SPACECRAFT-EARTH DIRECTION: CLAT = -13.9787 CLON = 42.7176

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.3319 CLON = 41.9579

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PN 11 PASS 1419 PR14 #0/0 S/W SK.0 DSS 14A RCVR AGC -134.9 FILE 11-1419 AG 10/26/82  
 SPACECRAFT ATTITUDE ON DAY 296 OCT 23,1982 2030 GMT  
 SPIN PERIOD = 7.466673 SEC RTLT = 3 HR 47 MIN 9.97 SEC

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-13.3319	41.9579	-	-
EARTH	2.4388	315.6250	-15.0308	43.7626	0.190301080 10	12.7206604
JUPITER	0.9815	318.6820	-13.9787	42.7176	0.204308200 10	13.6569652
SIRIUS(B)	136.3521	345.6151	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	59.8889	321.6965				
CANOPIUS(B)	44.9093	350.5455				
ARCTURUS(R)	70.5461	283.3340				
RIGIL KENTAURUS	155.8957	49.2099				
ANTARES(R)	121.8942	255.1463				
CAPELLA(R)	147.4016	211.4966				
VEGA(B)	52.9953	42.7359				
ALDEBARAN(R)	114.3523	117.5889				
RIGEL(B)	28.1874	13.5813				
GAMMA CRUCIS(R)	36.3320	324.9356				
SPICA(B)	118.6383	274.2661				
ACHERNAR(B)	156.0677	321.3401				
DENEK(B)	62.0781	241.0801				
PRCCYCN(B)	90.5030	117.4849				
	70.7470	347.4347				

STAR DELAY: 1.0716 SEC 274.3276 PULSES DECIMAL = 4. COARSE + 18. FINE  
 51.6660 DEG 04 22 PULSES OCTAL CKAH SUB C = 315.6250 EPSILON= 0.0000 SCN=11

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PN 11 GANSCAM

FILE # 1920-22

NO SECTIONS

PN 11 PASS 3515 PR14 #0/0 S/W SK.0 DSS 14A RCVR AGC -134.9 FILE 11-1423 PS 11/15/82  
 SPACFCRAFT ATTITUDE ON DAY 314 NOV 10,1982 1930 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6608 RCSPHAK = 134.1800

SPACECRAFT-EARTH DIRECTION: CLAT = -14.0324 CLON = 44.6081

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -13.6542 CLON = 44.0500

*2030*

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PN 11 PASS 3515 PR14 #0/0 S/W SK.0 DSS 14A RCVR AGC -134.9 FILE 11-1423 PS 11/15/82  
 SPACECRAFT ATTITUDE ON DAY 314 NOV 10,1982 1930 GMT  
 SPIN PERIOD = 7.461180 SEC RTLT = 3 HR 44 MIN 23.88 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-13.6542	44.0500	-	-
SUN	1.4817	281.9389	-15.1037	44.3674	0.19175155D 10	12.9176170
EARTH	0.6608	325.0267	-14.0324	44.6081	0.20181852D 10	13.4905428
JUPITER	134.3005	346.2865	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(R)	58.0937	321.5776				
BETELGEUSE(R)	42.8496	351.0258				
CANOPIUS(R)	69.7665	283.1341				
ARCTURIUS(R)	154.7608	45.9543				
RIGIL KENTAURUS	122.0725	256.9160				
ANTAPES(R)	148.9361	214.1989				
CAPELLA(R)	51.7446	44.4859				
VEGA(B)	115.5761	117.3057				
ALDERARAN(R)	26.3003	15.6731				
RIGEL(B)	34.4879	324.1368				
GAMMA CRUCIS(R)	118.1381	275.8342				
SPICA(B)	154.2548	323.9419				
ACHERNAR(B)	62.7886	240.5589				
DENER(B)	51.7345	117.9408				
PROCYON(B)	68.6908	347.8785				

STAR DELAY: 1.0749 SEC 275.1864 PULSES DECIMAL = 4. COARSE + 19. FINE  
 51.8659 DFG 04 23 PULSES OCTAL CKAH SUB C = 281.9389 EPSILON= 0.0000 SCM=11

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PN 11 PASS 3234 PRI4 #070 S/W SK,0 DSS 42A RCVR AGC -138.1 FILE 11-375  
 SPACECRAFT ATTITUDE ON DAY 34 FEB 3, 1982 1900 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.0237 RCSPHAK = 135.4800

SPACECRAFT-EARTH DIRECTION: CLAT = -13.7658 CLON = 38.9293

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -14.3810 CLON = 38.0858

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PN 11 PASS 3234 PRI4 #070 S/W SK,0 DSS 42A RCVR AGC -138.1 FILE 11-375 PS 02/03/82  
 SPACECRAFT ATTITUDE ON DAY 34 FEB 3, 1982 1900 GMT  
 SPIN PERIOD = 7.488937 SEC RTLT = 3 HR 7 MIN 29.98 SEC

	SNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-14.3810	38.0858		
SUN	0.2477	170.0045	-13.6054	33.7816	0.170579980 10	11.4024051
EARTH	1.0237	36.8377	-13.7658	38.9293	0.168632970 10	11.2722574
JUPITER	135.6785	342.4156	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	64.2121	322.5047				
BETELGEUSE(R)	48.4548	351.1583				
CANOPUS(B)	70.4081	283.7899				
ARCTURUS(R)	159.0605	53.8087				
RIGIL KENTAURUS	119.8311	252.2375				
ANTARES(R)	143.6263	209.1242				
CAPELLA(R)	59.5014	40.5950				
VEGA(B)	111.5148	118.3539				
ALDEBARAN(R)	32.0872	12.9273				
RIGEL(B)	38.8847	327.8491				
GAMMA CRUCIS(R)	117.7728	271.2963				
SPICA(B)	158.1032	312.5173				
ACHERNAR(B)	59.3570	241.7226				
DENEK(B)	89.7288	116.5649				
PROCYON(B)	74.1831	347.0923				

STAR DELAY: 1.0650 SEC 272.6450 PULSES DECIMAL = 4. COARSE + 17. FINE  
 51.2101 DEG 04 21 PULSES OCTAL CKAH SUB C = 170.0045 EPSILON = 0.0000 SCN#11

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PN 10 PASS 3033 PR23 #070 S/W SK 0 DSS 63 RCVR AGC #123.9 FILE 10-1160 CM  
 SPACECRAFT ATTITUDE ON DAY 32 FEB 1, 1982 1730 GMT

02/02/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

REVISED

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7588 RCSPHAK = 253.9400  
 SPACECRAFT-EARTH DIRECTION: CLAT = -3.1773 CLON = 242.0985  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.2945 CLON = 242.8493

REPLACES FILE NO. 10-1160

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PN 10 PASS 3033 PR23 #070 S/W SK 0 DSS 63 RCVR AGC #123.9 FILE 10-1160 CM  
 SPACECRAFT ATTITUDE ON DAY 32 FEB 1, 1982 1730 GMT  
 SPIN PERIOD = 12.997080 SEC RTLT = 7 RR 14 MIN 22.92 SEC

02/02/82

	NA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-3.2945	242.8493		
SUN	0.2652	7.2141	-3.1348	244.1063	0.395951980 10	26.4673743
EARTH	0.7588	171.1393	-3.1773	242.0985	0.390673440 10	25.1145348
JUPITER	68.8979	178.3119	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	123.0270	233.0299				
BETELGEUSE(R)	148.1987	218.1512				
CANOPUS(B)	97.2753	260.5395				
ARCTURUS(R)	58.3893	134.5619				
RIGIL KENTAURUS	39.4304	265.7136				
ANTARES(R)	8.6569	348.7708				
CAPELLA(R)	15.3748	131.0967				
VEGA(B)	7.5324	70.5584				
ALDEBARAN(R)	166.0477	233.1259				
RIGEL(B)	14.2150	250.3333				
GAMMA CRUCIS(R)	50.0161	247.0097				
SPICA(B)	36.3452	179.2192				
ACHERNAR(B)	9.2721	299.9273				
DENEK(B)	9.9135	59.8526				
PROCYON(B)	120.5611	202.0375				

STAR DELAY: 8.6870 SEC 687.8739 PULSES DECIMAL # 10, COARSE + 48, FINE  
 70.4605 DEG 12 60 PULSES OCTAL CKAH SUB C = -1.7545 EPSILON# 8.9686 SCN#10

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PN 10 PASS 3639 PR23 #070 S/W SK,0 DSS 43A HCVR AGC #128.7 FILE 10-1161 TG 02/08/82  
 SPACECRAFT ATTITUDE ON DAY 39 FEB 8, 1982 1000 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR ROLPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPGRNS # 0 ROSTPOS # 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK # 0.8376 ROLPHAK # 253.3000  
 SPACECRAFT-EARTH DIRECTION: CLAT # -3.1637 CLON # 242.0626  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT # +3.3082 CLON # 242.8889

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PN 10 PASS 3639 PR23 #070 S/W SK,0 DSS 43A HCVR AGC #128.7 FILE 10-1161 TG 02/08/82  
 SPACECRAFT ATTITUDE ON DAY 39 FEB 8, 1982 1000 GMT  
 SPIN PERIOD # 12.998180 SEC RTLT # 7 HR 17 MIN 4.87 SEC

	NA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.3082	242.8889		
SUN	0.2623	7.8659	-3.1347	244.1412	0.39672244D 10	26.5188797
EARTH	0.8376	170.0885	-3.1637	242.0626	0.39310101D 10	26.2768069
JUPITER	6.9378	178.3077	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	123.0398	233.0576				
BETELGEUSE(R)	148.2213	218.2104				
CANOPUS(B)	97.2683	260.5471				
ARCTURUS(M)	50.4268	134.9799				
RIGIL KENTAURUS	39.4196	265.6666				
ANTARES(R)	9.6154	348.8231				
CAPELLA(R)	15.4112	131.0579				
VEGA(B)	7.5322	70.9739				
ALDEBARAN(R)	169.0604	233.3346				
RIGEL(B)	145.2153	250.3916				
GAMMA CRUCIS(R)	50.0189	246.9770				
SPICA(B)	39.3850	179.2094				
ACHERNAR(B)	95.2404	299.9311				
DENEK(B)	93.9055	59.8521				
PROCYON(B)	124.5926	202.0588				

STAR DELAY: 3.6870 SEC 687.8619 PULSES DECIMAL # 10, COARSE + 48, FINE  
 74.4529 DEC 12 60 PULSES OCTAL CKAH SUB C # -1,1121 EPSILON# 8.9776 SCN#10

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PN 10 PASS 3647 PR23 #070 S/W SK.0 DSS 14P KLYR -125.6 FILE 10-1162 RS  
 SPACECRAFT ATTITUDE ON DAY 47 FEB 15, 1982 0350 GMT

02/16/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ELLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.8140 RC8PHAK = 253.6390  
 SPACECRAFT-EARTH DIRECTION: CLAT = -3.1498 CLON = 242.0558  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.2410 CLON = 242.0587

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PN 10 PASS 3647 PR23 #070 S/W SK.0 DSS 14P KLYR AGC -125.6 FILE 10-1162 RS  
 SPACECRAFT ATTITUDE ON DAY 47 FEB 15, 1982 0350 GMT  
 SPIN PERIOD = 12.993220 SEC RTLT = 7 HR 19 MIN 51.07 SEC

02/16/82

	ONA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.2910	242.8587		
SUN	1.3247	6.7421	-3.1346	244.1762	0.397498370 10	26.5707440
EARTH	0.8140	170.0351	-3.1498	242.0558	0.395592290 10	26.4433349
JUPITER	68.9071	178.3143	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	123.0354	233.0334				
BETELGEUSE(R)	144.2082	218.1566				
CANOPUS(B)	97.2803	260.5412				
ARCTURUS(B)	50.3937	134.5699				
RIGIL KENTAURUS	39.4346	265.7030				
ANTARES(R)	1.6484	348.7264				
CAPELLA(B)	153.3783	131.0786				
VEGA(B)	72.5260	70.5614				
ALDEBARAN(R)	169.0561	233.1544				
RIGEL(B)	143.2214	250.3471				
GAMMA CRUCIS(R)	50.0230	247.0042				
SPICA(B)	39.3546	179.2241				
ACHERNAR(B)	94.2704	299.9284				
DENEK(B)	93.9058	59.8527				
PROCYON(B)	120.5711	202.0382				

STAR DELAYS 8.6875 SEC 687.9874 PULSES DECIMAL = 10, COARSE + 48, FINE  
 70.4588 DEC 12 60 PULSES OCTAL CKAH SUB C = -270442 EPSILON = 8.7863 SCN#10

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PN 10 PASS 3654 PR23 #070 S/W SK 0 DSS 63P RCVR AGC -125.6 FILE 10-1163 RS  
 SPACECRAFT ATTITUDE ON DAY 54 FEB 23, 1982 0300 GMT

02/26/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/O.

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRHS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.8169 RCBPFAK = 252.1440

SPACECRAFT-EARTH DIRECTION: CLAT = -3.1334 CLON = 242.0859

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.3022 CLON = 242.8864

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PN 10 PASS 3654 PR23 #070 S/W SK 0 DSS 63P RCVR AGC -125.6 FILE 10-1163 RS  
 SPACECRAFT ATTITUDE ON DAY 54 FEB 23, 1982 0300 GMT  
 SPIN PERIOD = 12.994740 SEC RTLT = 7 HR 23 MIN 9.27 SEC

02/26/82

S/C +Z AXIS	2NA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-3.3022	242.8864	-	-
EARTH	1.3394	7.1548	-3.1345	244.2174	0.398414590 10	26.6319413
JUPITER	0.8169	168.0957	-3.1334	242.0859	0.398563220 10	26.6419265
SIRIUS(B)	0.9351	178.3106	0.0000	180.0000	0.000000000	0.0000000
BETELGEUSE(R)	123.0430	233.0538				
CANOPUS(H)	148.2230	218.2000				
ARCTURUS(R)	97.2738	260.5465				
RIGIL KENTAURUS	58.4207	134.5813				
ANTARES(R)	38.4255	265.6701				
CAPELLA(R)	6.6191	348.7763				
VEGA(B)	153.4049	131.0534				
ALDEBARAN(R)	72.5274	70.5724				
RIGEL(B)	168.0637	233.3052				
GAMMA CRUCIS(R)	142.2201	250.3855				
SPICA(B)	50.0235	246.9808				
ACHERAN(B)	39.3823	179.2125				
DENEK(B)	93.2469	299.9310				
PROCYON(B)	93.9016	59.8523				
	124.5925	202.0541				

STAR DELAY: 8.6875 SEC 688.0030 PULSES DECIMAL = 10, COARSE + 48, FINE  
 74.4535 DEG 12 60 PULSES OCTAL CKAH SUB C = -1.5871 EPSILON# 8.7419 SCN#10

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PN 10 PASS 3668 PR23 4090 S/W SKO DSS 63 RCVR AGC 120.0 FILE 10-1164 RC  
 SPACECRAFT ATTITUDE ON DAY 61 MAR 2, 1962 2100 GMT

03/02/62

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/W.

REFERENCE FOR ROSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPGRS # 0 RGSTROS # 180  
 AMPLITUDE AND PHASE ANGLE: RGSANGA # 0.7423 ROSPHAK # 247.3500  
 SPACECRAFT-EARTH DIRECTION: CLAT # -3.1177 CLON # 242.1541  
 SPACECRAFT X2 AXIS ATTITUDE: CLAT # -3.2243 CLON # 242.0683

PN 10 PASS 3668 PR23 4090 S/W SKO DSS 63 RCVR AGC 120.0 FILE 10-1164 RC  
 SPACECRAFT ATTITUDE ON DAY 61 MAR 2, 1962 2100 GMT  
 SPIN PERIOD: 8 12.998 090 SEC RTCT 7 HR 26 MIN 01.63 SEC

	RNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C X2 AXIS	0.0000	0.0000	-3.1843	242.8683	-	-
SUN	0.3997	7.7570	-3.1348	249.2572	0.399309980 10	26.6915749
EARTH	0.7423	163.8633	-3.1177	242.1541	0.401246680 10	26.8346658
JUPITER	0.9177	178.2980	0.0000	180.0000	0.688080000	0.688080000
SIRIUS(B)	0.0146	233.0930				
BETELGEUSE(R)	0.1952	218.2089				
CANOPUS(B)	0.2490	260.5436				
ARCTURUS(R)	0.4238	134.5568				
RIGIL KENTAURUS	0.4021	265.6890				
ANTARES(R)	0.6326	348.9918				
CAPELLA(B)	0.8097	131.1084				
VEGA(B)	0.5542	70.5683				
ALDEBARAN(R)	0.0352	233.2979				
RIGEL(B)	0.1933	250.3717				
GAMMA CRUCIS(R)	0.9961	246.9864				
SPICA(B)	0.3626	179.1843				
ACHERNAR(B)	0.2368	299.9289				
DENEK(B)	0.9298	59.8516				
PROCYON(B)	0.5674	202.0625				

STAR DELAY: 3.6879 SEC 688.1000 PULSES DECIMAL W 10, COARSE + 48, FINE  
 78.4564 DEG 12.60 PULSES OCTAL CKAH SUB C # -0.8067 EPSILON# 8.5637 SON#10



PN 10 PASS 3668 PR23 0000 S/W SK 0 DSS 14A RCVR AGC 125.0 FILE 10-1165 PB  
 SPACECRAFT ATTITUDE ON DAY 67 MAR 8, 1988 2100 GMT

03/08/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR ROBRHK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPGRRS # 0 ROBTPOS # 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK # 0.6393 ROSPHAK # 243.7100

SPACECRAFT EARTH DIRECTION: CLAT # 3.1059 CLON # 242.2324

SPACECRAFT +Z AXIS ATTITUDE: CLAT # 3.3247 CLON # 242.8298

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PN 10 PASS 3668 PR23 0000 S/W SK 0 DSS 14A RCVR AGC 125.0 FILE 10-1165 PB  
 SPACECRAFT ATTITUDE ON DAY 67 MAR 8, 1988 2100 GMT  
 SPIN PERIOD # 12.999000 SEC RTCT # 7 RR 20 MIN 40.04 SEC

03/08/82

S/C +Z AXIS	BNA	CKA	CLAT	CLON	R (KM)	R (AU)
SUN	0.0000	0.0000	3.3247	242.8298		
EARTH	0.4683	7.4092	3.1343	240.2880	0.399998940 10	26.7376968
JUPITER	0.6353	159.8742	3.1059	242.2324	0.803650150 10	26.9819519
SIRIUS (B)	0.8793	178.2950	0.0000	180.0000	0.000000000	0.0000000
BETELGEUSE (R)	0.9911	233.0300				
CANORUS (B)	1.1647	218.1689				
ARCTURUS (H)	1.2423	260.9366				
RIGIL KENTAURUS	1.3971	134.5317				
ANTARES (R)	1.3988	265.7333				
CAPELLA (R)	1.6702	149.0556				
VEGA (B)	1.3848	131.1646				
ALDEBARAN (R)	1.5674	70.5547				
RIGEL (B)	1.0118	233.1379				
GAMMA CRUCIS (R)	1.1800	250.3213				
SPICA (B)	1.9807	247.0138				
ACHERNAB (B)	1.3262	179.1809				
DENEK (B)	1.2556	299.9243				
PROCYON (B)	1.9494	59.8516				
	1.5317	202.0506				

STAR DELAYS: 1.6883 SEC 688,2173 PULSES DECIMAL # 10, COARSE + 40, FINE  
 74.4634 DEG 12 60 PULSES OCTAL CKAH SUB C 5 = 0.9975 BRILLON# 0.3666 BCN# 10

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RN 10 PASS 3675 PR23 #050 S/W SK 0 DSS 63A RCVR AGC 125.9 FILE 10-1166 PS  
 SPACECRAFT ATTITUDE ON DAY 74 MAR 15, 1982 2030 GMT

03/15/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR ROBPHEK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ABRSGRRS # 0 ROSTPOS # 180  
 AMPLITUDE AND PHASE ANGLE: ROSANGAK # 0.5389 ROBPHEK # 236.6300  
 SPACECRAFT-EARTH DIRECTION: CLAT # -3.0928 CLON # 242.3498  
 SPACECRAFT #2 AXIS ATTITUDE: CLAT # -3.3344 CLON # 242.6322

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RN 10 PASS 3675 PR23 #050 S/W SK 0 DSS 63A RCVR AGC 125.9 FILE 10-1166 PS  
 SPACECRAFT ATTITUDE ON DAY 74 MAR 15, 1982 2030 GMT  
 SPIN PERIOD # 12,992,880 SEC RTCT = 7 RR 31 MIN 35.96 SEC

03/15/82

	RNA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C #2 AXIS	0.0000	0.0000	-3.3344	242.6322		
SUN	0.5024	7.6169	-3.1348	249.3236	0.400797880 10	26.7913028
EARTH	0.9188	153.3698	-3.0928	242.3498	0.406188320 10	27.1496203
JUPITER	6.8820	178.2402	0.0000	100.0000	0.000000000	0.0000000
SIRIUS(B)	12.9848	233.0352				
BETELGEUSE(R)	14.1606	218.1838				
CANOPUS(B)	9.2531	260.9378				
ARCTURUS(R)	5.4088	134.5276				
RIGIL KENTAURUS	3.3893	265.7296				
ANTARES(R)	0.6660	349.1337				
CAPELLA(R)	15.3937	131.1799				
VEGA(B)	7.5757	70.5966				
ALDEBARAN(R)	16.0055	233.1781				
RIGEL(B)	14.1716	250.3288				
GAMMA CRUCIS(R)	4.9727	247.0088				
SPICA(B)	3.1288	179.1642				
ACHERNAR(B)	0.2459	299.9203				
DENEK(B)	9.9566	59.8513				
PROCYON(B)	12.9303	202.0576				

STAR DELAY: 7.6886 SEC 688,2759 PULSES DECIMAL # 10, COARSE + 48, FINE  
 7.4528 DEC 12 60 PULSES OCTAL CKAH SUB C # 0.6540 EPSILON# 0.2709 SCN#10

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PN 10 PASS 3682 PR23 #070 S/W SK 0 DSS 63A RCVR AGC -131.0 FILE 10-1167 TB  
 SPACECRAFT ATTITUDE ON DAY 01 MAR 22, 1962 1515 GMT

03/23/62

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: A8P8GRRS # 0 RESTPOS # 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK # 0.4829 RCS PHAK # 224.3000

SPACECRAFT-EARTH DIRECTION: CLAT # -3.0807 CLON # 242.4899

SPACECRAFT +Z AXIS ATTITUDE: CLAT # +3.3622 CLON # 242.8453

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PN 10 PASS 3682 PR23 #070 S/W SK 0 DSS 63A RCVR AGC -131.0 FILE 10-1167 TB  
 SPACECRAFT ATTITUDE ON DAY 01 MAR 22, 1962 1515 GMT  
 SPIN PERIOD # 12.998500 SEC RTLT # 7 HR 34 MIN 13.68 SEC

03/23/62

	RNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	+3.3622	242.8453		
SUN	0.5274	0.9447	+3.1341	244.3581	0.40157787D 10	26.8434405
EARTH	0.4929	141.5922	+3.0807	242.4899	0.40852249D 10	27.3075531
JUPITER	0.8959	178.2759	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	122.9709	233.0535				
BETELGEUSE(R)	142.1537	218.2327				
CANOPUS(B)	97.2079	260.5402				
ARCTURUS(R)	56.4347	134.5200				
RIGIL KENTAURUS	30.3626	265.7120				
ANTARES(R)	1.6488	349.3471				
CAPELLA(R)	191.4232	131.1919				
VEGA(B)	72.5976	70.9641				
ALDEBARAN(R)	162.9911	233.3182				
RIGEL(B)	142.1499	250.3582				
GAMMA CRUCIS(R)	66.9522	246.9904				
SPICA(B)	36.3422	179.1363				
ACHERNAR(B)	91.2154	299.9289				
DENEK(B)	91.9741	59.8503				
PROCYON(B)	124.5319	202.0794				

STAR DELAYS: 7.6887 SEC 688,3130 PULSES DECIMAL # 10, COARSE + 40, FINE  
 74.4598 DEC 12 60 PULSES OCTAL CKAH SUB C # 0.3431 EPPILON# 8,2016 SCN#10

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PN 10 PASS 3689 PR23 #070 S/W SK,0 DSS 63A RCVR AGC #133.8 FILE 10-1168 TG  
 SPACECRAFT ATTITUDE ON DAY 88 MAR 29, 1982 1500 GMT

04/01/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 ROOTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.3567 RCSPHAK = 197.4300

SPACECRAFT-EARTH DIRECTION: CLAT = 3.0698 CLON = 242.6588

SPACECRAFT +Z AXIS ATTITUDE: CLAT = 3.3919 CLON = 242.8111

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PN 10 PASS 3689 PR23 #070 S/W SK,0 DSS 63A RCVR AGC #133.8 FILE 10-1168 TG  
 SPACECRAFT ATTITUDE ON DAY 88 MAR 29, 1982 1500 GMT  
 SPIN PERIOD = 13,008600 SEC RTLT = 7 HR 36 MIN 49.48 SEC

04/01/82

	RNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.3919	242.8111	-	-
SUN	0.6007	9.2278	-3.1348	244.3935	0.402381280 10	26.8971444
EARTH	0.3567	115.2300	-3.0698	242.6588	0.410857870 10	27.4637614
JUPITER	6.8626	178.2592	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	102.9262	233.0494				
BETELGEUSE(R)	142.1085	218.2343				
CANOPUS(B)	97.1729	260.5346				
ARCTURUS(H)	50.4320	134.4806				
RIGIL KENTAURUS	70.3304	265.7488				
ANTARES(B)	100.6761	349.6489				
CAPPELLA(B)	151.4230	131.2800				
VEGA(B)	73.6370	70.5551				
ALDEBARAN(R)	168.9468	233.2669				
RIGEL(B)	103.1104	250.3269				
GAMMA CRUCIS(R)	70.9115	247.0050				
SPICA(B)	79.3085	179.0973				
ACHERNAB(B)	93.2066	299.9204				
DENEK(B)	94.0170	59.8493				
PROCYON(B)	124.4891	202.0875				

STAR DELAY: 3.6892 SEC 688.4235 PULSES DECIMAL # 10, COARSE + 48, FINE  
 74.4854 DEG 12 60 PULSES OCTAL CKAH SUB C = 1.2244 EPSILON# 8.0034 SCN#10

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PN 10 PASS 3696 PR23 #223 S/W SK,0 DSS 43 RCVR AGC #127.2 FILE 10#1169 PD  
 SPACECRAFT ATTITUDE ON DAY 46 APR 6, 1982 0420 GMT

04/06/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/O.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIMTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRHS # 0 RGSTPOS # 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK # 0.3779 RCSPHAK # 156.5000

SPACECRAFT-EARTH DIRECTION: CLAI # 3.0580 CLON # 242.8666

SPACECRAFT +Z AXIS ATTITUDE: CLAT # 3.4238 CLON # 242.7719

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PN 10 PASS 3696 PR23 #223 S/W SK,0 DSS 43 RCVR AGC #127.2 FILE 10#1169 PD  
 SPACECRAFT ATTITUDE ON DAY 46 APR 6, 1982 0420 GMT  
 SPIN PERIOD # 13.00950 SEC RTLT # 7 HR 39 MIN 28.54 SEC

04/06/82

S/C +Z AXIS	RNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-3.4238	242.7719		
EARTH	0.6821	9.8782	-3.1319	244.4315	0.403848900 10	26.9551404
JUPITER	0.3779	75.5030	-3.0980	242.8666	0.413242020 10	27.6251297
SIRIUS(B)	625.8245	178.2399	0.0000	180.0000	0.000000000	0.0000000
BETELGEUSE(R)	1225.8771	233.0353				
CANOPUS(B)	148.0580	218.2333				
ARCTURUS(R)	97.1350	260.5280				
RIGIL KENTAURUS	52.4274	134.4367				
ANTARES(R)	39.2957	265.7913				
CAPELLA(R)	1.7090	349.9731				
VEGA(B)	153.4211	131.3789				
ALDEBARAN(R)	72.6801	70.5446				
RIGEL(B)	168.8978	233.2019				
GAMMA CRUCIS(R)	143.0671	250.2899				
SPICA(B)	49.8669	247.0226				
ACHERNAB(B)	39.2699	179.0553				
DENEK(B)	93.1985	299.9153				
PROCYON(B)	94.0642	59.8482				
	124.4708	202.0954				

STAR DELAY: 4.6897 SEC 688.5552 PULSES DECIMAL = 10, COARSE + 49, FINE  
 74.4720 DEG 12.61 PULSES OCTAL CKAH SUB C # 2.0871 EPSILON# 7.7911 SCN#10

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PN 10 PASS 3704 PR23 #050 S/W SKO DSS 63 RCVR AGC #127.2 FILE 10-1170 RC  
 SPACECRAFT ATTITUDE ON DAY 103 APR 13, 1982 1130 GMT

04/13/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/W,

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5210 RQSPHAK = 124.1100

SPACECRAFT-EARTH DIRECTION: CLAT = +3.0484 CLON = 243.0894

SPACECRAFT +Z AXIS ATTITUDE: CLAT = +3.3938 CLON = 242.6988

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PN 10 PASS 3704 PR23 #050 S/W SKO DSS 63 RCVR AGC #127.2 FILE 10-1170 RC  
 SPACECRAFT ATTITUDE ON DAY 103 APR 13, 1982 1130 GMT  
 SPIN PERIOD = 13.005170 SEC RTCT = 7 RR 41 MIN 51.79 SEC

04/13/82

	ONA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	+3.3938	242.6988		
SUN	0.7855	8.3242	+3.1118	244.4682	0.404087060 10	27.0111671
EARTH	0.5210	41.9269	+3.0484	243.0894	0.415189380 10	27.7666658
JUPITER	6.7507	178.2498	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	12.8572	232.9816				
BETELGEUSE(R)	14.0192	218.1189				
CANOPUS(B)	9.1526	260.5141				
ARCTURUS(B)	5.3549	134.4066				
RIGIL KENTAURUS	3.3203	265.8785				
ANTARES(B)	6.7861	349.8273				
CAPELLA(B)	15.33504	131.4438				
VEGA(B)	7.26761	70.5197				
ALDEBARAN(R)	16.88779	232.8090				
RIGEL(B)	12.0707	250.1807				
GAMMA CRUCIS(R)	4.8660	247.0847				
SPICA(B)	3.1585	179.0862				
ACHERNAM(B)	9.2509	299.9082				
DENEK(B)	9.0749	59.8494				
PROCYON(B)	12.3845	202.0532				

STAR DELAY: 3.6904 SEC 688.7491 PULSES DECIMAL # 10, COARSE + 49, FINE  
 74.4899 DEC 12 61 PULSES OCTAL CKAH SUB C # 0.7914 EPILON# 7.5328 SCN#10

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PN 10 PASS 3707 PR23 #070 S/W BK.0 DSS 43A RCVR AGC #127.2 FILE 10-1171 PS  
 SPACECRAFT ATTITUDE ON DAY 107 APR 16, 1982 0400 GMT

04/19/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

PRE-PRECESSION

REFERENCE FOR ROBPFAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 ROSTPOS # 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6200 ROBPFAK = 117.0900

SPACECRAFT-EARTH DIRECTION: CLAT # -3.0440 CLON # 243.2094

SPACECRAFT +Z AXIS ATTITUDE: CLAT # -3.3914 CLON # 242.0940

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 PN 10 PASS 3707 PR23 #070 S/W BK.0 DSS 43A RCVR AGC #127.2 FILE 10-1171 PS 04/19/82  
 SPACECRAFT ATTITUDE ON DAY 107 APR 16, 1982 0400 GMT  
 SPIN PERIOD # 13.083780 SEC RTCT # 7 HR 43 MIN 0.00 SEC

	ONA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.3914	242.0940		
SUN	0.8081	8.1431	-3.1337	244.4856	0.404510960 10	27.0345027
EARTH	0.6208	34.0182	-3.0440	243.2094	0.416411850 10	27.8360134
JUPITER	0.7458	178.2507	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	0.8563	232.9779				
BETELGEUSE(R)	0.0169	218.1109				
CANOPUS(B)	0.1542	260.5131				
ARGIURUS(R)	0.3498	134.4049				
RIGIL KENTAURUS	0.3223	265.8842				
ANTARES(R)	0.67912	349.8142				
CAPPELLA(R)	0.3454	131.4474				
VEGA(B)	0.6754	70.5137				
ALDEBARAN(R)	0.8769	232.7821				
RIGEL(B)	0.0714	250.1734				
GAMMA CRUCIS(R)	0.8664	247.0889				
SPICA(B)	0.1917	179.0888				
ACHERNAB(B)	0.2653	299.9078				
DENEK(B)	0.0752	59.8495				
PROCYON(B)	0.3810	202.0502				

STAR DELAY: 6906 SEC 688.7899 PULSES DECIMAL # 10, COARSE + 49, FINE  
 74.4869 DEG 12.61 PULSES OCTAL CKAH SUB C = 0.6651 EPSILON# 7.4780 SCN#10

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PN 10 PASS 3708 PR23 #7710 S/W SK.0 DSS 63A RCYR AGC 127.2 FILE 10-1172 TG  
 SPACECRAFT ATTITUDE ON DAY 107 APR 17/1982 1100 GMT

04/19/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

NEW ATTITUDE  
 POST-PRECES

ROLL REFERENCE PARAMETERS: ASPSGRHS = 0 RCBTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9065 RCSPHAK = 328.5000  
 SPACECRAFT EARTH DIRECTION: CLAT = 3.0436 CLON = 243.2193  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -2.7716 CLON = 244.0851

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PN 10 PASS 3708 PR23 #7710 S/W SK.0 DSS 63A RCYR AGC 127.2 FILE 10-1172 TG  
 SPACECRAFT ATTITUDE ON DAY 107 APR 17/1982 1100 GMT  
 SPIN PERIOD = 13.001630 SEC RTCT = 7 HR 43 MIN 5.36 SEC

04/19/82

S/C +Z AXIS	RNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-2.7716	244.0851		
EARTH	0.5414	318.0129	+3.1337	244.4881	0.404545200 10	27.0417914
JUPITER	0.9065	197.4857	+3.0436	243.2193	0.415492200 10	27.8403877
SIRIUS(B)	62.1177	178.6541	0.0000	180.0000	0.000000000	0.0000000
BETELGEUSE(R)	124.1839	233.5445				
CANOPUS(B)	149.4901	218.8097				
ARCTURUS(K)	95.9918	260.7567				
RIGIL KENTAURUS	50.8945	135.6455				
ANTARES(R)	40.0582	264.3547				
CAPELLA(B)	9.5984	341.1433				
VEGA(B)	153.7640	128.5816				
ALDEBARAN(R)	7.6319	70.9448				
RIGEL(B)	170.1832	237.0833				
GAMMA CRUCIS(R)	140.1105	251.7546				
SPICA(B)	58.9852	246.3118				
ACHERNAR(B)	40.5754	179.9197				
DENEK(B)	95.1079	300.0668				
PROCYON(B)	99.8417	59.8705				
	125.9012	202.0880				

STAR DELAY: 3.6820 SEC 686,5822 PULSES DECIMAL # 10, COARSE + 47, FINE  
 78.2433 DEG 12 57 PULSES TOTAL CKAH SUB C = 306,3894 EPSILON=11,6236 SCN#10

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PN 10 PASS 3713 PR23 #070 S/W SK,0 DSS 63A RCVR AGC 128.7 FILE 10-1173 TS  
 SPACECRAFT ATTITUDE ON DAY 112 APR 21, 1982 1700 GMT

04/22/82

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.1476 RCSPHAK = 328.7400  
 SPACECRAFT-EARTH DIRECTION: CLAT = 14.4000 CLON = 37.5849  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = 14.9773 CLON = 36.9459

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 PN 10 PASS 3713 PR23 #070 S/W SK,0 DSS 63A RCVR AGC 128.7 FILE 10-1173 TS 04/22/82  
 SPACECRAFT ATTITUDE ON DAY 112 APR 21, 1982 1700 GMT  
 SPIN PERIOD = 13.00290 SEC RTLT = 2 RR 59 MIN 43.22 SEC

	PNA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	14.9773	36.9459		
SUN	0.8728	85.8587	14.1067	37.0109	0.17611557D 10	11.7724311
EARTH	0.7476	325.4862	14.4000	37.5849	0.16163649D 10	10.6045782
JUPITER	140.5386	341.0357	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	62.7271	322.8116				
BETELGEUSE(R)	40.4551	351.5272				
CANOPUS(B)	70.0934	283.9367				
ARCTURUS(R)	166.1873	54.9999				
RIGIL KENTAURUS	112.9210	251.4633				
ANTARES(R)	142.3728	208.8188				
CAPELLA(R)	55.7278	40.1381				
VEGA(B)	113.5130	118.6109				
ALDEBARAN(R)	33.2960	13.1554				
RIGEL(B)	38.5109	328.8919				
GAMMA CRUCIS(R)	117.1932	270.4292				
SPICA(B)	156.3733	309.1614				
ACHERNAR(B)	58.3103	241.8509				
DENEK(B)	80.7722	116.2706				
PROCYON(B)	72.1243	347.0307				

STAR DELAY: 1.8444 SEC 472.1716 PULSES DECIMAL # 7, COARSE + 24, FINE  
 51.0633 DEG 07 30 PULSES OCTAL CKAH SUB C # 75.5573 EPSILON#10.3014 SCN#10

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PN 10 PASS 3718 PR23 #070 S/W SKO DSS 63A RCVR AGC 127.8 FILE 10-1174 RC  
 SPACECRAFT ATTITUDE ON DAY 117 APR 27, 1982 1630 GMT

04/27

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9754 RCSPHAK = 333.5800

SPACECRAFT-EARTH DIRECTION: CLAT = -3.0335 CLON = 243.5743

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -8.7842 CLON = 244.0935

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PN 10 PASS 3718 PR23 #070 S/W SKO DSS 63A RCVR AGC -127.8 FILE 10-1174 RC  
 SPACECRAFT ATTITUDE ON DAY 117 APR 27, 1982 1630 GMT  
 SPIN PERIOD = 13.004020 SEC RTLT = 7 HR 45 MIN 57.30 SEC

04/27/82

	RNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-2.7842	244.0935	-	-
SUN	0.5657	321.8551	-3.1335	244.5391	0.405720150 10	27.1203309
EARTH	0.5754	205.6916	-3.0335	243.5743	0.419069430 10	28.0126624
JUPITER	6.1264	178.6485	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	12.1787	233.5546				
BETELGEUSE(R)	14.4888	218.8358				
CANOPUS(B)	9.9807	260.7586				
ARCTURUS(R)	5.9093	135.6434				
RIGIL KENTAURUS	4.0465	264.3437				
ANTARES(B)	8.5864	341.2379				
CAPELLA(B)	15.7791	128.5846				
VEGA(B)	7.1641	70.9492				
ALDEBARAN(R)	17.1772	237.1641				
RIGEL(B)	14.1011	251.7715				
GAMMA CRUCIS(R)	5.9770	246.3019				
SPICA(B)	4.5838	179.9054				
ACHERNAK(B)	9.0928	300.0673				
DENEK(B)	9.8484	59.8703				
PROCYON(B)	12.9042	202.0992				

STAR DELAY: 3.6818 SEC 686.5328 PULSES DECIMAL # 10, COARSE + 47, FINE  
 74.2414 DEC 12 57 PULSES OCTAL CKAH SUB C = 310,3352 EPBILON#11,5199 SCN#10

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PN 10 PASS 3725 PR23 20% S/W SKO DSS 63 RCVR AGC = 128.7 FILE 10-1175 RC  
 SPACECRAFT ATTITUDE ON DAY 124 MAY 4, 1982 1530 GMT

05700

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/E.

REFERENCE FOR RĚSPHĀK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RĚSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSĀNGAK = 0.3411 RĚSPHĀK = 352.2800

SPACECRAFT-EARTH DIRECTION: CLAT = -3.0283 CLON = 203.8302

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -2.7740 CLON = 204.0577

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 PN 10 PASS 3725 PR23 20% S/W SKO DSS 63 RCVR AGC = 128.7 FILE 10-1175 RC 05700  
 SPACECRAFT ATTITUDE ON DAY 124 MAY 4, 1982 1530 GMT  
 SPIN PERIOD = 13.002200 SEC RTLT = 7 HR 47 MIN 49.45 SEC

S/C +Z AXIS	NA	CKA	CLAT	CLON	R (KM)	R (AU)
SUN	0.0000	0.0000	-2.7740	204.0577		
EARTH	0.6283	325.0857	-3.1334	204.5736	0.406519710	27.1737400
JUPITER	0.3411	228.2339	-3.0283	203.8302	0.420600630	2.1150154
SIRIUS (R)	0.0903	178.6513	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE (R)	0.1657	233.5292				
CANOPUS (B)	0.4673	218.7824				
ARCTURUS (R)	0.9851	260.7517				
RIGIL KENTAURUS	0.8765	175.6272				
ANTARES (R)	0.0531	264.3856				
CAPELLA (R)	0.6236	301.2546				
VEGA (B)	0.7488	128.6267				
ALDEBARAN (R)	0.6431	70.9352				
RIGEL (B)	0.1663	236.9566				
GAMMA CRUCIS (R)	0.0996	251.7183				
SPICA (B)	0.9720	206.3301				
ACHERNAR (B)	0.5480	179.9156				
DENEK (B)	0.1196	300.0641				
PROCYON (B)	0.8575	59.8703				
	0.8749	202.0808				

STAR DELAY: 0.6823 SEC 686.6613 PULSES DECIMAL = 10. CHARS = 47. FINE  
 0.2483 DEG 12.97 PULSES OCTAL, ČKAH, SUB. C. = 313.8276, FPSITION = 11.2492, RČN = 10.  
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PN 10 PASS 3733 PR23 W070 S/W SK 0 DSS 14A RCVR AGC 125.6 FILE 10-1176 TS

05/13

SPACECRAFT ATTITUDE ON DAY 132 MAY 12, 1982 1800 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/W

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

PRE-PRECESSION

ROLL REFERENCE PARAMETERS: ASPSGRHS = 0 RCBTPOS = 180

AMPLITUDE AND PHASE ANGLE: RESANGAK = 0.2956 RCSPHAK = 65.9080

SPACECRAFT-EARTH DIRECTION: CLAT = -3.0240 CLON = 244.1380

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -2.8005 CLON = 243.9443

PN 10 PASS 3733 PR23 W070 S/W SK 0 DSS 14A RCVR AGC 125.6 FILE 10-1176 TS

05/13/82

SPACECRAFT ATTITUDE ON DAY 132 MAY 12, 1982 1800 GMT

SPIN PERIOD = 13.006580 SEC HTLT = 7 HR 49 MIN 22.58 SEC

	RNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-2.8005	243.9443	-	-
SUN	0.7467	333.5162	-3.1533	844.6137	0.40744968D 10	27.2369412
EARTH	0.2956	310.8813	-3.0240	244.1380	0.42214647D 10	28.2163469
JUPITER	6.9778	178.6319	0.0000	100.0000	0.00000000	0.0000000
SIRIUS(B)	12.0770	233.4727				
BETELGEUSE(R)	14.3624	218.6920				
CANOPUS(B)	9.9406	260.7311				
ARCTURUS(R)	5.8142	135.5417				
RIGIL KENTAURUS	4.0158	264.5112				
ANTARES(R)	1.7226	341.8633				
CAPELLA(B)	15.6986	128.8338				
VEGA(B)	7.7052	70.8971				
ALDEBARAN(R)	17.0820	236.4910				
RIGEL(B)	14.0388	251.5761				
GAMMA CRUCIS(R)	5.9023	246.4001				
SPICA(B)	4.4348	179.8787				
ACHERNAH(B)	9.1533	300.0525				
DENEK(B)	9.9373	59.8691				
PROCYON(B)	12.7600	202.0624				

STAR DELAY: 5.6833 SEC 686.9221 PULSES DECIMAL = 10, COARSE + 47, FINE  
 74.2689 DEG 12 57 PULSES TOTAL CKAH SUB C = 322,7343 EPBILON=10,7819 SCN=10

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PN 10 PASS 3733 PR23 #477 S/W SK,0 DSS 43A RCVR AGO =128.7 FILE 10-1177 BD  
 SPACECRAFT ATTITUDE ON DAY 133 MAY 13, 1982 0600 GMT

05/13/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCBPHAK IS TOWARD SOUTH ECLIPTIC POLE.

NEW ATTITUDE  
POST- PRECESSION

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 ROSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCBANGAK = 0.8839 RCBPHAK = 244.3000

SPACECRAFT-EARTH DIRECTION: CLAT = +3.0238 CLON = 244.1573

SPACECRAFT +Z AXIS ATTITUDE: CLAT = +2.7533 CLON = 244.9999

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PN 10 PASS 3733 PR23 #477 S/W SK,0 DSS 43A RCVR AGO =128.7 FILE 10-1177 BD  
 SPACECRAFT ATTITUDE ON DAY 133 MAY 13, 1982 0600 GMT  
 SPIN PERIOD = 13.005750 SEC RTLT = 7 HR 49 MIN 28.37 SEC

05/13/82

	RNA	CKA	GLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-2.7533	244.9999	-	-
SUN	0.5397	224.7647	-3.1333	244.6161	0.40750708D 10	27.2397781
EARTH	0.8839	197.8388	-3.0238	244.1573	0.42223320D 10	28.2201497
JUPITER	65.0307	178.7168	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.7381	234.0873				
BEIELGEUSE(R)	158.2086	219.8262				
CANOPUS(R)	78.1552	260.9284				
ARCTURUS(H)	51.5382	136.2108				
RIGIL KENTAURUS	41.1744	263.3230				
ANTARES(R)	4.7498	337.4290				
CAPELLA(R)	152.3103	127.1210				
VEGA(B)	71.3188	71.2768				
ALDEBARAN(R)	176.6643	241.7357				
RIGEL(B)	140.4045	253.0010				
GAMMA CRUCIS(R)	51.3735	245.6902				
SPICA(B)	41.4891	179.9856				
ACHERNAR(B)	93.6853	300.1512				
DENEK(B)	92.3873	59.8791				
PROCYON(B)	126.7539	202.3739				

STAR DELAY: 3.6760 SEC 685.0529 PULSES DECIMAL = 10, COARSE + 45, FINE  
 74.0716 DEG 12 59 PULSES TOTAL OKAH SUB C # 213,1337 EPSILON=11.6310 SCN#1

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PN 10 PASS 3739 PR23 #070 S/W SKO DSS 63A RCVR AGC +130.2 FILE 10-1178 RC 05/18/82  
 SPACECRAFT ATTITUDE ON DAY 138 MAY 18, 1982 1600 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR ROLPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 ROBTPOS = 180

AMPLITUDE AND PHASE ANGLE: RGSANGAK = 0.7513 RGSPPHAK = 251.7100

SPACECRAFT-EARTH DIRECTION: CLAT = -3.0220 CLON = 244.3675

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -2.8068 CLON = 245.0882

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PN 10 PASS 3739 PR23 #070 S/W SKO DSS 63A RCVR AGC +130.2 FILE 10-1178 RC 05/18/82  
 SPACECRAFT ATTITUDE ON DAY 138 MAY 18, 1982 1600 GMT  
 SPIN PERIOD = 13.00580 SEC RTLT = 7 HR 50 MIN 26.77 SEC

	NA	GKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-2.8068	245.0882		
SUN	0.5518	216.2811	-3.1332	244.6428	0.408128880 10	27.2813422
EARTH	0.7513	196.6682	-3.0220	244.3675	0.423108720 10	28.2826684
JUPITER	0.1202	178.6972	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	12.7469	234.1629				
BETELGEUSE (R)	15.2420	220.0012				
CANOPUS (R)	9.1164	260.9463				
ARCTURUS (R)	5.6390	136.2329				
RIGIL KENTAURUS	4.1317	263.2159				
ANTARES (R)	14.6478	337.6237				
CAPELLA (R)	15.4062	127.0457				
VEGA (B)	7.3411	71.3149				
ALDEBARAN (R)	17.6585	242.3665				
RIGEL (B)	14.3791	253.1450				
GAMMA CRUCIS (R)	5.3612	245.6126				
SPICA (B)	4.5774	179.9296				
ACHERNAR (B)	9.5748	300.1578				
DENEK (B)	9.23693	59.8791				
PROCYON (B)	12.8151	202.4403				

STAR DELAY: 5.6755 SEC 684,9317 PULSES DECIMAL = 10, COARSE + 45, FINE  
 7.0537 SEC 12 55 PULSES TOTAL CKAH SUB C = 204,7019 EPSILON=11.5792 SCN=10

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PN 10 PASS 3753 PR23 #0/0 S/W SK.0 DSS 63A RCVR AGC -130.2 FILE 10-1179 TS  
 SPACECRAFT ATTITUDE ON DAY 152 JUN 1,1982 0830 GMT

06/01/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLLSCAN DONE  
 AT LOW BITRATE  
 -BAD DATA.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5381 ? RCSPHAK = 286.9500 ?

SPACECRAFT-EARTH DIRECTION: CLAT = -3.0215 CLUN = 244.9017

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -2.4846 ? CLUN = 244.9375 ?

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PN 10 PASS 3753 PR23 #0/0 S/W SK.0 DSS 63A RCVR AGC -130.2 FILE 10-1179 TS  
 SPACECRAFT ATTITUDE ON DAY 152 JUN 1,1982 0830 GMT  
 SPIN PERIOD = 13.008900 SEC RLTL = 7 HR 52 MIN 18.48 SEC

06/01/82

	CNA	CKA	CLAT	CLUN	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-2.4846	244.9375	-	-
SUN	0.6872	250.6687	-3.1330	244.7097	0.40969973D 10	27.3863456
EARTH	0.5381	266.1854	-3.0215	244.9017	0.42478318D 10	28.3945976
JUPITER	64.9627	178.8386	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.9189	233.9395				
BETELGEUSE(R)	150.3320	219.3913				
CANOPUS(B)	98.4108	260.9104				
ARCTURUS(R)	51.3075	136.3285				
RIGIL KENTAURUS	40.4342	263.4256				
ANTARES(R)	4.9155	334.8174				
CAPELLA(R)	154.0582	126.8865				
VEGA(B)	71.0843	71.2243				
ALDEBARAN(R)	170.8697	240.6000				
RIGEL(B)	144.6431	252.8038				
GAMMA CRUCIS(R)	51.5929	245.8204				
SPICA(B)	41.4274	180.2871				
ACHERNAR(B)	92.9290	300.1523				
DENEK(B)	92.1661	59.8837				
PROCYON(B)	126.7981	202.1675				

STAR DELAY: 2.6773 SEC 685.3862 PULSES DECIMAL = 10. COARSE + 45. FINE  
 74.0896 DEG 12 55 PULSES OCTAL CKAH SUB C = 239.6504 EPSILON=11.0183 SCN=10

\*\*\*\*\*

PALJRP,COMP1,R10,T7447

IBM 360767 TSS 9.0 PTF07V

BSN=9228 LOGON AT 13:43 ON 06/07/82

LOADING SAMJRC.LOGON.MESSAGE

REKEYED

EDIT

HELLO,

THIS IS A MESSAGE WHICH INFORMS YOU THAT THE HP TERMINAL  
IN DAVE TRISTRAM'S OFFICE IS WORKING AGAIN; THANKS TO  
PAT AND THE WESTERN ELECTRONICS GUY WHO JIGGLED THE FUSE.

LET'S HEAR IT!

HOO-RAY.

EOF

CALL MAIN\$\$

NO CONVERGED SOLUTION FOR THIS SET OF INPUT DATA.

FILE 10-1180



WALD OMP1, R10, T7447

IBM 480/67 188 9,0 PTF09V

BSN#9571 LOGON AT 11103 ON 06/08/82

LOADING SAMJRC.LOGON.MESSAGE

REKEYED

EDIT

HELLO,

THIS IS A MESSAGE WHICH INFORMS YOU THAT THE HP TERMINAL  
IN DAVE TRISTRAM'S OFFICE IS WORKING AGAIN; THANKS TO  
PAT AND THE WESTERN ELECTRONICS GUY WHO JIGGLED THE FUSE.

LET'S HEAR IT!

HOO-RAY,

EOF

GALL MAINSS

NO CONVERGED SOLUTION FOR THIS SET OF INPUT DATA

FILE 10-1181

PALJRP,COMP1,R10,T7447

IBM 360/67 TSS 9.0 PTF07V

BSN=0418 LOGON AT 09:41 ON 06/15/82

LOADING SAMJRC.LOGON.MESSAGE

NEW DATA SET--FILE DEFAULT NAME SET

EOF

TOP RECORD

EOF

CZATD999 YOU HAVE MAIL FROM: SYSOPERO

CALL MAIN\$\$

(NO CONVERGED SOLUTION) FOR THIS SET OF INPUT DATA

FILE-10-1182

PN 10 PASS 3767 PR23 #1/6 S/W SK.0 DSS 63A RCVR AGC -130.2 FILE 10-1183 AG 06/15/82  
 SPACECRAFT ATTITUDE ON DAY 166 JUN 15,1982 1100 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

(POST PRECESSION)

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5093 RCSPHAK = 305.3400

SPACECRAFT-EARTH DIRECTION: CLAT = -3.0266 CLON = 245.4381

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -2.5525 CLON = 245.6245

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PN 10 PASS 3767 PR23 #1/6 S/W SK.0 DSS 63A RCVR AGC -130.2 FILE 10-1183 AG 06/15/82  
 SPACECRAFT ATTITUDE ON DAY 166 JUN 15,1982 1100 GMT  
 SPIN PERIOD = 13.010250 SEC RTLT = 7 HR 53 MIN 20.36 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-2.5525	245.6245	-	-
SUN	1.0252	214.4905	-3.1328	244.7782	0.41131784D 10	27.4945080
EARTH	0.5093	248.5648	-3.0266	245.4381	0.42571073D 10	28.4565996
JUPITER	65.6502	178.8440	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	125.2656	234.3886				
BETELGEUSE(R)	150.8154	220.2934				
CANOPUS(B)	98.4513	261.0426				
ARCTURUS(R)	51.8521	136.6942				
RIGIL KENTAURUS	40.4499	262.6509				
ANTARES(R)	4.2718	331.7635				
CAPELLA(R)	154.5199	125.8528				
VEGA(B)	70.9293	71.4858				
ALDEBARAN(R)	171.1250	244.6750				
RIGEL(B)	144.7752	253.7903				
GAMMA CRUCIS(R)	51.8148	245.3350				
SPICA(B)	42.1134	180.2378				
ACHERNAR(B)	92.5253	300.2091				
DENEB(B)	91.8806	59.8917				
PROCYON(B)	127.4072	202.4422				

STAR DELAY: 2.6728 SEC 684.2340 PULSES DECIMAL = 10. COARSE + 44. FINE  
 73.9574 DEG 12 54 PULSES OCTAL CKAH SUB C = 204.7348 EPSILON= 9.7557 SCN=10

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PN 10 PASS 3774 PR23 #070 S/W SK,0 DSS 63A RCVR AGC -130.2 FILE 10-1184 CJ 06722782  
 SPACECRAFT ATTITUDE ON DAY 173 JUN 22,1982 1230 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,4687 RCSPHAK = 346,0300

SPACECRAFT-EARTH DIRECTION: CLAT = -3,0305 CLON = 245,6584

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -2,6090 CLON = 245,4533

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PN 10 PASS 3774 PR23 #070 S/W SK,0 DSS 63A RCVR AGC -130.2 FILE 10-1184 CJ 06722782  
 SPACECRAFT ATTITUDE ON DAY 173 JUN 22,1982 1230 GMT  
 SPIN PERIOD = 13,011590 SEC RTLT = 7 HR 53 MIN 30,87 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-2,6090	245,4533	-	-
SUN	0,8309	219,0867	-3,1327	244,8074	0,412012240 10	27,5409251
EARTH	0,4687	295,9090	-3,0305	245,6584	0,425868290 10	28,4671317
JUPITER	65,4805	178,8090	0,0000	180,0000	0,000000000	0,0000000
SIRIUS(B)	125,1201	234,3061				
BETELGEUSE(R)	150,6484	220,1656				
CANOPUS(B)	98,3689	261,0112				
ARCTURUS(R)	51,7666	136,5619				
RIGIL KENTAURUS	40,3723	262,8340				
ANTARES(R)	4,3976	333,4546				
CAPELLA(R)	154,4650	126,2044				
VEGA(B)	71,0372	71,4284				
ALDEBARAN(R)	170,9999	243,8441				
RIGEL(B)	144,6730	253,5731				
GAMMA CRUCIS(R)	51,6923	245,4313				
SPICA(B)	41,9422	180,1681				
ACHERNAR(B)	92,5625	300,1936				
DENEK(B)	92,0152	59,8881				
PROCYON(B)	127,2277	202,4246				

STAR DELAY: 2,6742 SEC 684,5947 PULSES DECIMAL = 10, COARSE + 45, FINE  
 73,9888 DEG 12 55 PULSES OCTAL CKAH SUB C = 208,6285 EPSILON=10,4582 SCN=10

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PN 10 PASS 3781 PR23 #070 S/W SK.0 DSS 63A RCVR AGC =128.7 FILE 10-1185 TS 06/29/82  
 SPACECRAFT ATTITUDE ON DAY 180 JUN 29,1982 1000 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S70.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5644 RCSPHAK = 13.0880

SPACECRAFT-EARTH DIRECTION: CLAT = -3.0371 CLON = 245.9329

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -2.6602 CLON = 245.5122

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PN 10 PASS 3781 PR23 #070 S/W SK.0 DSS 63A RCVR AGC =128.7 FILE 10-1185 TS 06/29/82  
 SPACECRAFT ATTITUDE ON DAY 180 JUN 29,1982 1000 GMT  
 SPIN PERIOD = 13.012690 SEC RTLT = 7 HR 53 MIN 30.76 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-2.6602	245.5122	-	-
SUN	0.8164	215.3671	-3.1325	244.8455	0.41291913D 10	27.6015461
EARTH	0.5644	318.0969	-3.0371	245.9329	0.42586670D 10	28.4670254
JUPITER	65.5403	178.7890	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	125.1128	234.3634				
BETELGEUSE(R)	150.6603	220.3054				
CANORUS(B)	98.3275	261.0237				
ARCTURUS(R)	61.8405	138.5672				
RIGIL KENTAURUS	40.3289	262.7604				
ANTARES(R)	4.3221	333.7155				
CAPELLA(R)	154.5410	126.1709				
VEGA(B)	71.0670	71.4558				
ALDEBARAN(R)	170.9795	244.3216				
RIGEL(B)	144.6405	253.6757				
GAMMA CRUCIS(R)	51.6702	245.3749				
SPICA(B)	42.0009	180.1137				
ACHERNAR(B)	92.4886	300.1974				
DENEK(B)	92.0299	59.8881				
PROCYON(B)	127.2625	202.4803				

STAR DELAY: 2.6740 SEC 684.5378 PULSES DECIMAL = 10, COARSE + 45, FINE  
 73.9763 DEG 12 55 PULSES OCTAL CKAH SUB C = 204.8541 EPSILON=10.5130 SCN=10

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PN PASS 3788 PR23 #070 S/W SK,0 DSS 63A RCVR AGC -122.2 FILE 10-1186 PS 07/06/82

SPACECRAFT ATTITUDE ON DAY 187 JUL 6, 1982 1300 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCUNGAK = 0.7064 RCSPHAK = 27.2290

SPACECRAFT-EARTH DIRECTION: CLAT = -3.0443 CLON = 246.1643

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -2.6926 CLON = 245.5510

PN 10 PASS 3788 PR23 #070 S/W SK,0 DSS 63A RCVR AGC -122.2 FILE 10-1186 PS 07/06/82

SPACECRAFT ATTITUDE ON DAY 187 JUL 6, 1982 1300 GMT

SPIN PERIOD = 15.013910 SEC RTLT = 7 HR 53 MIN 18.10 SEC

	CNA	EKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-2.6926	245.5510	"	"
SUN	0.8019	213.2783	-3.1324	244.8796	0.41373550D 10	27.6561163
EARTH	0.7064	330.1237	-3.0443	246.1643	0.42567693D 10	28.4543402
JUPITER	65.5797	178.7764	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	125.1090	234.4006				
BETELGEUSE(R)	150.6687	220.3958				
CANOPUS(B)	98.3015	261.0318				
ARCTURUS(R)	51.8949	136.5714				
RIGIL KENTAURUS	40.3016	262.7122				
ANTARES(R)	4.2731	333.8773				
CAPELLA(R)	154.5901	126.1473				
VEGA(B)	71.0855	71.4738				
ALDEBARAN(R)	170.9669	244.6311				
RIGEL(B)	144.6202	253.7427				
GAMMA CRUCIS(R)	51.6569	245.3382				
SPICA(B)	42.0396	180.0795				
ACHERNAR(B)	92.4011	300.2000				
DENEK(B)	92.0386	59.8881				
PROCYON(B)	127.2858	202.5162				

STAR DELAY: 2.6739 SEC 684.5267 PULSES DECIMAL = 10, COARSE + 45, FINE  
73.9682 DEG 12 55 PULSES OCTAL CKAH SUB C = 202.7099 EPSILON=10.5684 SCN=10

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SPACECRAFT ATTITUDE ON DAY \*\*\* JUL 13, 1982 0730 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9182 RCSPHAK = 36.3170

SPACECRAFT-EARTH DIRECTION: CLAT = -3.0523 CLON = 246.3682

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -2.7299 CLON = 245.5074

*File 1187*

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PN 10 PASS 3795 PR23 #0/0 S/W SK.0 DSS 63A RCVR AGC -130.2 FILE 10-1187 TS 07/14/82

SPACECRAFT ATTITUDE ON DAY \*\*\* JUL 13, 1982 0730 GMT

SPIN PERIOD = 15.016130 SEC RTLT = 7 HR 52 MIN 55.86 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-2.7299	245.5074		
SUN	0.7154	214.2414	-3.1323	244.9151	0.41451162D 10	27.7079960
EARTH	0.9182	339.4234	-3.0523	246.3682	0.42534351D 10	28.4320528
JUPITER	65.5370	178.7570	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	125.0533	234.3890				
BETELGEUSE(R)	150.6114	220.3942				
CANOPUS(B)	98.2579	261.0243				
ARCTURUS(R)	51.8890	136.5246				
RIGIL KENTAURUS	40.2591	262.7555				
ANTARES(R)	4.2960	334.5764				
CAPELLA(R)	150.5945	126.2655				
VEGA(B)	71.1347	71.4616				
ALDEBARAN(R)	170.9145	244.4833				
RIGEL(B)	144.5722	253.6966				
GAMMA CRUCIS(R)	51.6048	245.3551				
SPICA(B)	41.9960	180.0360				
ACHERNAR(B)	92.4308	300.1955				
DENEK(B)	92.0927	59.8867				
PROCYON(B)	127.2313	202.5277				

STAR DELAY: 2.6745 SEC 684.6600 PULSES DEGIMAL # 10, COARSE + 45, FINE  
 73.9757 DEG 12 55 PULSES OCTAL CKAH SUB C = 203.3358 EPSILON=10.9056 SEN=10

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PN 10 PASS 3802 PR23 #2/3 S/W SK.0 DSS 63 RCVR AGC -130.2 FILE 10-1188 PD  
 SPACECRAFT ATTITUDE ON DAY 201 JUL 20,1982 0440 GMT

07/20/82

07

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPUS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.0900 RCSPHAK = 41.1190

SPACECRAFT-EARTH DIRECTION: CLAT = -3.0615 CLUN = 246.5570

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -2.7538 CLUN = 245.5100

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PN 10 PASS 3802 PR23 #2/3 S/W SK.0 DSS 63 RCVR AGC -130.2 FILE 10-1188 PD  
 SPACECRAFT ATTITUDE ON DAY 201 JUL 20,1982 0440 GMT  
 SPIN PERIOD = 13.016230 SEC RTLT = 7 HR 52 MIN 23.90 SEC

07/20/82

S/C +Z AXIS	CNA	CKA	CLAT	CLUN	R(KM)	R(AU)
SUN	0.0000	0.0000	-2.7538	245.5100	-	-
EARTH	0.6798	213.8408	-3.1322	244.9445	0.41529940D 10	27.7606551
JUPITER	1.0900	343.5761	-3.0615	246.5570	0.42486446D 10	28.4000307
SIRIUS(B)	65.5401	178.7463	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	125.0354	234.4003				
CANOPUS(B)	150.5979	220.4295				
ARCTURUS(R)	98.2347	261.0253				
RIGIL KENTAURUS	51.9073	136.5126				
ANTARES(R)	40.2358	262.7490				
CAPELLA(R)	4.2835	334.8491				
VEGA(B)	154.6152	126.2910				
ALDEBARAN(R)	71.1564	71.4652				
RIGEL(B)	170.8941	244.5619				
GAMMA CRUCIS(R)	144.5500	253.7096				
SPICA(B)	51.5842	245.3455				
ACHERNAR(B)	41.9986	180.0097				
DENEK(B)	92.4089	300.1952				
PROCYON(B)	92.1120	59.8863				
	127.2246	202.5453				

STAR DELAY: 2.6746 SEC 684.7083 PULSES DECIMAL = 10. COARSE + 45. FINE  
 73.9747 DEG 12 55 PULSES OCTAL CKAH SUB C = 202.7928 EPSILON=11.0480 SCN=10

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PN 10 PASS 3806 PR23 8070 S/W SK.0 DSS 63 RCVR ABC -127.2 FILE 10-1189 BD  
 SPACECRAFT ATTITUDE ON DAY 209 JUL 23, 1982 0330 GMT

07/27/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/W.

PRE-PRECESSION

REFERENCE FOR ROCPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 ROSTR08 = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.2442 ROCPHAK = 42.7690

SPACECRAFT-EARTH DIRECTION: CLAT = +3.0674 CLON = 246.6600

SPACECRAFT +Z AXIS ATTITUDE: CLAT = +2.8070 CLON = 245.4418

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PN 10 PASS 3806 PR23 8070 S/W SK.0 DSS 63 RCVR ABC -127.2 FILE 10-1189 BD

07/27/82

SPACECRAFT ATTITUDE ON DAY 209 JUL 23, 1982 0330 GMT

SPIN PERIOD = 13.018960 SEC RTLT = 7 HR 52 MIN 0.67 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-2.8070	245.4418	-	-
SUN	0.9774	214.2821	+3.1321	244.9640	0.41970343D 10	27.7876624
EARTH	1.2442	347.8870	+3.0674	246.6600	0.42451618D 10	28.3767500
JUPITER	89.4732	178.7181	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.9529	234.3799				
BETELGEUSE(H)	130.9116	220.4197				
CANOPUS(B)	98.1719	261.0139				
ARCTURUS(R)	61.8949	136.4422				
RIGIL KENTAURUS	48.1744	262.8177				
ANTARES(R)	4.3232	339.8659				
CAPELLA(R)	152.6177	126.4698				
VEGA(B)	71.2286	71.4456				
ALDEBARAN(R)	176.8167	244.3196				
RIGEL(B)	144.4798	293.6356				
GAMMA CRUCIS(R)	51.5079	249.3737				
SPICA(B)	41.9309	179.9472				
ACHERNAR(B)	62.3971	300.1883				
DENEK(B)	95.1922	59.8842				
PROCYON(B)	127.1413	202.5599				

STAR DELAY: 8.6752 SEC 684.8560 PULSES DECIMAL # 10. COARSE + 45. FINE  
 73.9865 DEG 12.59 PULSES CGTAL CKAH SUB C = 202.8117 EPSILON=11.4704 SCN=10

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PN 10 PASS 3806 PR23 2279 S/W SK.0 DSS 63A RCVR AGG -130.87 FILE 10-1190 AG  
 SPACECRAFT ATTITUDE ON DAY 205 JUL 24, 1982 1300 GMT

07/27/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C,

NEW ATTITUDE  
 POST-PRECESSION

REFERENCE FOR R08PHAR IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 R08TPOS = 180

AMPLITUDE AND PHASE ANGLE: RCBANGAR = 0.8284 R08PHAR = 188.2300

SPACECRAFT-EARTH DIRECTION: CLAT = +3.8678 CLON = 246.6661

SPACECRAFT +Z AXIS ATTITUDE: CLAT = +3.8874 CLON = 246.5614

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PN 10 PASS 3806 PR23 2279 S/W SK.0 DSS 63A RCVR AGG -130.87 FILE 10-1190 AG

07/27/82

SPACECRAFT ATTITUDE ON DAY 205 JUL 24, 1982 1300 GMT  
 SPIN PERIOD = 12.019250 SEC RTLT = 7 HR 51 MIN 59.18 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	+3.8874	246.5614	-	-
SUN	1.6874	160.8364	+3.1321	244.9652	0.415798920 10	27.7940455
EARTH	0.6284	80.4246	+3.8678	246.6661	0.424493940 10	28.3792634
JUPITER	66.6129	178.4029	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	128.8748	235.4351				
BETELGEUSE(R)	150.7607	222.9734				
CANOPUS(B)	67.4740	261.2474				
ARCTURUS(R)	53.3115	136.6093				
RIGIL KENTAURUS	18.4557	261.4078				
ANTARES(R)	2.9637	342.6451				
CAPELLA(R)	159.9876	129.6962				
VEGA(B)	71.7135	71.9575				
ALDEBARAN(R)	170.4068	252.6338				
RIGEL(B)	143.9283	255.5182				
GAMMA CRUCIS(R)	51.1856	244.3289				
SPICA(B)	49.0560	179.0601				
ACHERNAR(B)	61.0736	300.2676				
DENEK(B)	97.3930	59.8913				
PROCYON(B)	127.8848	203.5800				

STAR DELAY: 2.6664 SEC 682.6019 PULSES DECIMAL N 10, COARSE + 43, FINE  
 73.7526 DEG 12 93 PULSES OCTAL CKAN SUB C = 153.0589 EPSILON = 7.7775 SCN = 10

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PN 10 PASS 3809 PR23 #273 S/W SK.0 DSS 63 RCVR AGC #127.8 FILE 10-1191A  
 SPACECRAFT ATTITUDE ON DAY 208 JUL 27, 1982 0420 GMT

8/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPGRRS = 180 ROSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6393 RCSPHAK = 175.8800

SPACECRAFT-EARTH DIRECTION: CLAT = +3.8718 CLON = 246.7279

SPACECRAFT +Z AXIS ATTITUDE: CLAT = +3.6641 CLON = 246.4869

REVISED

REPLACES FILE NO. 1191

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PN 10 PASS 3809 PR23 #273 S/W SK.0 DSS 63 RCVR AGC #127.8 FILE 10-1191A  
 SPACECRAFT ATTITUDE ON DAY 208 JUL 27, 1982 0420 GMT  
 SPIN PERIOD = 13.016110 SEC RTLT = 7 HR 51 MIN 42.75 SEC

08/18/82

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.6641	246.4869	-	-
SUN	1.5978	160.9973	-3.1321	244.9776	0.41610070D 10	27.8142179
EARTH	0.6393	67.8927	-3.8718	246.7279	0.42424760D 10	28.3587968
JUPITER	88.5379	178.4073	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.8518	239.3784				
BETELGEUSE(R)	150.7221	222.8477				
CANOPUS(B)	67.4857	261.2325				
ARCTURUS(R)	54.2414	136.5750				
RIGIL KENTAURUS	39.4677	261.4966				
ANTARES(R)	3.0416	342.6391				
CAPELLA(R)	155.9252	125.7962				
VEGA(B)	71.7144	71.9269				
ALDEBARAN(R)	170.4065	252.1679				
RIGEL(B)	143.9322	255.4066				
GAMMA CRUCIS(R)	51.1744	244.3858				
SPICA(B)	42.9813	179.0790				
ACHERNAR(B)	51.1313	300.2618				
DENEK(B)	55.4101	59.8897				
PROCYON(B)	127.7660	203.5356				

STAR DELAY: 2.6671 SEC 682.7849 PULSES DECIMAL # 10, COARSE + 43, FINE  
 73.7675 DEG 12 53 PULSES OCTAL CKAH SUB C = 192.5862 EPILON = 8.0111 SCN = 10

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PN 10 PASS 3816 PR23 #070 S/W SK.0 DSS 63A RCVR SC =128.7 FILE 10-1192A AG  
SPACECRAFT ATTITUDE ON DAY 215 AUG 3, 1988 1030 GMT

8/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/W.

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7231 RCSPHAK = 165.6100

SPACECRAFT-EARTH DIRECTION: CLAT = 3.8833 CLON = 246.8807

SPACECRAFT +Z AXIS ATTITUDE: CLAT = 3.8839 CLON = 246.4773

REVISED

REPLACES FILE NO. 1192

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PN 10 PASS 3816 PR23 #070 S/W SK.0 DSS 63A RCVR AGC =128.7 FILE 10-1192A AG

08/18/82

SPACECRAFT ATTITUDE ON DAY 215 AUG 3, 1988 1030 GMT  
SPIN PERIOD = 13.817310 SEC RTLT = 7 HR 50 MIN 52.15 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.8839	246.4773	-	-
SUN	1.5635	159,3720	-3.1319	246,0119	0.41693284D 10	27.8698422
EARTH	0.7231	56,1474	-3.8833	246,8807	0.42348912D 10	28.3080963
JUPITER	68.5288	178,3980	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	24.8300	235,3801				
BETELGEUSE(R)	140.7016	222,8614				
CANOPUS(B)	97.4647	261,2310				
ARCTURUS(R)	93.2481	136,5587				
RIGIL KENTAURUS	39.4466	261,5040				
ANTARES(R)	3.0450	343,0481				
CAPELLA(R)	755.9357	125,8390				
VEGA(B)	71.7362	71,9253				
ALDEBARAN(R)	170.3847	252,1490				
RIGEL(B)	143.9106	255,4000				
GAMMA CRUCIS(R)	51.1524	244,3852				
SPICA(B)	48.9720	179,0570				
ACHERNAR(B)	91.1190	300,2608				
DENEK(B)	98.4321	59,8890				
PROCYON(B)	727.7492	203,5461				

STAR DELAY: 8.6674 SEC 682,8625 PULSES DECIMAL = 10, COARSE + 43, FINE  
78.7690 DEG 12 53 PULSES OCTAL CKAH SUB C = 151,2688 EP\$ILON= 8,1032 SCN=10

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PN 10 PASS 3823 PR23 #070 S/W SK.0 DSS 63A RCVR AGC #128.7 FILE 10-1193A AG  
SPACECRAFT ATTITUDE ON DAY 222 AUG 10, 1982 0919 GMT

8782

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/W.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 ROSTPOB = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.8110 RUSPHAK = 159.0000

REVISED

SPACECRAFT-EARTH DIRECTION: CLAT = -3.8951 CLON = 247.0017

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.8699 CLON = 246.4287

REPLACES FILE NO. 1193

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PN 10 PASS 3823 PR23 #070 S/W SK.0 DSS 63A RCVR AGC #128.7 FILE 10-1193A AG  
SPACECRAFT ATTITUDE ON DAY 222 AUG 10, 1982 0919 GMT  
SPIN PERIOD = 13.818550 SEC RTLT = 7 HR 49 MIN 59.63 SEC

08/18/82

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.8699	246.4287	-	-
SUN	1.4829	158.7656	-3.1318	249.0445	0.417728310 10	27.9230154
EARTH	0.8110	49.1257	-3.8951	247.0017	0.422671900 10	28.2534693
JUPITER	66.4800	178.4004	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.8140	235.3438				
BETELGEUSE(R)	180.6755	222.7813				
CANOPUS(B)	89.4711	261.2213				
ARCTURUS(R)	51.2033	136.5382				
RIGIL KENTAURUS	39.4533	261.5616				
ANTARES(R)	3.0954	343.0589				
CAPELLA(R)	155.8959	125.9054				
VEGA(B)	71.7380	71.9056				
ALDEBARAN(R)	170.3830	251.8483				
RIGEL(B)	143.9119	255.3277				
GAMMA CRUCIS(R)	51.1440	244.4222				
SPICA(B)	42.9233	179.0680				
ACHERNAR(B)	91.1555	300.2570				
DENEK(B)	92.4443	59.8880				
PROCYON(B)	127.7104	203.5181				

STAR DELAYS: 2.6680 SEC 683.0160 PULSES DECIMAL = 10, COARSE + 43, FINE  
75.7787 DEG 12 53 PULSES OCTAL CKAH SUB C = 150.4402 EPSILON = 8.3254 SCN = 10

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PN 10 PASS 3831 PR23 #283 S/W 9K.0 DBS 63 RCVR AGC -134.2 FILE 10-1194 PD  
 SPACECRAFT ATTITUDE ON DAY 230 AUG 18, 1982 0230 GMT

08/17/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 R00TPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9139 R0SPHAK = 150.3400

SPACECRAFT-EARTH DIRECTION: CLAT = +3.1108 CLON = 247.1058

SPACECRAFT +Z AXIS ATTITUDE: CLAT = +3.8734 CLON = 246.3843

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PN 10 PASS 3831 PR23 #283 S/W 9K.0 DBS 63 RCVR AGC -134.2 FILE 10-1194 PD  
 SPACECRAFT ATTITUDE ON DAY 230 AUG 18, 1982 0230 GMT  
 SPIN PERIOD = 13.819890 SEC RTLT = 7 HR 52 MIN 1.75 SEC

08/17/82

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	+3.8734	246.3843	"	"
SUN	1.4097	157.4399	+3.1117	249.0806	0.41861200D 10	27.9820856
EARTH	0.9139	37.9759	+3.1108	247.1058	0.42456237D 10	28.3788376
JUPITER	68.4358	178.3954	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.7859	235.3170				
BETELGEUSE(R)	150.6406	222.7296				
CANOPUS(B)	57.4608	261.2128				
ARCTURUS(R)	53.1736	136.5107				
RIGIL KENTAURUS	39.4434	261.6114				
ANTARES(R)	1.1368	343.3530				
CAPELLA(R)	155.8728	125.9873				
VEGA(B)	71.7551	71.8892				
ALDEBARAN(R)	170.3658	251.6039				
RIGEL(B)	143.8973	255.2673				
GAMMA CRUCIS(R)	51.1218	244.4503				
SPICA(B)	42.8791	179.0606				
ACHERNAR(B)	51.1748	300.2534				
DENEK(B)	62.4696	59.8867				
PROCYON(B)	127.6683	203.5041				

SYAR DELAY: 5.6686 SEC 683.1651 PULSES DECIMAL = 10, COARSE + 43, FINE  
 75.7872 DEG 12 53 PULSES OCTAL CKAH SUB C = 148.9055 EP@ILON = 8.5344 BCN=10

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PN 10 PASS 3838 PR23 #070 S/W SK,0 DSS 63A RCVR AGC =128.7 FILE 10-1195 CJ 08/25/82  
 SPACECRAFT ATTITUDE ON DAY 237 AUG 26,1982 0900 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C,  
 REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 ROSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9223 RCSPHAK = 145.9500  
 SPACECRAFT-EARTH DIRECTION: CLAT = -3.1222 CLON = 247.1729  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = +3.8549 CLON = 246.4186

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 PN 10 PASS 3838 PR23 #070 S/W SK,0 DSS 63A RCVR AGC =128.7 FILE 10-1195 CJ 08/25/82  
 SPACECRAFT ATTITUDE ON DAY 237 AUG 26,1982 0900 GMT  
 SPIN PERIOD = 13.021110 SEC RTLT = 7 HR 47 MIN 49.84 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.6989	246.4186	-	-
SUN	1.4031	158.1402	-3.1316	245.1145	0.41944964D 10	28.0378102
EARTH	0.9223	35.2564	-3.1222	247.1729	0.42069641D 10	28.1214178
JUPITER	66.4695	178.4061	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.8206	235.3314				
BETELGEUSE(R)	150.6784	222.7489				
CANOPUS(B)	97.4844	261.2191				
ARCTURUS(R)	51.1856	136.5406				
RIGIL KENTAURUS	39.4667	261.5757				
ANTARES(R)	3.1094	342.8478				
CAPELLA(R)	155.8779	125.9033				
VEGA(B)	71.7268	71.9002				
ALDEBARAN(R)	170.3942	251.7636				
RIGEL(B)	143.9239	255.3085				
GAMMA CRUCIS(R)	81.1532	244.4341				
SPICA(B)	42.9130	179.0834				
ACHERNAR(B)	91.1735	300.2563				
DENEK(B)	92.4364	59.8880				
PROCYON(B)	127.7071	203.5037				

STAR DELAY: 2.6686 SEC 683,1711 PULSES DECIMAL = 10, COARSE + 43, FINE  
 73.7809 DEG 12 53 PULSES OCTAL CKAH SUB C = 149,5866 EPSILON = 8,5536 SCN = 10

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PN 10 PASS 3845 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -127.2 FILE 10-1196 AG  
 SPACECRAFT ATTITUDE ON DAY 244 SEP 1,1982 1700 GMT

09/03/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9405 RCSPHAK = 145.3200

SPACECRAFT-EARTH DIRECTION: CLAT = -3.1359 CLON = 247.2093

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.6517 CLON = 246.4215

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PN 10 PASS 3845 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -127.2 FILE 10-1196 AG  
 SPACECRAFT ATTITUDE ON DAY 244 SEP 1,1982 1700 GMT  
 SPIN PERIOD = 13.022450 SEC RTLT = 7 HR 46 MIN 38.10 SEC

09/03/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R (KM)	R (AU)
SUN	0.0000	0.0000	-3.6517	246.4215	-	-
EARTH	1.3732	157.7731	-3.1314	245.1485	0.420285260 10	28.0939345
JUPITER	0.9405	33.2393	-3.1359	247.2093	0.419680960 10	28.0535401
SIRIUS(B)	66.4723	178.4077	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	124.8248	235.3320				
CANOPUS(B)	150.6826	222.7485				
ARCTURUS(R)	97.4879	261.2196				
RIGIL KENTAURUS	53.1856	136.5440				
ANTARES(R)	39.4703	261.5730				
CAPELLA(R)	3.1076	342.7767				
VEGA(B)	155.8770	125.8941				
ALDEBARAN(R)	71.7229	71.9010				
RIGEL(B)	170.3981	251.7742				
GAMMA CRUCIS(R)	143.9277	255.3114				
SPICA(B)	51.1573	244.4332				
ACHERNAR(B)	42.9158	179.0870				
DENEK(B)	91.1748	300.2566				
PROCYON(B)	92.4322	59.8882				
	127.7111	203.5025				

STAR DELAY: 2.6689 SEC 683.2368 PULSES DECIMAL = 10. COARSE + 43. FINE  
 73.7804 DEG 12 53 PULSES OCTAL CKAH SUB C = 149.1317 EPSILON= 8.6414 SCN=10

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PN 10 PASS 3853 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -130.2 FILE 10-1197 AG  
SPACECRAFT ATTITUDE ON DAY 252 SEP 9,1982 1700 GMT

09/10/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9104 RCSPHAK = 144.1700

SPACECRAFT-EARTH DIRECTION: CLAT = -3.1507 CLON = 247.2129

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.6424 CLON = 246.4454

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PN 10 PASS 3853 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -130.2 FILE 10-1197 AG  
SPACECRAFT ATTITUDE ON DAY 252 SEP 9,1982 1700 GMT  
SPIN PERIOD = 13.023800 SEC RTLT = 7 HR 45 MIN 24.67 SEC

09/10/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-3.6424	246.4454	-	-
SUN	1.3576	157.9240	-3.1313	245.1855	0.42120107D 10	28.1551517
EARTH	0.9104	32.6661	-3.1507	247.2129	0.41858036D 10	27.9799706
JUPITER	66.4958	178.4136	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.8461	235.3434				
BETELGEUSE(R)	150.7065	222.7665				
CANOPUS(B)	97.5009	261.2240				
ARCTURUS(R)	53.1964	136.5628				
RIGIL KENTAURUS	39.4830	261.5476				
ANTARES(R)	3.0877	342.4815				
CAPELLA(R)	155.8833	125.8403				
VEGA(B)	71.7066	71.9090				
ALDEBARAN(R)	170.4144	251.8921				
RIGEL(B)	143.9428	255.3413				
GAMMA CRUCIS(R)	51.1761	244.4208				
SPICA(B)	42.9395	179.0990				
ACHERNAR(B)	91.1709	300.2586				
DENEK(B)	92.4121	59.8890				
PROCYON(B)	127.7366	203.5047				

STAR DELAY: 2.6690 SEC 683.2667 PULSES DECIMAL = 10. COARSE + 43. FINE  
73.7760 DEG 12 53 PULSES OCTAL CKAH SUB C = 149.2363 EPSILON= 8.6877 SCN=10

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PN 10 PASS 3859 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -127.2 FILE 10-1198A PS 09/23/82  
 SPACECRAFT ATTITUDE ON DAY 258 SEP 15, 1982 1630 GMT

RCLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

**REVISED**

RCLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9184 RCSPFAK = 145.9200

REPLACES FILE NO. 1198

SPACECRAFT-EARTH DIRECTION: CLAT = -3.1620 CLON = 247.1909

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.6634 CLON = 246.4201

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PN 10 PASS 3859 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -127.2 FILE 10-1198 PS 09/23/82  
 SPACECRAFT ATTITUDE ON DAY 258 SEP 15, 1982 1630 GMT  
 SPIN PERIOD = 13.024770 SEC RLTL = 7 HR 44 MIN 31.55 SEC

	CNA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-3.6634	246.4201	-	-
SUN	1.3160	156.1801	-3.1312	245.2144	0.42188452D 10	28.2008369
EARTH	0.9184	33.0702	-3.1620	247.1909	0.41778402D 10	27.9267393
JUPITER	66.4712	178.4025	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.8144	235.3357				
BETELGEUSE(R)	150.6736	222.7619				
CANOPUS(B)	97.4762	261.2195				
ARCTURUS(R)	53.1926	136.5368				
RIGIL KENTAURUS	39.4585	261.5726				
ANTARES(R)	3.1055	342.9903				
CAPELLA(R)	155.8856	125.9120				
VEGA(B)	71.7345	71.9016				
ALDERABAN(R)	170.3865	251.7875				
RIGEL(B)	143.9160	255.3135				
GAMMA CRUCIS(R)	51.1462	244.4302				
SPICA(R)	42.9146	179.0743				
ACHEPNAR(B)	91.1654	300.2564				
DENEK(B)	92.4430	59.8879				
PROCYON(B)	127.7050	203.5103				

STAR DELAY: 2.6694 SEC 683.3590 PULSES DECIMAL = 10. COARSE + 43. FINE  
 73.7805 DEG 12 53 PULSES OCTAL CKAH SUB-C = 147.3674 EPSILON= 8.8128 SCN=17

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PN 10 PASS 3867 PR23 #0/0 S/W SK.0 DSS 43A RCVR -130.2 FILE 10-1199 AG  
SPACECRAFT ATTITUDE CN DAY 266 SEP 23,1982 1600 GMT

09/24/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPEAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.8122 RCSPHAK = 148.2300

SPACECRAFT-EARTH DIRECTION: CLAT = -3.1763 CLON = 247.1288

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.6528 CLON = 246.4699

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PN 10 PASS 3867 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -130.2 FILE 10-1199 AG

09/24/82

SPACECRAFT ATTITUDE CN DAY 266 SEP 23,1982 1600 GMT  
SPIN PERIOD = 13.026120 SEC RTLT = 7 HR 43 MIN 24.84 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.6528	246.4699	-	-
SUN	1.3252	156.8527	-3.1311	245.2496	0.422798630 10	28.2619405
EARTH	0.8122	35.8969	-3.1763	247.1288	0.416784070 10	27.8598977
JUPITER	66.5205	178.4109	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.8514	235.3631				
BETELGEUSE(R)	150.7173	222.8112				
CANOPUS(B)	97.4943	261.2289				
ARCTURIUS(R)	53.2213	136.5713				
RIGIL KENTAURIJS	39.4763	261.5180				
ANTARES(R)	3.0612	342.5309				
CAPELLA(R)	155.9061	125.8112				
VEGA(B)	71.7089	71.9193				
ALDEBARAN(R)	170.4121	252.0593				
RIGEL(B)	143.9389	255.3789				
GAMMA CRUCIS(R)	51.1773	244.4010				
SPICA(B)	42.9641	179.0898				
ACHERNAR(B)	91.1496	300.2605				
DENER(B)	92.4089	59.8895				
PROCYON(B)	127.7549	203.5212				

STAR DELAY: 2.6693 SEC 683.3426 PULSES DECIMAL = 10. COARSE + 43. FINE  
73.7711 DEG 12 53 PULSES OCTAL CKAH SUB C = 148.0678 EPSILON= 8.7849 SCN=10

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PN PASS 3873 PR23 #070 S/W SK,0 DSS 43A AGC =127.2 FILE 10=1200 PS 1729782  
 SPACECRAFT ATTITUDE ON DAY 272 SEP 29,1982 1830 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF 970.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7841 RCSPHAK = 150.7200

SPACECRAFT-EARTH DIRECTION: CLAT = -3.1867 CLON = 247.0572

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.6585 CLON = 246.4298

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PN 10 PASS 3873 PR23 #070 S/W SK,0 DSS 43A RCVR AGC =127.8 FILE 10=1200 PS 09/29/82  
 SPACECRAFT ATTITUDE ON DAY 272 SEP 29,1982 1830 GMT  
 SPIN PERIOD = 13.027210 SEC RTLT = 7 HR 42 MIN 38.72 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.6585	246.4298	-	-
SUN	1.2655	155.3989	-3.1309	245.2774	0.42349614D 10	28.3085655
EARTH	0.7841	36.9687	-3.1867	247.0572	0.41609279D 10	27.8136892
JUPITER	66.4807	178.4054	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.8240	235.3399				
BETELGEUSE(R)	150.6841	222.7677				
CANOPIUS(B)	97.4825	261.2213				
ARCTURUS(R)	53.1962	136.5451				
RIGIL KENTAURUS	39.4648	261.5624				
ANTARES(R)	3.0977	342.8511				
CAPELLA(R)	155.8873	125.8886				
VEGA(B)	71.7268	71.9048				
ALDEBARAN(R)	170.3942	251.8333				
RIGEL(B)	143.9232	255.3252				
GAMMA CRUCIS(R)	51.1548	244.4255				
SPICA(B)	42.9242	179.0804				
ACHERNAR(B)	91.1648	300.2572				
DENEK(B)	92.4339	59.8882				
PROCYON(B)	127.7159	203.5103				

STAR DELAY: 2.6698 SEC 683.4706 PULSES DECIMAL = 10, COARSE + 43, FINE  
 73.7787 DEG 12 53 PULSES OCTAL CKAH SUB C = 146.4314 EPSILON = 8.9675 SCN = 10

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PN 10 PASS 3879 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -131.6 FILE 10-1201 AG  
 SPACECRAFT ATTITUDE ON DAY 278 CCT 5,1982 1700 GMT

10/06/82

RCLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7231 RCSPHAK = 154.1300

SPACECRAFT-EARTH DIRECTION: CLAT = -3.1964 CLON = 246.9681

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.6605 CLON = 246.4126

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PN 10 PASS 3879 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -131.6 FILE 10-1201 AG  
 SPACECRAFT ATTITUDE ON DAY 278 OCT 5,1982 1700 GMT  
 SPIN PERIOD = 13.028190 SEC RTLT = 7 HR 41 MIN 58.85 SEC

10/06/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-3.6605	246.4126	-	-
EARTH	1.2264	154.4453	-3.1308	245.3045	0.424176380 10	28.3540361
JUPITER	0.7231	39.9181	-3.1964	246.9681	0.415495100 10	27.7737366
SIRIUS(B)	66.4636	178.4032	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	124.8125	235.3298				
CANOPUS(B)	150.6701	222.7486				
ARCTURUS(R)	97.4779	261.2180				
RIGIL KENTAURUS	53.1852	136.5340				
ANTARES(R)	39.4602	261.5816				
CAPELLA(R)	2.1135	342.9792				
VEGA(B)	155.8789	125.9212				
ALDEBARAN(R)	71.7340	71.8985				
RIGEL(B)	170.3869	251.7399				
GAMMA CRUC IS(R)	143.9169	255.3021				
SPICA(B)	51.1456	244.4361				
ACHERNAR(B)	42.9071	179.0768				
DENEK(B)	91.1717	300.2558				
PRCCYCN(B)	92.4443	59.8877				
	127.6994	203.5054				

STAR DELAY: 2.6701 SEC 683.5524 PULSES DECIMAL = 10. COARSE + 44. FINE  
 73.7820 DEG 12 54 PULSES OCTAL CKAH SUB C = 145.3554 EPSILON= 9.0899 SCN=10

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PN 10 PASS 3885 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -128.7 FILE 10-1202 CJ  
 SPACECRAFT ATTITUDE CN DAY 284 CCT 11,1982 1430 GMT

10/12/82

RCLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SCUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5808 RCSPHAK = 162.4750

SPACECRAFT-EARTH DIRECTION: CLAT = -3.2053 CLON = 246.8619

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.6485 CLON = 246.4860

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PN 10 PASS 3885 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -128.7 FILE 10-1202 CJ  
 SPACECRAFT ATTITUDE ON DAY 284 OCT 11,1982 1430 GMT  
 SPIN PERIOD = 13.029170 SEC RTLT = 7 HR 41 MIN 25.19 SEC

10/12/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-3.6485	246.4860	-	-
EARTH	1.2636	155.8480	-3.1307	245.3313	0.42485053D 10	28.3990996
JUPITER	0.5808	49.7314	-3.2053	246.8619	0.41499056D 10	27.7400107
SIRIUS(B)	66.5365	178.4140	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	124.8641	235.3716				
CANOPIUS(B)	150.7320	222.8261				
ARCTURUS(R)	97.5010	261.2320				
RIGIL KENTAURUS	53.2300	136.5829				
ANTARES(R)	39.4830	261.5005				
CAPELLA(R)	3.0472	342.3643				
VEGA(B)	155.9120	125.7774				
ALDEBARAN(R)	71.6998	71.9250				
RIGEL(B)	170.4211	252.1341				
GAMMA CRUCIS(R)	143.9471	255.3998				
SPICA(B)	51.1881	244.3918				
ACHERNAR(B)	42.9801	179.0957				
DENEK(B)	91.1452	300.2619				
PROCYON(B)	92.3971	59.8900				
	127.7713	203.5241				

STAR DELAY: 2.6698 SEC 683.4745 PULSES DECIMAL = 10. COARSE + 43. FINE  
 73.7680 DEG 12 53 PULSES OCTAL CKAH SUB C = 146.8746 EPSILON= 8.9734 SCN=10

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PN 10 PASS 3894 PR23 #0/0 S/W SK.0 DSS 14A RCVR AGC -128.7 FILE 10-1203 TS 10/22/82

SPACECRAFT ATTITUDE ON DAY 293 OCT 20,1982 1330 GMT

RCLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SCUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4702 RCSPFAK = 181.2900

SPACECRAFT-EARTH DIRECTION: CLAT = -3.2173 CLON = 246.6696

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.6516 CLON = 246.4893

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PN 10 PASS 3894 PR23 #0/0 S/W SK.0 DSS 14A RCVR AGC -128.7 FILE 10-1203 TS 10/22/82

SPACECRAFT ATTITUDE ON DAY 293 OCT 20,1982 1330 GMT

SPIN PERIOD = 13.030750 SEC RTLT = 7 HR 40 MIN 47.30 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.6516	246.4893	-	-
SUN	1.2313	154.9984	-3.1306	245.3717	0.42587509D 10	28.4675862
EARTH	0.4702	67.4921	-3.2173	246.6696	0.41442267D 10	27.7020501
JUPITER	66.5399	178.4129	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.8634	235.3750				
BETELGEUSE(R)	150.7323	222.8345				
CANOPUS(B)	97.4984	261.2327				
ARCTURUS(R)	53.2346	136.5831				
RIGIL KENTAURUS	39.4803	261.4961				
ANTARES(R)	3.0431	342.4023				
CAPELLA(R)	155.9165	125.7757				
VEGA(B)	71.7018	71.9266				
ALDEBARAN(R)	170.4191	252.1589				
RIGEL(B)	143.9449	255.4056				
GAMMA CRUCIS(R)	51.1867	244.3885				
SPICA(B)	42.9835	179.0926				
ACHERNAR(B)	91.1408	300.2621				
DENEK(B)	52.3982	59.8900				
PROCYON(B)	127.7731	203.5276				

STAR DELAY: 2.6701 SEC 683.5508 PULSES DECIMAL = 10. COARSE + 44. FINE  
73.7673 DEG 12 54 PULSES OCTAL CKAH SUB C = 145.9238 EPSILCN= 9.0746 SCN=10

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PN 10 PASS 3901 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -128.7 FILE 10-1204 AG  
 SPACECRAFT ATTITUDE ON DAY 300 OCT 27,1982 1530 GMT

10/27/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR PCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPUS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4236 PCSPHAK = 206.6200

SPACECRAFT-EARTH DIRECTION: CLAT = -3.2252 CLON = 246.4941

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.6484 CLON = 246.5127

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PN 10 PASS 3901 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -128.7 FILE 10-1204 AG  
 SPACECRAFT ATTITUDE ON DAY 300 OCT 27,1982 1530 GMT  
 SPIN PERIOD = 13.021950 SEC PULS = 7 HR 40 MIN 30.37 SEC

10/27/82

	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-	-
SUN	1.2232	154.9806	0.426685360 10	28.5217487
EARTH	0.4236	92.6454	0.414168940 10	27.6850896
JUPITER	66.5641	178.4161	0.00000000	0.0000000
SIRIUS (S)	124.8799	235.3882		
PETELGEUSE (R)	150.7524	222.8614		
CANGRUS (R)	57.5252	261.2372		
ARCTURIUS (P)	53.2501	136.5989		
RIGIL KENTAURIUS	39.4871	261.4690		
ANTARES (R)	3.0209	342.2062		
CAPELLA (R)	155.9281	125.7289		
VEGA (B)	71.6912	71.9354		
ALDEBARAN (R)	170.4296	252.2919		
RIGEL (B)	143.9541	255.4383		
GAMMA CRUCIS (R)	51.2001	244.3735		
SPICA (B)	43.0077	179.0980		
ACHERNAR (B)	91.1313	200.2641		
DENEK (B)	92.3832	59.8908		
PROCYON (B)	127.7967	203.5344		

STAR DELAY: 2.6702 SEC 683.5654 PULSFS DECIMAL = 10. COARSE + 44. FINE  
 73.7627 DEG 12 54 PULSFS OCTAL CKAH SUB C = 145.8804 EPSILON = 5.1002 SCN = 10

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PN 10 PASS 3907 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -128.7 FILE 10-1205 TS  
 SPACECRAFT ATTITUDE ON DAY 306 NOV 2,1982 1330 GMT

11/05/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR PCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4567 RCSPHAK = 235.9200

SPACECRAFT=EARTH DIRECTION: CLAT = -3.2308 CLON = 246.3345

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.6069 CLON = 246.5941

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PN 10 PASS 3907 PR23 #0/0 S/W SK.0 DSS 43A RCVR AGC -128.7 FILE 10-1205 TS  
 SPACECRAFT ATTITUDE ON DAY 306 NOV 2,1982 1330 GMT  
 SPIN PERIOD = 13.032950 SEC RTLT = 7 HR 40 MIN 26.02 SEC

11/05/82

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-3.6069	246.5941	-	-
EARTH	1.2558	157.7352	-3.1303	245.4302	0.427361520 10	28.5669465
JUPITER	0.4567	124.5751	-3.2308	246.3345	0.414103740 10	27.6807313
STRIOUS(B)	66.6432	178.4401	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	124.9596	235.4240				
CANOPIUS(B)	150.8394	222.9097				
ARCTURIUS(R)	97.5585	261.2521				
RIGIL KENTAURIUS	53.2799	136.6676				
ANTARES(R)	39.5402	261.3855				
CAPELLA(R)	2.9579	340.9713				
VEGA(B)	155.9411	125.5338				
ALDEBARAN(R)	71.6268	71.9615				
RIGEL(B)	170.4934	252.6778				
GAMMA CRUCIS(R)	144.0144	255.5359				
SPICA(B)	51.2723	244.3350				
ACHERNAR(B)	43.0872	179.1489				
DENEK(B)	91.1268	300.2710				
PROCYON(B)	92.3070	59.8938				
	127.8868	203.5348				

STAR DELAY: 2.6699 SEC 683.4866 PULSES DECIMAL = 10. COARSE + 43. FINE  
 73.7479 DEG 12 53 PULSES OCTAL CKAH SUB C = 148.7375 EPSILON= 8.9977 SCN=10

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PN 10 PASS 3912 PR23 #0/0 S/W SK.0 DSS 14A RCVR AGC -144.5 FILE 10-1206 CM  
SPACECRAFT ATTITUDE ON DAY 311 NOV 7,1982 1200 GMT

11/15/82

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5095 RCSPHAK = 251.9900

SPACECRAFT-EARTH DIRECTION: CLAT = -3.2345 CLON = 246.1935

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.5342 CLON = 246.6063

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PN 10 PASS 3912 PR23 #0/0 S/W SK.0 DSS 14A RCVR AGC -144.5 FILE 10-1206 CM  
SPACECRAFT ATTITUDE ON DAY 311 NOV 7,1982 1200 GMT

11/15/82

SPIN PERIOD = 13.033680 SEC RTLT = 7 HR 40 MIN 29.64 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.5342	246.6063	-	-
SUN	1.2208	160.7130	-3.1303	245.4523	0.42792624D 10	28.6046952
EARTH	0.5095	143.9891	-3.2345	246.1935	0.41415798D 10	27.6843570
JUPITER	66.6534	178.4724	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	125.0264	235.4029				
BETELGEUSE(R)	150.8978	222.8298				
CANOPUS(B)	97.6322	261.2530				
ARCTURUS(R)	53.2389	136.7141				
RIGIL KENTAURUS	39.6138	261.3848				
ANTAPES(R)	2.9709	339.5714				
CAPELLA(R)	155.8890	125.4179				
VEGA(B)	71.5539	71.9587				
12 ALDEBARAN(R)	170.5664	252.6185				
11 RIGEL (R)	144.0879	255.5280				
10 GAMMA CRUCIS(R)	51.3431	244.3522				
9 SPICA(B)	43.0985	179.2275				
8 ACHERNAR(B)	91.1834	300.2727				
7 DENEK(B)	92.2380	59.8956				
6 PROCYON(B)	127.9270	203.4875				

STAR DELAY: 2.6700 SEC 683.5166 PULSES DECIMAL = 10. COARSE + 44. FINE  
73.7470 DEG 12 54 PULSES OCTAL CKAH SUB C = 151.6054 EPSILON= 9.1076 SCN=10

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PN 10 PASS 3912 PR23 #3/5 S/W SK.0 DSS 43A RCVR AGC -125.6 FILE 10-1207 PS 11/15/82  
 SPACECRAFT ATTITUDE ON DAY 312 NOV 7,1982 1600 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5480 RCSPHAK = 209.9300  
 SPACECRAFT-EARTH DIRECTION: CLAT = -3.2353 CLON = 246.1594  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.7547 CLON = 245.9841

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PN 10 PASS 3912 PR23 #3/5 S/W SK.0 DSS 43A RCVR AGC -125.6 FILE 10-1207 PS 11/15/82  
 SPACECRAFT ATTITUDE ON DAY 312 NOV 7,1982 1600 GMT  
 SPIN PERIOD = 13.032830 SEC RTLT = 7 HR 40 MIN 31.49 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.7547	245.9841	-	-
SUN	0.8163	130.1105	-3.1302	245.4575	0.42805953D 10	28.6136049
EARTH	0.5480	71.3812	-3.2353	246.1594	0.41418572D 10	27.6862112
JUPITER	66.0389	178.3287	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	124.4913	235.0965				
BETELGEUSE(R)	150.2914	222.3328				
CANOPUS(B)	97.3193	261.1373				
ARCTURUS(R)	52.9405	136.2333				
RIGIL KENTAURUS	39.3062	262.0531				
ANTARES(R)	3.5014	346.4721				
CAPELLA(R)	155.7012	126.7835				
VEGA(B)	71.9568	71.7472				
ALDEBARAN(R)	170.1563	249.5409				
RIGEL(B)	143.7155	254.7429				
GAMMA CRUCIS(R)	50.8769	244.6882				
SPICA(B)	42.4812	178.9391				
ACHERNAR(B)	91.3057	300.2191				
DENE(B)	92.7402	59.8746				
PROCYON(B)	127.2697	203.4134				

STAR DELAY: 2.6740 SEC 684.5437 PULSES DECIMAL = 10. COARSE + 45. FINE  
 73.8627 DEG 12 55 PULSES OCTAL CKAH SUB C = 119.5968 EPSILON=10.5137 SCN=10

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PN 10 PASS 3922 PP23 #0/0 S/W SK.0 DSS 14 RCVR AGC -131.6 FILE 10-1208 PD 11/17/82  
 SPACECRAFT ATTITUDE ON DAY 321 NOV 17,1982 0400 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5557 RCSPHAK = 247.0800  
 SPACECRAFT-EARTH DIRECTION: CLAT = -3.2395 CLON = 245.9025  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -3.7472 CLON = 245.1289

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PN 10 PASS 3922 PR23 #0/0 S/W SK.0 DSS 14 RCVR AGC -131.6 FILE 10-1208 PD 11/17/82  
 SPACECRAFT ATTITUDE ON DAY 321 NOV 17,1982 0400 GMT  
 SPIN PERIOD = 13.034420 SEC RTLT = 7 HR 40 MIN 57.05 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-3.7472	246.1289	-	-
SUN	0.9936	135.7211	-3.1301	245.4953	0.429031160 10	28.6785535
EARTH	0.5557	114.0019	-3.2395	245.9025	0.414568770 10	27.7118162
JUPITER	66.1831	178.3434	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(R)	124.5800	235.1846				
BETELGEUSE(R)	150.4031	222.5037				
CANOPUS(B)	97.3489	261.1650				
ARCTURIUS(R)	53.0398	136.3221				
RIGIL KENTAURIUS	39.3338	261.8892				
ANTARES(R)	3.3629	345.7834				
CAPELLA(R)	155.7815	126.5259				
VEGA(B)	71.9046	71.8007				
ALDERARAN(R)	170.2129	250.3199				
RIGEL(B)	143.7605	254.9398				
GAMMA CRUCIS(R)	50.9455	244.5943				
SPICA(B)	42.6255	178.9596				
ACHERNAR(B)	91.2394	300.2314				
DENE(B)	92.6613	59.8784				
PROCYON(B)	127.4052	203.4615				

STAR DELAY: 2.6733 SEC 684.3705 PULSES DECIMAL = 10. COARSE + 44. FINE  
 73.8350 DEG 12 54 PULSES OCTAL CKAH SUB C = 125.4595 FPSTION=10.2615 SCN=10

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PN 11 PASS2470 PR14 #0/0 S/WSJ,3 DSS63A RCVR AGC =161.1 FILE 11-1205 TS 01/03/80  
 SPACECRAFT ATTITUDE ON DAY 3 JAN 3,1980 0600 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.8919 RCSPHAK = 166.4100

SPACECRAFT-EARTH DIRECTION: CLAT = -4.2695 CLON = 359.7712

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -5.0942 CLON = 359.4304

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PN 11 PASS2470 PR14 #0/0 S/WSJ,3 DSS63A RCVR AGC =161.1 FILE 11-1205 TS 01/03/80  
 SPACECRAFT ATTITUDE ON DAY 3 JAN 3,1980 0600 GMT  
 SPIN PERIOD = 7.644164 SEC RTLT = 2 HR 31 MIN 43.89 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-5.0942	359.4304	-	-
SUN	5.6590	170.7547	-4.1623	353.8303	0.139961770 10	9.3557333
EARTH	0.8919	67.6015	-4.2695	359.7712	0.130463860 10	9.1219158
JUPITER	174.8741	263.6114	0.0000	180.0000	0.000000000	0.0000000
SATURN	89.0020	326.6478	-33.3036	91.5877	0.909196230 08	0.6077515
SIRIUS(B)	97.6358	318.8813				
BETELGEUSE(R)	87.5996	344.1121				
CANOPUS(B)	88.7241	283.6722				
ARCTURUS(R)	145.5559	128.9501				
RIGIL KENTAURUS	108.0389	228.0340				
ANTARES(R)	109.4526	186.6762				
CAPELLA(R)	84.7088	23.5788				
VEGA(B)	87.2482	117.1821				
ALDEBARAN(R)	69.6559	356.0433				
RIGEL(B)	76.2793	329.1725				
GAMMA CRUCIS(R)	117.9450	242.8189				
SPICA(B)	154.9359	195.9918				
ACHERNAR(B)	55.4135	261.0944				
DENEK(B)	67.8044	102.9571				
PROCYON(B)	113.2749	340.1315				

STAR DELAY: 1.0899 SEC 279.0104 PULSES DECIMAL = -4. COARSE + 23. FINE  
 51.3278 DEG 04 27 PULSES OCTAL CKAH SUB C = 170.7547 EPSILON = 0.0000 SCHEM

FIMMEL

PN 11 PASS2475 PRI4 #0/0 S/WSJ3 DSS63A RCVR AGC =133,2 FILE 11-~~1007~~<sup>1206</sup> RC 01/09/80  
SPACECRAFT ATTITUDE ON DAY 8 JAN 8, 1980 0630 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,8565 RCSPHAK = 150,6100

SPACECRAFT-EARTH DIRECTION: CLAT = -4,4215 CLON = 359,9771

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -5,0994 CLON = 359,4519

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PN 11 PASS2475 PRI4 #0/0 S/WSJ3 DSS63A RCVR AGC =133,2 FILE 11-1007 RC 01/09/80  
SPACECRAFT ATTITUDE ON DAY 8 JAN 8, 1980 0630 GMT  
SPIN PERIOD = 7,644164 SEC KTLT = 2 HR 30 MIN 9,65 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-5,0994	359,4519		
SUN	5,3141	171,1872	-4,2650	354,1801	0,139985080 10	9,3572914
EARTH	0,8565	52,3038	-4,4215	359,9771	0,135051260 10	9,0274900
JUPITER	174,8713	263,8565	0,0000	180,0000	0,000000000	0,0000000
SATURN	89,0110	326,8480	-33,1033	91,6006	0,952778350 08	0,6368839
SIRIUS(B)	97,6163	318,8845				
BETELGEUSE(R)	87,5776	344,1140				
CANOPUS(B)	88,7140	283,6736				
ARCTURUS(R)	145,5734	128,9325				
RIGIL KENTAURUS	108,0493	228,0422				
ANTARES(R)	109,4733	186,6808				
CAPELLA(R)	84,6913	23,5819				
VEGA(B)	87,2626	117,1848				
ALDEBARAN(R)	69,6342	356,0460				
RIGEL(B)	76,2583	329,1728				
GAMMA CRUCIS(R)	117,9501	242,8321				
SPICA(B)	154,9550	196,0170				
ACHERNAR(B)	55,4117	261,0812				
DENEK(B)	67,8142	102,9670				
PROCYON(B)	113,2530	340,1344				

STAR DELAY: 1,0899 SEC 279,0024 PULSES DECIMAL = 4, COARSE + 23, FINE

*Final*

PN 11 PASS2487 PR14 #0/0 S/WSJ,3 DSS63A RCVR AGC -134,9 FILE 11-1207 RM 01/20/80  
SPACECRAFT ATTITUDE ON DAY 19 JAN 19, 1980 0500 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,8410 RCSPHAK = 125,8000

SPACECRAFT-EARTH DIRECTION: CLAT = -4,7010 CLON = 0,1897

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -5,0745 CLON = 359,4335

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PN 11 PASS2487 PR14 #0/0 S/WSJ,3 DSS63A RCVR AGC -134,9 FILE 11-1207 RM 01/20/80  
SPACECRAFT ATTITUDE ON DAY 19 JAN 19, 1980 0500 GMT  
SPIN PERIOD = 7,644042 SEC RTLT = 2 HR 27 MIN 27,26 SEC

	CNA	CKA	CLAT	CLON	R(KM)	H(AU)
S/C +Z AXIS	0,0000	0,0000	-5,0745	359,4335	-	-
SUN	4,6276	172,4524	-4,4510	354,8322	0,14003759D 10	9,3608015
EARTH	0,8410	26,3342	-4,7010	0,1897	0,13261714D 10	8,8647821
JUPITER	174,8941	263,6217	0,0000	180,0000	0,00000000	0,0000000
SATURN	89,0388	326,6471	-33,3016	91,6217	0,10318906D 09	0,6897664
SIRIUS(B)	97,6465	318,8838				
BETELGEUSE(R)	87,6020	344,1116				
CANOPUS(B)	88,7426	283,6723				
ARCTURUS(R)	145,5425	128,9287				
RIGIL KENTAURUS	108,0557	228,0307				
ANTARES(R)	109,4580	186,6696				
CAPELLA(R)	84,6981	23,5775				
VEGA(B)	87,2321	117,1829				
ALDEBARAN(R)	69,6541	356,0362				
RIGEL(B)	76,2867	329,1682				
GAMMA CRUCIS(R)	117,9640	242,8158				
SPICA(B)	154,9443	195,9533				
ACHERNAR(B)	55,4335	261,0947				
DENEK(B)	67,7858	102,9604				
PROCYON(B)	113,2787	340,1402				

*Jim R*

PN 11 PASS2493 PR14 #0/0 S/WSJ.3 DSS14A RCVR AGC -129.6 FILE 11-1208 TS  
SPACECRAFT ATTITUDE ON DAY 25 JAN 25,1980 1030 GMT

01/25,

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPDS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.8230 RCSPHAK = 112.3150

SPACECRAFT-EARTH DIRECTION: CLAT = -4.8864 CLON = 0.2160

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -5.1118 CLON = 359.4215

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PN 11 PASS2493 PR14 #0/0 S/WSJ.3 DSS14A RCVR AGC -129.6 FILE 11-1208 TS  
SPACECRAFT ATTITUDE ON DAY 25 JAN 25,1980 1030 GMT  
SPIN PERIOD = 7.644042 SEC RTLT = 2 HP 25 MIN 48.74 SEC

01/25/80

	CNA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-5.1118	359.4215	-	-
SUN	4.1821	172.7842	-4.5735	355.2593	0.140079520 10	9.3636043
EARTH	0.8230	15.8621	-4.8864	0.2160	0.131140380 10	8.7660682
JUPITER	174.8556	263.5343	0.0000	180.0000	0.00000000	0.0000000
SATURN	89.0389	326.6464	-33.3008	91.6344	0.108415680 09	0.7247037
SIRIUS(B)	97.6310	318.8779				
BETELGEUSE(R)	87.6033	344.1122				
CANOPUS(B)	88.7091	283.6717				
ARCTURUS(R)	145.5640	128.9755				
RIGIL KENTAURUS	108.0199	228.0348				
ANTARES(R)	109.4418	186.6812				
CAPELLA(R)	84.7240	23.5791				
VEGA(B)	87.2598	117.1805				
ALDEBARAN(R)	69.6635	356.0492				
RIGEL(B)	76.2779	329.1765				
GAMMA CRUCIS(R)	117.9253	242.8181				
SPICA(B)	154.9225	196.0219				
ACHERNAR(B)	55.3948	261.0978				
DENE(B)	67.8195	102.9512				
PROCYON(B)	113.2773	340.1223				

STAR DELAY: 1.0899 SEC 279.0087 PULSES DECIMAL = 4. COARSE + 23. FINE  
51.3283 DEG 04 27 PULSES OCTAL CKAH SUB 2 = 172.7842 EPSILON= 0.0000 SCN=11



*Jimnel*

PN 11 PAS 8 PR14 #0/0 S/W SJ.3 DSS11P RCVP AGC 143.3 FILE 11-1209 GN 01/30/80  
SPACECRAFT ATTITUDE ON DAY 300 01 30,1980 1100 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7622 RCSPHAK = 102.7100

SPACECRAFT-EARTH DIRECTION: CLAT = -4.9890 CLON = 0.1933

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -5.0771 CLON = 359.4326

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PN 11 PASS2498 PR14 #0/0 S/W SJ.3 DSS11P RCVP AGC -143.3 FILE 11-1209 GN 01/30/80  
SPACECRAFT ATTITUDE ON DAY 300 01 30,1980 1100 GMT  
SPIN PERIOD = 7.644042 SEC RLTL = 2 HR 24 MIN 57.81 SEC

	GNA	CKA	CLAT	CLON	R (KM)	P (AU)
S/C +Z AXIS	0.0000	0.0000	-5.0771	359.4326	-	-
SUN	3.9461	173.8319	-4.6415	359.4985	0.140105280 10	9.3653262
EARTH	0.7629	6.5964	-4.9890	0.1933	0.130376930 10	8.7150354
JUPITER	174.8914	263.6152	0.0000	180.0000	0.00000000	0.0000000
SATURN	89.0543	326.6467	-33.3004	91.6411	0.111318500 09	0.7441076
SIRIUS (R)	97.6454	318.8834				
PETELGEUSE (R)	87.6021	344.1115				
CANOPUS (R)	88.7402	293.6722				
ARCTURUS (R)	145.5440	128.9320				
RIGIL KENTAURUS	108.0531	228.0310				
ANTARES (R)	109.4569	186.6704				
CAPELLA (R)	84.6999	23.5776				
VEGA (B)	87.2340	117.1827				
ALDEBARAN (R)	69.6548	356.0371				
RIGEL (B)	76.2862	329.1689				
GAMMA CRUCIS (R)	117.9613	242.8160				
SPICA (B)	154.9427	195.9581				
ACHERNAR (B)	55.4309	261.0949				
DENER (B)	67.7832	102.9598				
PROCYON (B)	113.2786	340.1390				

STAR DELAY: 1.0899 SEC 279.0056 PULSES DECIMAL = 4. COURSE + 23. FINE  
51.3278 DEG 04 27 PULSES OCTAL CKAH SUB C = 173.8319 EPSILON = 0.0000 SCN=11

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*Jim*

PN 11 PASS2502 PR14 #070 S/WKSJB DSS63A RCVR AGC -134.9 FILE 11-1210 5M 02/05/90  
SPACECRAFT ATTITUDE ON DAY 35 FEB 4, 1980 0500 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR POSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASDSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7419 RCSPHAK = 91.5690

SPACECRAFT-EARTH DIRECTION: CLAT = -5.1347 CELON = 0.1209

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -5.0878 CELON = 359.3775

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PN 11 PASS2502 PR14 #070 S/WKSJB DSS63A RCVR AGC -134.9 FILE 11-1210 5M 02/05/90  
SPACECRAFT ATTITUDE ON DAY 35 FEB 4, 1980 0500 GMT  
SPIN PERIOD = 7.644042 SEC PULS = 2 HR 23 MIN 50.30 SEC

	ORA	OKA	CLAT	CELON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-5.0373	359.3775	-	-
SUN	3.5459	174.5007	-4.7285	359.8358	0.140145220 10	9.3679960
EARTH	0.7419	356.3405	-5.1347	0.1209	0.129364940 13	8.6473890
JUPITER	174.8744	263.0152	0.0000	189.3000	0.000000000	0.0000000
SATURN	89.1019	326.6423	-33.2993	91.8502	0.115470520 09	0.7718613
SIRIUS (R)	97.6797	218.8725				
RETELGEUSE (R)	87.6520	244.1072				
CANOPUS (R)	88.7428	263.6686				
ARCTURUS (R)	149.8178	128.9092				
SIGIL KENTAURUS	108.0084	228.0151				
ANTARES (R)	109.4011	136.6671				
CAPELLA (R)	84.7545	23.5716				
VEGA (R)	87.2185	117.1753				
ALDEBARAN (R)	66.7089	356.0376				
REGUL (R)	76.3079	329.1730				
GAMMA CRUCIS (R)	117.9266	242.7373				
SPICA (R)	154.8270	195.9430				
ACHERNAR (R)	95.4117	261.1283				
DENERB (R)	67.7263	102.9320				
PROCYON (R)	113.3266	340.1217				

STAR DELAY: 1.0328 SEC 279.0255 PULSES DECIMAL = 4. COURSE # 23. FINE  
01.0017 SEC 06.07 PULSES DECIMAL = 173.0017 POSITION = 0.0000 SEC=11

PN 11 PASS2509 PR14 #0/0 S/WSJ.3 DSS43A RCVR AGC -134.4 FILE 11-1211 GN 02/12/80

SPACECRAFT ATTITUDE ON DAY 42 FEB 11, 1980 1700 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRPS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6425 RCSPHAK = 73.4580

SPACECRAFT-EARTH DIRECTION: CLAT = -5.2969 CLON = 359.9719

SPACECRAFT +7 AXIS ATTITUDE: CLAT = -5.0734 CLON = 359.3671

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PN 11 PASS2509 PR14 #0/0 S/WSJ.3 DSS43A RCVR AGC -134.4 FILE 11-1211 GN 02/12/80

SPACECRAFT ATTITUDE ON DAY 42 FEB 11, 1980 1700 GMT

SPIN PERIOD = 7.644042 SEC RTLT = 2 HR 22 MIN 42.46 SEC

	CNA	CKA	CLAT	CLON	R(KM)	P(AU)
S/C +7 AXIS	0.0000	0.0000	-5.0734	359.3671	-	-
SUN	3.1441	176.0257	-4.8479	356.2193	0.140194710 10	9.3713041
EARTH	0.6425	339.6115	-5.2969	359.9719	0.128348050 10	8.5794151
JUPITER	174.8874	262.8795	0.0000	180.0000	0.00000000	0.0000700
SATURN	89.1267	326.6412	-33.2992	91.6600	0.120161610 09	0.6032193
SIRIUS (R)	97.6970	318.8722				
BETELGEUSE (R)	87.6660	344.1064				
CANOPUS (R)	83.7593	283.6678				
ARCTURUS (R)	145.5001	128.9967				
RIGIL KENTAURUS	103.0122	223.0036				
ANTARES (R)	109.3924	186.6607				
CAPELLA (R)	84.7593	23.5691				
VEGA (R)	87.2009	117.1742				
ALDEBARAN (R)	69.7202	356.0316				
RIGEL (R)	76.3441	329.1704				
GAMMA CRUCIS (R)	117.9347	242.7784				
SPICA (R)	154.8810	195.9063				
ACHERNAR (R)	55.4244	261.1340				
DENEK (R)	67.7699	102.9283				
PROCYON (R)	113.3413	340.1251				

STAR DELAY: 1.0900 SEC 279.0297 PULSES DECIMAL = 4. COARSE + 23. FINE  
51.2322 SEC 21.27 SUNS SEC TOTAL CKM SUB F = 176.2257 1001 ON 0.0000 001 11

FIMMEL

PN 11 PASS2516 PRI4 #070 S/WSJ.3 DSS43A RCVR AGC =131.4 FILE 11-1212 GN 02/19/80  
SPACECRAFT ATTITUDE ON DAY 49 FEB 18, 1980 1700 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180  
AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5656 RCSPHAK = 45.1570  
SPACECRAFT-EARTH DIRECTION: CLAT = -5.4671 CLON = 359.7531  
SPACECRAFT +Z AXIS ATTITUDE: CLAT = -5.0533 CLON = 359.3658

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PN 11 PASS2516 PRI4 #070 S/WSJ.3 DSS43A RCVR AGC =131.4 FILE 11-1212 GN 02/19/80  
SPACECRAFT ATTITUDE ON DAY 49 FEB 18, 1980 1700 GMT  
SPIN PERIOD = 7.644042 SEC RTLT = 2 HR 21 MIN 40.61 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	=5.0533	359.3658	=	=
SUN	2.7248	178.2705	=4.9654	356.6320	0.14025315D 10	9.3752106
EARTH	0.5656	312.9672	=5.4671	359.7531	0.12742091D 10	8.5174405
JUPITER	174.9072	262.8378	0.0000	180.0000	0.00000000	0.0000000
SATURN	89.1471	326.6407	=33.2985	91.6699	0.12521067D 09	0.8369697
SIRIUS(B)	97.7112	318.8740				
BETELGEUSE(R)	87.6726	344.1055				
CANOPUS(B)	88.7791	283.6676				
ARCTURUS(R)	145.4837	128.9797				
RIGIL KENTAURUS	108.0263	228.0038				
ANTARES(R)	109.3935	186.6535				
CAPELLA(R)	84.7514	23.5672				
VEGA(B)	87.1825	117.1745				
ALDEBARAN(R)	69.7228	356.0241				
RIGEL(B)	76.3555	329.1663				
GAMMA CRUCIS(R)	117.9520	242.7729				
SPICA(B)	154.8853	195.8644				
ACHERNAR(B)	55.4440	261.1368				
DENEK(B)	67.7501	102.9295				
PROCYON(B)	113.3493	340.1330				

STAR DELAY: 1.0900 SEC 279.0307 PULSES DECIMAL = 4. COARSE + 23. FINE  
51.3324 DEG 04 27 PULSES OCTAL CKAH SUB C = 178.2705 EPSILON = 0.0000 SCN = 11

N 11 PASS 2524 PR14 4070 S/WSJ3 DSS11A RCVR AGC 141.1 FILE 11-1213 RAC  
 SPACECRAFT ATTITUDE ON DAY 57 FEB 26, 1980 1000 GMT

02/26,

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ELLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6493 RCSPHAK = 4.4727

SPACECRAFT-EARTH DIRECTIONS: CLAT = -5.6702 CLON = 359.4058

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -5.0252 CLON = 359.3300

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N 11 PASS 2524 PR14 4070 S/WSJ3 DSS11A RCVR AGC -141.1 FILE 11-1213 RAC  
 SPACECRAFT ATTITUDE ON DAY 57 FEB 26, 1980 1000 GMT  
 SPIN PERIOD = 7.644040 SEC RTLT = 2 HR 20 MIN 41.57 SEC

02/26/80

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-5.0252	359.3300	-	-
EARTH	2,1780	182,3530	-5.1110	357,1451	0,140333290 10	9,3805675
JUPITER	0,6493	276,6661	-5,6702	359,4058	0,126535990 10	8,4582881
SATURN	174,9304	262,3961	0,0000	180,0000	0,000000000	0,0000000
SIRIUS(B)	89,2021	326,8373	-33,2977	91,6816	0,131487700 09	0,8789285
BETELGEUSE(R)	97,7565	318,8706				
CANOPUS(B)	87,7146	344,1017				
ARCTURUS(R)	88,8148	283,6651				
RIGIL KENTAURUS	145,4394	128,9911				
ANTARES(R)	108,0233	227,9859				
CAPELLA(R)	109,3614	186,6391				
VEGA(B)	84,7729	23,5604				
ALDEBARAN(R)	87,1412	117,1704				
HTGEL(B)	69,7604	356,0116				
GAMMA CRUCIS(R)	76,4005	329,1617				
SPICA(B)	117,9606	242,7461				
ACHERNAR(B)	154,8586	195,7829				
DENEK(B)	55,4663	261,1609				
PROCYON(B)	67,7147	102,9147				
	113,3924	340,1360				

STAR DELAY: 1.0900 SEC 279.0445 PULSES DECIMAL = 4, COARSE + 23, FINE  
 51,3349 DEG 04 27 PULSES OCTAL CKAH SUB C = 182,3530 EPSILON = 0,0000 SCN=11

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PN 11 PASS2531 PRI4 #070 S/WSJ.3 DSS43A RCVR JC =131.4 FILE 11-1214 GN 04/80  
 SPACECRAFT ATTITUDE ON DAY 64 MAR 4,1980 1700 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.8163 RCSPHAK = 334.9780  
 SPACECRAFT-EARTH DIRECTION: CLAT = -5.8310 CLON = 359.0664  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -5.0626 CLON = 359.3431

PRE-PRECESSION

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PN 11 PASS2531 PRI4 #070 S/WSJ.3 DSS43A RCVR AGC =131.4 FILE 11-1214 GN 03/04/80  
 SPACECRAFT ATTITUDE ON DAY 64 MAR 4,1980 1700 GMT  
 SPIN PERIOD = 7.644042 SEC RTLT = 2 HR 20 MIN 8.41 SEC

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	=5.0626	359.3431	=	=
EARTH	1.7697	185.5860	=5.2324	357.5745	0.14040673D 10	9.3854766
JUPITER	0.8163	250.2878	=5.8310	359.0664	0.12603886D 10	8.4250575
SATURN	174.8951	262.5974	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	89.1783	326.6387	=33.2971	91.6908	0.13673991D 09	0.9140368
BETELGEUSE(R)	97.7221	318.8691				
CANOPUS(B)	87.6919	344.1041				
ARCTURUS(R)	88.7754	283.6661				
RIGIL KENTAURUS	145.4767	129.0117				
ANTARES(R)	108.0043	227.9983				
CAPELLA(R)	109.3700	186.6538				
VEGA(B)	84.7758	23.5652				
ALDEBARAN(R)	87.1804	117.1713				
RIGEL(B)	69.7448	356.0261				
GAMMA CRUCIS(R)	76.3701	329.1690				
SPICA(B)	117.9334	242.7625				
ACHERNAR(B)	154.8610	195.8682				
DENEK(B)	55.4313	261.1492				
PROCYON(B)	67.7541	102.9177				
	113.3674	340.1239				

STAR DELAY: 1.0900 SEC 279.0388 PULSES DECIMAL = 4, COARSE + 23, FINE  
 51.3339 DEG 04 27 PULSES OCTAL CKAH SUB C = 185.5860 EPSILON = 0.0000 SCN = 1

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PN 11 PASS2531 PRI4 #578 S/W9J3 DSS43A RCVR AGC =133.2 FILE 11=1215 RM  
 SPACECRAFT ATTITUDE ON DAY 64 MAR 4,1980 2000 GMT

03/04/80

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7074 RCSPHAK = 176.3900  
 SPACECRAFT-EARTH DIRECTION: CLAT = -5.8336 CLON = 359.0603  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -6.2730 CLON = 358.5027

NEW ATTITUDE  
 POST-PRECESSION

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PN 11 PASS2531 PRI4 #578 S/W9J3 DSS43A RCVR AGC =133.2 FILE 11=1215 RM  
 SPACECRAFT ATTITUDE ON DAY 64 MAR 4,1980 2000 GMT  
 SPIN PERIOD = 7.639281 SEC RTLT = 2 HR 20 MIN 7.96 SEC

03/04/80

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-6.2730	358.5027		
SUN	1.3849	131.4701	-5.2345	357.5818	0.14040802D 10	9.3855628
EARTH	0.7074	38.3631	-5.8336	359.0603	0.12603220D 10	8.4246123
JUPITER	173.5515	256.5467	0.0000	180.0000	0.00000000	0.0000000
SATURN	89.2106	326.5764	-33.2971	91.6909	0.13682990D 09	0.9146384
SIRIUS(B)	97.5523	318.5901				
BETELGEUSE(R)	88.1643	344.0715				
CANOPUS(B)	87.7964	283.6160				
ARCTURUS(R)	145.8662	131.0065				
RIGIL KENTAURUS	106.5452	227.9740				
ANTARES(R)	108.3962	186.9480				
CAPELLA(R)	86.0262	23.5445				
VEGA(B)	87.8769	117.0323				
ALDEBARAN(R)	70.4993	356.3998				
RIGEL(B)	76.4714	329.4405				
GAMMA CRUCIS(R)	116.4741	242.5832				
SPICA(B)	153.7107	197.6904				
ACHERNAR(B)	54.1088	261.5214				
DENEK(B)	68.7518	102.4033				
PROCYON(B)	113.7336	339.4198				

STAR DELAY: 1.0904 SEC 279.1374 PULSES DECIMAL = 4. COARSE + 23. FINE  
 51.3840 DEG 04 27 PULSES OCTAL CKAH SUB C = 131.4701 EPSILON = 0.0000 SCH#11

Fimmel

PN 11 PASS2536 PRI4 #070 S/WSJ,3 DSS12A RCVR AGC =138.1 FILE 11=1216 PD 03/10/80  
SPACECRAFT ATTITUDE ON DAY 69 MAR 9,1980 1300 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180  
AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4852 RCSPHAK = 189.4100  
SPACECRAFT-EARTH DIRECTION: CLAT = =5.9321 CLON = 358.8244  
SPACECRAFT +Z AXIS ATTITUDE: CLAT = =6.2614 CLON = 358.4660

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PN 11 PASS2536 PRI4 #070 S/WSJ,3 DSS12A RCVR AGC =138.1 FILE 11=1216 PD 03/10/80  
SPACECRAFT ATTITUDE ON DAY 69 MAR 9,1980 1300 GMT  
SPIN PERIOD = 7.639281 SEC RTLT = 2 HR 19 MIN 54.95 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	=6.2614	358.4660		
SUN	1.1247	122.5141	=5.3127	357.8589	0.140458570 10	9.3889418
EARTH	0.4852	42.7194	=5.9321	358.8244	0.125837110 10	8.4115715
JUPITER	173.5541	256.2044	0.0000	180.0000	0.000000000	0.0000000
SATURN	89.2522	326.5723	-33.2967	91.6966	0.140219530 09	0.9372963
SIRIUS(B)	97.5873	318.5840				
BETELGEUSE(R)	88.2026	344.0675				
CANOPUS(B)	87.8162	283.6132				
ARCTURUS(R)	145.8335	131.0319				
RIGIL KENTAURUS	106.5294	227.9597				
ANTARES(R)	108.3613	186.9387				
CAPELLA(R)	86.0551	23.5388				
VEGA(B)	87.8500	117.0273				
ALDEBARAN(R)	70.5365	356.3925				
RIGEL(B)	76.5088	329.4386				
GAMMA CRUCIS(R)	116.4676	242.5604				
SPICA(B)	153.6794	197.6417				
ACHERNAR(B)	54.1148	261.5447				
DENEK(B)	68.7326	102.3864				
PROCYON(B)	113.7719	339.4149				

STAR DELAY: 1.0904 SEC 279.1523 PULSES DECIMAL = 4, COARSE + 23, FINE  
91.3868 DEG ON 27 PULSES TOTAL



PN 11 PASS2539 PR14 #0/0 S/WSJ,3 DSS43 RC AGC =142,5 FILE 11=1217 RM  
 SPACECRAFT ATTITUDE ON DAY 72 MAR 12,1980 0330 GMT

03/12/80

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTIPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,3160 RCSPHAK = 207,5100  
 SPACECRAFT-EARTH DIRECTION: CLAT = -5,9847 CLON = 358,6901  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -6,2516 CLON = 358,5200

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 PN 11 PASS2539 PR14 #0/0 S/WSJ,3 DSS43 RCVR AGC =142,5 FILE 11=1217 RM 03/12/80  
 SPACECRAFT ATTITUDE ON DAY 72 MAR 12,1980 0330 GMT  
 SPIN PERIOD = 7,639281 SEC RTLT = 2 HR 19 MIN 50,55 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-6,2516	358,5200	"	"
SUN	1,0285	119,4554	-5,3558	358,0120	0,140487540 10	9,5908781
EARTH	0,3160	57,6220	-5,9847	358,6901	0,125771220 10	8,4071671
JUPITER	173,5763	256,6527	0,0000	180,0000	0,000000000	0,0000000
SATURN	89,2153	326,5776	-33,2965	91,6996	0,142093700 09	0,9498246
SIRIUS(B)	97,5535	318,5956				
BETELGEUSE(R)	88,1537	344,0726				
CANOPUS(B)	87,8131	283,6170				
ARCTURUS(R)	145,8613	130,9686				
RIGIL KENTAURUS	106,5726	227,9754				
ANTARES(R)	108,4158	186,9436				
CAPELLA(R)	86,0019	23,5455				
VEGA(B)	87,8657	117,0352				
ALDEBARAN(R)	70,4836	356,3937				
RIGEL(B)	76,4675	329,4359				
GAMMA CRUCIS(R)	116,5010	242,5877				
SPICA(B)	153,7335	197,6616				
ACHERNAR(B)	54,1324	261,5132				
DENEK(B)	68,7346	102,4135				
PROCYON(B)	113,7251	339,4331				

STAR DELAY: 1,0904 SEC 279,1317 PULSES DECIMAL = 4, COARSE + 23, FINE  
 51,3830 DEG 04 27 PULSES OCTAL CKAH SUB C = 119,4554 EPSILON = 0,0000 SCN = 1

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PN 11 PASS2545 PR14 #0/0 S/W SJ.3 DSS11A RCVR AGC -139.7 FILE 11-1218A RC  
 SPACECRAFT ATTITUDE ON DAY 78 MAR 18, 1980 0830 GMT

03/19/80

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRKS = 180 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,3040 RCSPHAK = 288,5900  
 SPACECRAFT-EARTH DIRECTION: CLAT = -6,0855 CLON = 358,4172  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -6,3346 CLON = 358,5925

REVISED

REPLACES FILE NO. 1218

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PN 11 PASS2545 PR14 #0/0 S/W SJ.3 DSS11A RCVR AGC -139.7 FILE 11-1218 RC  
 SPACECRAFT ATTITUDE ON DAY 78 MAR 18, 1980 0830 GMT  
 SPIN PERIOD = 7,639200 SEC RTLT = 2 HR 19 MIN 47,94 SEC

03/19/80

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-6,3346	358,5925		
SUN	0,9334	107,0080	-5,4420	358,3182	0,14054769D 10	9,3948991
EARTH	0,3040	124,9826	-6,0855	358,4172	0,12573209D 10	8,4045515
JUPITER	173,5115	257,4455	0,0000	180,0000	0,00000000	0,0000000
SATURN	89,1144	326,5858	-33,2961	91,7056	0,14584073D 09	0,9748712
SIRIUS(B)	97,4446	318,6016				
BETELGEUSE(R)	88,0616	344,0825				
CANOPUS(B)	87,7154	283,6230				
ARCTURUS(R)	145,9712	130,9766				
RIGIL KENTAURUS	106,5591	228,0158				
ANTARES(R)	108,4773	186,9819				
CAPELLA(R)	85,9691	23,5609				
VEGA(B)	87,9724	117,0441				
ALDEBARAN(R)	70,4064	356,4295				
RIGEL(B)	76,3633	329,4523				
GAMMA CRUCIS(R)	116,4604	242,6466				
SPICA(B)	153,7768	197,8745				
ACHEKNAR(B)	54,0610	261,4607				
DENEK(B)	68,8312	102,4418				
PROCYON(B)	113,6284	339,4181				

STAR DELAY: 1,0902 SEC 279,0962 PULSES DECIMAL = 4, COARSE + 23, FINE  
 54,3770 DEC

PN 11 PASS2552 PRI4 #0/0 S/WSJ,3 DSS43A RCVR AGC =131.4 FILE 11-1219 GN 03/27/80  
 SPACECRAFT ATTITUDE ON DAY 85 MAR 25,1980 1400 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,6004 RCSPHAK = 355,3790  
 SPACECRAFT-EARTH DIRECTION: CLAT = -6,2324 CLON = 357,9866  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -5,6320 CLON = 357,9856

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PN 11 PASS2552 PRI4 #0/0 S/WSJ,3 DSS43A RCVR AGC =131.4 FILE 11-1219 GN 03/27/80  
 SPACECRAFT ATTITUDE ON DAY 85 MAR 25,1980 1400 GMT  
 SPIN PERIOD = 7,639281 SEC RTLT = 2 HR 20 MIN 0,46 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-5,6320	357,9856	-	-
SUN	0,8140	3,7940	-5,5776	358,8016	0,140648690 10	9,4016504
EARTH	0,6003	270,1002	-6,2324	357,9866	0,125919730 10	8,4170943
JUPITER	174,0196	250,2823	0,0000	180,0000	0,000000000	0,0000000
SATURN	90,0129	326,5203	-33,2954	91,7145	0,151757440 09	1,0144214
SIRIUS(B)	98,3621	318,5560				
BETELGEUSE(R)	88,8351	344,0055				
CANOPUS(B)	88,5403	283,5735				
ARCTURUS(R)	145,0449	130,9069				
RIGIL KENTAURUS	106,6749	227,6783				
ANTARES(R)	107,9614	186,6654				
CAPELLA(R)	86,2425	23,4373				
VEGA(B)	87,0723	116,9713				
ALDEBARAN(R)	71,0544	356,1348				
RIGEL(B)	77,2405	329,3193				
GAMMA CRUCIS(R)	116,8034	242,1518				
SPICA(B)	153,4047	196,1029				
ACHERNAR(B)	54,6689	261,8985				
DENEK(B)	68,0159	102,2047				
PROCYON(B)	114,4400	339,5539				

STAR DELAY: 1,0913 SEC 279,3680 PULSES DECIMAL = 4, COARSE + 23, FINE  
 51,4265 DEG 04 27 PULSES OCTAL CKAH SUB C = 3,7940 EPSILON= 0,0000 SCN#1

R.O. Fimmel

PN 11 PASS2552 PRI4 #0/0 S/W SJ,3 DSS43A RCVR AGC =131,4 FILE 11-1219A GN  
SPACECRAFT ATTITUDE ON DAY 85 MAR 25,1980 1400 GMT

03/27/80

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD NORTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,6004 RCSPHAK = 355,3790  
SPACECRAFT-EARTH DIRECTION: CLAT = -6,2324 CLON = 357,9866  
SPACECRAFT +Z AXIS ATTITUDE: CLAT = -6,4364 CLON = 358,5547

REVISED

REPLACES FILE NO. 11-1219

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PN 11 PASS2552 PRI4 #0/0 S/W SJ,3 DSS43A RCVR AGC =131,4 FILE 11-1219 GN  
SPACECRAFT ATTITUDE ON DAY 85 MAR 25,1980 1400 GMT  
SPIN PERIOD = 7,639281 SEC RTLT = 2 HR 20 MIN 0,46 SEC

03/27/80

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-6,4364	358,5547	-	-
SUN	0,8932	74,0288	-5,5776	358,8016	0,140648690 10	9,4016504
EARTH	0,6004	160,1630	-6,2324	357,9866	0,125919730 10	8,4170943
JUPITER	173,4040	257,3157	0,0000	180,0000	0,000000000	0,0000000
SATURN	89,0972	326,5830	-33,2954	91,7145	0,151757440 09	1,0144214
SIRIUS(B)	97,4054	318,5842				
BETELGEUSE(R)	88,0698	344,0820				
CANOPUS(B)	87,6254	283,6213				
ARCTURUS(R)	146,0233	131,1135				
RIGIL KENTAURUS	106,4583	228,0235				
ANTARES(R)	108,4276	187,0099				
CAPELLA(R)	86,0442	23,5621				
VEGA(B)	88,0459	117,0371				
ALDEBARAN(R)	70,4376	356,4623				
RIGEL(B)	76,3439	329,4740				
GAMMA CRUCIS(R)	116,3528	242,6490				
SPICA(B)	153,7097	198,0431				
ACHERNAR(B)	53,9548	261,4725				
DENEK(B)	68,9225	102,4150				
PROCYON(B)	113,6278	339,3664				

STAR DELAY: 1,0903 SEC 279,1087 PULSES DECIMAL = 4, COARSE + 23, FINE

SPACECRAFT ATTITUDE ON DAY 93 APR 2, 1980 200 GMT  
 ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,7764 RCSPHAK = 123,8100  
 SPACECRAFT-EARTH DIRECTION: CLAT = -6,3501 CLON = 357,0197  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7,0749 CLON = 357,3395

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	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-7,0749	357,3395	-	-
SUN	2,3309	36,0998	-5,6979	359,2320	0,140744800 10	9,4080749
EARTH	0,7764	68,9784	-6,3501	357,0197	0,126339180 10	6,4451328
JUPITER	172,4438	249,3293	0,0000	180,0000	0,000000000	0,0000000
SATURN	89,7579	326,4517	-33,2949	91,7221	0,157026200 09	1,0496400
SIRIUS(B)	97,8846	318,2697				
BETELGEUSE(R)	89,0543	343,9628				
CANOPUS(B)	87,2881	283,5371				
ARCTURUS(R)	145,6898	132,9229				
RIGIL KENTAURUS	105,1754	227,7483				
ANTARES(R)	107,1518	187,0229				
CAPELLA(R)	87,4054	23,4251				
VEGA(B)	88,0683	116,8478				
ALDEBARAN(R)	71,6034	355,5637				
RIGEL(B)	77,0605	329,6057				
GAMMA CRUCIS(R)	115,2278	242,1323				
SPICA(B)	152,3638	198,3516				
ACHERNAR(B)	53,1509	262,1446				
DENEK(B)	69,2939	101,7705				
PROCYON(B)	114,5268	338,7643				

STAR DELAY: 1,0914 SEC 279,3918 PULSES DECIMAL = 4, COARSE + 23, FINE  
 51,4629 SEC 04 27 PULSES OCTAL CKAH SUB C = 36,0998 EPSILON = 0,0000 SCN=11

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SPACECRAFT ATTITUDE ON DAY 93 APR 2, 1980 00 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGHRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7764 RCSPHAK = 123.8100

SPACECRAFT-EARTH DIRECTION: CLAT = -6.3501 CLON = 357.6197

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.0749 CLON = 357.3395

SPACECRAFT ATTITUDE ON DAY 93 APR 2, 1980 2200 GMT

SPIN PERIOD = 7.634520 SEC RILT = 2 HR 20 MIN 28.44 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.0749	357.3395	-	-
SUN	2.3309	36.0998	-5.6974	359.2320	0.140744800 10	9.4080749
EARTH	0.7764	68.9784	-6.3501	357.6197	0.126339180 10	8.4451324
JUPITER	172.4438	249.3293	0.0000	180.0000	0.000000000	0.0000000
SATURN	89.7579	326.4517	-53.2949	91.7221	0.157026260 09	1.0496406
SIRIUS(B)	97.8846	318.2697				
BETELGEUSE(R)	89.0543	343.9628				
CANOPUS(B)	87.2881	283.5371				
ARCTURUS(R)	145.6898	132.9229				
RIGIL KENTAUROS	105.1754	227.7483				
ANTARES(R)	107.1518	187.0229				
CAPELLA(R)	87.4054	23.4251				
VEGA(B)	88.0683	116.8478				
ALDEBARAN(R)	71.6034	356.5637				
RIGEL(B)	77.0605	329.6057				
GAMMA CRUCIS(R)	115.2278	242.1323				
SPICA(B)	152.3638	198.3516				
ACHERNAR(B)	53.1509	262.1446				
DENEK(B)	69.2939	101.7705				
PROCYON(B)	114.5268	338.7643				

STAR DELAY: 1.0914 SEC 279.3918 PULSES DECIMAL = 4, COARSE + 23, FINE  
 51.4629 DEG 04 27 PULSES OCTAL CKAH SUB C = 36.0998 EPSILON = 0.0000 SUN=11

PN 11 PA 2567 PR14 #070 S/WSKO DSS43A RCVR AGC -141.1 FILE 11-1223 RAC

04/09/80

SPACECRAFT ATTITUDE ON DAY 100 APR 9, 1980 1300 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTIPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6103 RCSPHAK = 156.2800

SPACECRAFT-EARTH DIRECTION: CLAT = -6.4454 CLON = 357.3146

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.0536 CLON = 357.3659

PN 11 PASS2567 PR14 #070 S/WSKO DSS43A RCVR AGC -141.1 FILE 11-1223 RAC

04/09/80

SPACECRAFT ATTITUDE ON DAY 100 APR 9, 1980 1300 GMT

SPIN PERIOD = 7.634520 SEC RTLT = 2 HR 21 MIN 6.96 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.0536	357.3659	-	-
SUN	2.5641	28.9778	-5.8062	359.6204	0.140836630 10	9.4142132
EARTH	0.6103	94.7910	-6.4454	357.3146	0.120916590 10	8.4837293
JUPITER	172.4730	249.4612	0.0000	180.0000	0.000000000	0.0000000
SATURN	89.7534	326.4544	-33.2944	91.7286	0.161783150 09	1.0814382
SIRIUS(B)	97.8793	318.2775				
BETELGEUSE(R)	89.0350	343.9656				
CANOPUS(B)	87.3027	283.5389				
ARCTURUS(R)	145.6920	132.8768				
RIGIL KENTAURUS	105.2088	227.7529				
ANTARES(R)	107.1804	187.0206				
CAPELLA(R)	87.3729	23.4280				
VEGA(B)	88.0611	116.8522				
ALDEBARAN(R)	71.5785	356.5594				
RIGEL(B)	77.0487	329.6017				
GAMMA CRUCIS(R)	115.2588	242.1418				
SPICA(B)	152.3954	198.3319				
ACHERNAR(B)	53.1755	262.1306				
DENEK(B)	69.2784	101.7851				
PROCYON(B)	114.5101	338.7809				

STAR DELAY: 1.0913 SEC 279.3820 PULSES DECIMAL = 4. COARSE + 23, FINE  
51.4611 DEG 04 27 PULSES CICAL CNAH SUB C = 28.9778 PPS(LINE 0 0000 SCREEN)

*Final*

N 11 PASS2573 PR14 #0/0 S/WSJ,3 DSS43A RCVR AGC =139.7 FILE 11-1224 RC 04/15/80  
SPACECRAFT ATTITUDE ON DAY 106 APR 15, 1980 1300 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6196 RCSPHAK = 189.3100

SPACECRAFT-EARTH DIRECTION: CLAT = -6.5230 CLON = 357.0686

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.0417 CLON = 357.4098

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N 11 PASS2573 PR14 #0/0 S/WSJ,3 DSS43A RCVR AGC =139.7 FILE 11-1224 RC 04/15/80  
SPACECRAFT ATTITUDE ON DAY 106 APR 15, 1980 1300 GMT  
SPIN PERIOD = 7.634520 SEC HTLT = 2 HR 21 MIN 52.20 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.0417	357.4098	"	"
SUN	2.7883	23.9344	-5.9039	359.9718	0.14092382D 10	9.4200414
EARTH	0.6196	123.1732	-6.5230	357.0686	0.12759468D 10	8.5240561
JUPITER	172.4992	249.7453	0.0000	180.0000	0.00000000	0.0000000
SATURN	89.7283	326.4594	-33.2940	91.7343	0.16608866D 09	1.1102183
SIRIUS(B)	97.8546	318.2881				
BETELGEUSE(R)	88.9963	343.9706				
CANOPUS(B)	87.3040	283.5421				
ARCTURUS(R)	145.7130	132.8235				
RIGIL KENTAURUS	105.2469	227.7649				
ANTARES(R)	107.2252	187.0241				
CAPELLA(R)	87.3282	23.4336				
VEGA(B)	88.0703	116.8591				
ALDEBARAN(R)	71.5357	356.5600				
RIGEL(B)	77.0171	329.5996				
GAMMA CRUCIS(R)	115.2897	242.1627				
SPICA(B)	152.4405	198.3421				
ACHERNAR(B)	53.1932	262.1048				
DENEK(B)	69.2758	101.8076				
PROCYON(B)	114.4737	338.7985				

STAR DELAY: 1.0913 SEC 279,3645 PULSES DECIMAL = 4, COARSE + 23, FINE



PN 11 PASS2580 PR14 #0/0 S/W SJ,3 DSS43A RCVR AGC =133,2 FILE 11-1225 RC 04/22/80  
 SPACECRAFT ATTITUDE ON DAY 113 APR 22,1980 1230 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,6900 RCSPHAK = 217,4400

SPACECRAFT-EARTH DIRECTION: CLAT = -6,6031 CLON = 356,8288

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -6,9937 CLON = 357,4017

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PN 11 PASS2580 PR14 #0/0 S/W SJ,3 DSS43A RCVR AGC =133,2 FILE 11-1225 RC 04/22/80  
 SPACECRAFT ATTITUDE ON DAY 113 APR 22,1980 1230 GMT  
 SPIN PERIOD = 7,634520 SEC RTCT = 2 HR 22 MIN 56,48 SEC

	CNA	CKA	CLAT	CLON	H(KM)	R(AI)
S/C +Z AXIS	0,0000	0,0000	-6,9937	357,4017		
SUN	3,1162	18,0896	-6,0171	0,3801	0,141030070 10	9,427
EARTH	0,6900	145,5605	-6,6031	356,8288	0,128558210 10	6,593
JUPITER	172,5415	249,5596	0,0000	180,0000	0,000000000	0,000
SATURN	89,7669	326,4580	-33,2935	91,7406	0,171093680 09	1,143
SIRIUS(B)	97,8926	318,2914				
BETELGEUSE(R)	89,0173	343,9688				
CANOPUS(B)	87,3526	283,5410				
ARCTURUS(R)	145,6723	132,7833				
RIGIL KENTAURUS	105,2771	227,7535				
ANTARES(R)	107,2231	187,0080				
CAPELLA(R)	87,3165	23,4304				
VEGA(B)	88,0237	116,8586				
ALDEBARAN(R)	71,5466	356,5431				
RIGEL(B)	77,0483	329,5900				
GAMMA CRUCIS(R)	115,3284	242,1478				
SPICA(B)	152,4480	198,2488				
ACHERNAR(B)	53,2398	262,1147				
DENEK(B)	69,2271	101,8074				
PROCYON(B)	114,4986	338,8106				

STAR DELAY: 1,0913 SEC 279,3705 PULSES DECIMAL = 4, COARSE + 23, FINE  
 51,4590 DFG 104 27 PULSES DECIMAL CKAN SUR C E 18,0896 PULSE = 0,0000 S

PN 11 PAS 89 PR14 #0/0 S/WSKO DSS11A RCVR AL 139,7 FILE 11-1226 RC 05/1 0  
SPACECRAFT ATTITUDE ON DAY 122 MAY 1, 1980 0600 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RGSANGAK = 0,8596 RCSPHAK = 235,7100

SPACECRAFT-EARTH DIRECTION: CLAT = -6,6890 CLON = 356,6125

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7,0039 CLON = 357,4181

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PN 11 PASS2589 PR14 #0/0 S/WSKO DSS11A RCVR AGC -139,7 FILE 11-1226 RC 05/01/80  
SPACECRAFT ATTITUDE ON DAY 122 MAY 1, 1980 0600 GMT  
SPIN PERIOD = 7,634520 SEC RTLT = 2 HR 24 MIN 32,86 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-7,0039	357,4181	-	-
SUN	3,5514	13,5758	-6,1581	0,8902	0,14117024D 10	9,4365134
EARTH	0,8596	158,5598	-6,6890	356,6125	0,13000287D 10	8,6900314
JUPITER	172,5376	249,7051	0,0000	180,0000	0,00000000	0,0000000
SATURN	89,7539	326,4596	-33,2930	91,7481	0,17734888D 09	1,1854872
STRIUS(B)	97,8736	318,2938				
BETELGEUSE(R)	88,9989	343,9709				
CANOPUS(B)	87,3388	283,5424				
ARCTURUS(R)	145,6908	132,7780				
RIGIL KENTAURUS	105,2804	227,7606				
ANTARES(R)	107,2380	187,0137				
CAPELLA(R)	87,3056	23,4332				
VEGA(B)	88,0402	116,8609				
ALDEBARAN(R)	71,5298	356,5482				
RIGEL(B)	77,0291	329,5922				
GAMMA CRUCIS(R)	115,3269	242,1588				
SPICA(B)	152,4602	198,2792				
ACHERNAR(B)	53,2318	262,1037				
DENEK(B)	69,2404	101,8146				
PROCYON(B)	114,4798	338,8169				

STAR DELAY: 1,0913 SEC 279,3631 PULSES DECIMAL = 4, COARSE + 23, FINE  
51,4576 DEG 04 27 PULSES OCTAL CKAH SUB C = 13,5758 EPSILON = 0,0000 SCN=11

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FIMMILL

PN 11 PASS2598 PR14 #0/0 S/WSJ,3 DSS11/A RCVR AGC -139,7 FILE 11-1227 RM 05/15/80  
SPACECRAFT ATTITUDE ON DAY 131 MAY 10,1980 0600 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,9481 RCSPHAK = 246,1700

SPACECRAFT-EARTH DIRECTION: CLAT = -6,7628 CLON = 356,4999

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7,0042 CLON = 357,4234

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PN 11 PASS2598 PR14 #0/0 S/WSJ,3 DSS11/A RCVR AGC -139,7 FILE 11-1227 RM 05/15/80  
SPACECRAFT ATTITUDE ON DAY 131 MAY 10,1980 0600 GMT  
SPIN PERIOD = 7,634520 SEC RTLT = 2 HR 26 MIN 28,54 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-7,0042	357,4234	-	-
SUN	4,0265	9,8001	-6,3025	1,4152	0,141323230 10	9,4467400
EARTH	0,9481	165,3093	-6,7628	356,4999	0,131736950 10	8,8059459
JUPITER	172,5392	249,7445	0,0000	180,0000	0,000000000	0,0000000
SATURN	89,7555	326,4599	-33,2924	91,7554	0,183792440 09	1,2285591
SIRIUS(B)	97,8695	318,2949				
BETELGEUSE(R)	88,9937	343,9715				
CANOPUS(B)	87,3373	283,5428				
ARCTURUS(R)	145,6946	132,7732				
RIGIL KENTAURUS	105,2838	227,7624				
ANTARES(R)	107,2432	187,0147				
CAPELLA(R)	87,3008	23,4340				
VEGA(B)	88,0428	116,8617				
ALDEBARAN(R)	71,5244	356,5488				
RIGEL(B)	77,0244	329,5922				
GAMMA CRUCIS(R)	115,3292	242,1618				
SPICA(B)	152,4652	198,2835				
ACHERNAR(B)	53,2323	262,1003				
DENEK(B)	69,2418	101,8172				
PROCYON(B)	114,4747	338,8184				

STAR DELAY: 1,0913 SEC 279,3608 PULSES DECIMAL = 4, COARSE + 23, FINE

PN 11 PASS2005 PR14 #070 S/WSK.0 DSS62A RCVR AGC 139.7 FILE 11-1228 RS 05/19/80  
 SPACECRAFT ATTITUDE ON DAY 137 MAY 18, 1980 2200 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9241 RCSPFAK = 291.0900

SPACECRAFT-EARTH DIRECTION: CLAT = -6.8155 CLON = 356.5009

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.0080 CLON = 357.4113

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PN 11 PASS2005 PR14 #070 S/WSK.0 DSS62A RCVR AGC -139.7 FILE 11-1228 RS 05/19/80  
 SPACECRAFT ATTITUDE ON DAY 137 MAY 18, 1980 2200 GMT  
 SPIN PERIOD = 7.634520 SEC RILT = 2 HR 26 MIN 18.17 SEC

	CMA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.0080	357.4113	-	-
SUN	4.4582	7.2513	-6.4245	1.0018	0.141460270 10	9.4559004
EARTH	0.9241	168.0309	-6.8155	356.5009	0.133380190 10	8.9157881
JUPITER	172.5314	249.6672	0.0000	180.0000	0.000000000	0.0000000
SATURN	89.7683	326.4582	-33.2920	91.7812	0.189276690 09	1.2652185
STRILUS(R)	97.8759	318.2919				
BETELGEUSE(R)	89.0042	343.9702				
CANOPUS(R)	87.3364	282.5419				
ARCTURUS(R)	145.4893	132.7884				
RIGIL KENTAUPUS	105.2729	227.7592				
ANTARES(R)	107.2308	187.0135				
CAPELLA(R)	87.3134	23.4324				
VEGA(B)	82.0408	116.8598				
ALDEBARAN(R)	71.5382	256.5488				
RIGEL(B)	77.0328	329.5929				
GAMMA CRUCIS(R)	115.3202	242.1561				
SPICA(R)	152.4526	158.2818				
ACHERNAP(B)	93.2269	262.1074				
DENEK(B)	69.2430	101.8110				
PROCYON(B)	114.4845	338.8133				

STAR DELAY: 1.0912 SEC 279.3657 PULSES DECIMAL = 4. COARSE + 23. FINE  
 51.4581 LFG 04 27 PULSES OCTAL CKAH 505 C = 7.2513 EPSILON= 0.0000 SCN=11



PN 11 PASS2615 PR14 4070 S/W SJ.3 DSS11A RCVR AGC -1230 FILE 11-1230 RC 05/27/80  
 SPACECRAFT ATTITUDE ON DAY 148 MAY 27, 1980 0300 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PH/SE ANGLE: RCSANGAK = 0.8001 RCSPHAK = 257.8900

SPACECRAFT-EARTH DIRECTION: CLAT = -6.8688 CLON = 356.6273

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -6.9863 CLON = 357.4245

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 PN 11 PASS2615 PR14 4070 S/W SJ.3 DSS11A RCVR AGC -1230 FILE 11-1230 RC 05/27/80  
 SPACECRAFT ATTITUDE ON DAY 148 MAY 27, 1980 0300 GMT  
 SPIN PERIOD = 7.634520 SEC RTLT = 2 HR 30 MIN 40.48 SEC

	CLA	CKA	CLAT	CLON	R(KM)	R(AL)
S/C +Z AXIS	0.0000	0.0000	-6.9863	357.4245	-	-
SUN	4.9554	4.5107	-6.5710	2.5972	0.141633070 10	9.4674512
EARTH	0.8001	171.5993	-6.8688	356.6273	0.135513370 10	9.0583803
JUPITER	172.5563	249.7049	0.0000	180.0000	0.000000000	0.0000000
SATURN	89.7749	326.4594	-33.2915	91.7678	0.195858060 09	1.3092116
SIRIUS(R)	97.8806	318.2970				
BETELGEUSE(R)	68.9976	343.9713				
CANOPUS(B)	87.3544	283.5427				
ARCTURUS(R)	145.6822	132.7544				
RIGIL KENTAURUS	105.2977	227.7595				
ANTARES(R)	107.2464	187.0093				
CAPELLA(R)	87.2928	23.4333				
VEGA(B)	88.0274	116.8622				
ALDEBARAN(R)	71.5245	356.5430				
RIGEL(B)	77.0325	329.5887				
GAMMA CRUCIS(R)	115.3455	242.1584				
SPICA(B)	152.4718	198.2518				
ACHERNAR(B)	53.2501	262.1015				
DENEK(B)	69.2245	101.8191				
PROCYON(B)	114.4802	338.8262				

STAR DELAY: 1.0913 SEC 279.3614 PULSES DECTMAL = 4. COARSE + 23. FINE

FILE 121

11 PASS2625 PRI4 40/0 S/ASK.0 DSS11A RCVR AGC -161.1 FILE 11-1231 TG 06/10/80  
SPACECRAFT ATTITUDE ON DAY 158 JUN 6, 1980 0500 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCBSANGAK = 0.5137 RCSPHAK = 258.0000

SPACECRAFT-EARTH DIRECTION: CLAT = -6.9177 CLON = 356.9239

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.0027 CLON = 357.4343

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11 PASS2625 PRI4 40/0 S/ASK.0 DSS11A RCVR AGC -161.1 FILE 11-1231 TG 06/10/80  
SPACECRAFT ATTITUDE ON DAY 158 JUN 6, 1980 0500 GMT  
SPIN PERIOD = 7.634520 SEC RTLT = 2 HR 33 MIN 25.90 SEC

	GRA	GRA	CLAT	CLON	n(REF)	n(AL)
S/C +Z AXIS	0.0000	0.0000	-7.0027	357.4343	-	-
SUN	5.5150	2.5007	-6.7300	2.9823	0.141832470 10	9.4807801
EARTH	0.5137	170.5615	-6.9177	356.9239	0.137495620 15	9.2241324
JUPITER	172.5442	249.8192	0.0000	180.0000	0.000000000	0.0000000
SATURN	89.7633	326.4603	-33.2910	91.7745	0.203057330 09	1.3573351
SIRIUS(B)	97.8624	318.2974				
BETELGEUSE(R)	88.9836	343.9728				
CANOPUS(B)	87.3362	283.5436				
ARCTURUS(R)	145.7009	138.7615				
RIGIL KENTAURUS	105.2921	227.7656				
ANTARES(R)	107.2541	187.0100				
CAPELLA(R)	87.2904	23.4354				
VEGA(B)	88.0464	116.8634				
ALDEBARAN(R)	71.5138	356.5494				
RIGEL(B)	77.0159	329.5920				
GAMMA CRUCIS(R)	115.3355	242.1673				
SPICA(B)	152.4759	198.2887				
ACHERNAR(B)	53.2352	262.0930				
DENEK(B)	69.2426	101.8226				
PROCYON(B)	114.4652	338.8221				

STAR DELAY: 1.0912 SEC 279.3564 PULSES DECIMAL = 4. COARSE + 23. FINE  
51.4564 DEG 04 27 PULSES DECIMAL GRAH SUB C = 2.5007 EPSILON = 0.0000 SCR=11

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PN 11 PASS2636 PR14 4070 S/WSK,0 DSS43A RCVR AGC =129.6 FILE 11-1233

06/19/80

SPACECRAFT ATTITUDE ON DAY 169 JUN 17, 1980 0800 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR ROCPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: HCSANGAK = 0.1111 ROCPHAK = 116.2000

SPACECRAFT-EARTH DIRECTION: CLAT = -6.9643 CLON = 357.4418

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.0139 CLON = 357.3417

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PN 11 PASS2636 PR14 4070 S/WSK,0 DSS43A RCVR AGC =129.6 FILE 11-1233

06/19/80

SPACECRAFT ATTITUDE ON DAY 169 JUN 17, 1980 0800 GMT

SPIN PERIOD = 7.634690 SEC RTET = 2 PR 36 PLS 35.27 SEC

	CNA	CRA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.0139	357.3417		
SUN	6.2392	0.0277	-6.7110	3.0203	0.142064760 10	9.4963075
EARTH	0.1111	20.5410	-6.9643	357.4418	0.140831540 10	9.4138730
JUPITER	172.5016	249.1823	0.0000	180.0000	0.000000000	0.0000000
SATURN	89.8393	326.4404	-33.2705	91.7813	0.210991190 09	1.4103689
SIRIUS(R)	97.9235	310.2705				
BETELGEUSE(R)	89.0829	343.9621				
CANOPUS(B)	87.3468	283.5300				
ARCTURUS(R)	145.6467	132.2600				
RYGIL KENTAUROS	105.2221	227.7379				
ANTARES(R)	107.1615	187.0046				
CEPHEA(R)	87.3791	23.4229				
VEGA(B)	88.0149	116.0491				
ALDEBARAN(R)	71.0048	350.5437				
REGUL(B)	77.0824	329.5935				
GAMMA CRUCIS(R)	115.2527	242.1201				
SPICA(B)	152.3851	193.2427				
ACHERNAB(B)	97.2115	262.1494				
DEDEB(B)	80.2308	191.7704				
PROCYON(B)	114.5458	330.7905				

STAR DELAY: 1.0914 SEC 273.4007 ROUSES DELTA = 4.0000 + 23. FINE



PN 11 PASS2645 PRI4 #070 S/WSKO DSS11A RCVR AGC 141.1 FILE 11-1234 RC  
SPACECRAFT ATTITUDE ON DAY 178 JUN 26, 1980 0230 GMT

06/25 0

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6633 RCSPHAK = 94.3340

SPACECRAFT-EARTH DIRECTION: CLAT = -6.9985 CLON = 357.9862

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.0392 CLON = 357.3192

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PN 11 PASS2645 PRI4 #070 S/WSKO DSS11A RCVR AGC 141.1 FILE 11-1234 RC  
SPACECRAFT ATTITUDE ON DAY 178 JUN 26, 1980 0230 GMT  
SPIN PERIOD = 7.634398 SEC RTLT = 2 HR 39 MIN 5.95 SEC

06/25/80

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.0392	357.3192		
SUN	6.7622	359.5738	-7.0401	4.1329	0.142256910 10	9.5091517
EARTH	0.6633	3.4725	-6.9985	357.9862	0.143090220 10	9.5648543
JUPITER	172.4700	249.0893	0.0000	180.0000	0.00000000	0.0000000
SATURN	89.8461	326.4460	-33.2901	91.7861	0.217239170 09	1.4521335
SIRIUS(B)	97.9234	318.2690				
BETELGEUSE(R)	89.0835	343.9598				
CANOPUS(B)	87.3275	283.5351				
ARCTURUS(R)	145.6499	132.9064				
RIGIL KENTAURUS	105.1883	227.7352				
ANTARES(R)	107.1363	187.0088				
CAPPELLA(R)	87.4097	23.4208				
VEGA(R)	88.0274	118.8453				
ALDEBARAN(R)	71.6256	356.5498				
RIGEL(B)	77.0959	329.5985				
GAMMA CRUCIS(R)	115.2499	242.1136				
SPICA(R)	152.3560	198.2723				
ACHERNAR(B)	53.1835	262.1607				
DENEK(B)	69.2549	101.7634				
PROCYON(B)	114.5585	338.7737				

STAR DELAY: 1.0914 SEC 279.3980 PULSES DECIMAL = 4. COARSE + 23. FINE  
51.4649 DEG 04 27 PULSES C 'AL CKAH SUB C = 359.5738 EPSILON# 0.00 SCN=11

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PN 11 PASS 18 PR14 #0/0 S/WSK,0 DSS14A RCVR AGC 131.4 FILE 11-1235 JG 06/30/80  
 SPACECRAFT ATTITUDE ON DAY 181 JUN 29,1980 0615 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

PRE-PRECESSION

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.8582 RCSPHAK = 92.8040

SPACECRAFT-EARTH DIRECTION: CLAT = -7.0107 CLON = 358.2101

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.0346 CLON = 357.3458

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 PN 11 PASS2648 PR14 #0/0 S/WSK,0 DSS14A RCVR AGC -131.4 FILE 11-1235 JG 06/30/80  
 SPACECRAFT ATTITUDE ON DAY 181 JUN 29,1980 0615 GMT  
 SPIN PERIOD = 7.634520 SEC RLTT = 2 HR 39 MIN 59.90 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.0346	357.3458	"	"
SUN	6.9164	359.1222	-7.0889	4.3149	0.14232800D 10	9.5139037
EARTH	0.8582	1.5450	-7.0107	358.2101	0.14389886D 10	9.6189078
JUPITER	172.4836	249.2670	0.0000	180.0000	0.00000000	0.0000000
SATURN	89.8300	326.4492	-33.2900	91.7878	0.21948573D 09	1.4671506
SIRIUS(B)	97.9067	318.2752				
BETELGEUSE(R)	89.0593	343.9629				
CANOPUS(B)	87.3257	283.5371				
ARCTURUS(R)	145.6646	132.8769				
RIGIL KENTAURUS	105.2094	227.7430				
ANTARES(R)	107.1630	187.0116				
CAPELLA(R)	87.3837	23.4243				
VEGA(B)	88.0352	116.8494				
ALDEBARAN(R)	71.5995	356.5510				
RIGEL(B)	77.0754	329.5978				
GAMMA CRUCIS(R)	115.2662	242.1268				
SPICA(B)	152.3825	198.2832				
ACHERNAR(B)	53.1916	262.1448				
DENEK(B)	69.2558	101.7768				
PROCYON(B)	114.5355	338.7832				

STAR DELAY: 1.0914 SEC 279.3916 PULSES DECIMAL = 4. COARSE + 23. FINE  
 51.4629 DEG 04 27 PULSES CENAL CKAH SUB C = 359.1222 EPSILON= 0.00 SCN=11

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PN 11 PASS 0 PRI4 #0/0 S/WSKO DSS11A RCVR AGC 41.1 FILE 11-1236 RC  
SPACECRAFT ATTITUDE ON DAY 183 JULY 1, 1980 02.0 GMT

06/30

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

POST-PRECESSION

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPDS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.4415 RCSPHAK = 276.5880

SPACECRAFT-EARTH DIRECTION: CLAT = -7.0179 CLON = 358.3475

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -6.9052 CLON = 359.7952

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PN 11 PASS2650 PRI4 #0/0 S/WSKO DSS11A RCVR AGC -141.1 FILE 11-1236 RC  
SPACECRAFT ATTITUDE ON DAY 183 JULY 1, 1980 0230 GMT  
SPIN PERIOD = 7.627928 SEC RTLT = 2 HR 40 MIN 31.28 SEC

06/30/80

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-6.9052	359.7952	-	-
SUN	4.5962	357.0735	-7.1173	4.4211	0.14237002D 10	9.5167126
EARTH	1.4415	184.5703	-7.0179	358.3475	0.14436935D 10	9.6503576
JUPITER	173.0918	268.2973	0.0000	180.0000	0.00000000	0.0000000
SATURN	87.8725	326.7174	-33.2899	91.7887	0.22079817D 09	1.4759236
SIRIUS(R)	96.1705	318.7833				
BETELGEUSE(R)	86.7565	344.2313				
CANOPUS(B)	86.8787	283.7132				
ARCTURUS(R)	147.1823	130.3046				
RIGIL KENTAURUS	106.9284	228.5370				
ANTARES(R)	109.5914	187.3673				
CAPELLA(R)	85.1039	23.7777				
VEGA(B)	89.0249	117.2038				
ALDEBARAN(R)	69.1799	356.7517				
RIGEL(B)	75.0443	329.5617				
GAMMA CRUCIS(R)	116.4934	243.4445				
SPICA(B)	154.7224	199.9349				
ACHERNAR(B)	53.6829	260.6731				
DENEK(B)	69.6506	102.9747				
PROCYON(B)	112.3095	339.5079				

STAR DELAY: 1.0867 SEC 278.1951 PULSES DECIMAL = 4. COARSE + 22. FINE

51.2868 DEG

04 26 PULSES CNAH SUB C = 357.0735 EPSILON = 0.00 SCN=11

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11 PASS2653 PR14 #070 S/WSK.0 DSS44A RCVR AGC -142.5 FILE 11-1237 CM  
 SPACECRAFT ATTITUDE ON DAY 186 JULY 4, 1980 0830 GMT

07/07/80

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.1784 RCSPHAK = 279.2600  
 SPACECRAFT-EARTH DIRECTION: CLAT = -7.0306 CLON = 358.6010  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -6.9120 CLON = 359.7821

915

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 11 PASS2653 PR14 #070 S/WSK.0 DSS44A RCVR AGC -142.5 FILE 11-1237 CM  
 SPACECRAFT ATTITUDE ON DAY 186 JULY 4, 1980 0830 GMT  
 SPIN PERIOD = 7.627928 SEC RTLT = 2 HR 41 MIN 26.20 SEC

07/07/80

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-6.9120	359.7821	-	-
SUN	4.7963	356.6549	-7.1673	4.6081	0.14244483D 10	9.5217132
EARTH	1.1784	185.8449	-7.0306	358.6010	0.14519248D 10	9.7053797
JUPITER	173.0846	268.1903	0.0000	180.0000	0.00000000	0.0000000
SATURN	87.8810	326.7163	-33.2898	91.7903	0.22310746D 09	1.4913600
SIRIUS(B)	96.1758	318.7802				
BETELGEUSE(R)	86.7672	344.2303				
CANOPUS(B)	86.8752	283.7124				
ARCTURUS(R)	147.1791	130.3252				
RIGIL KENTAURUS	106.9147	228.5339				
ANTARES(R)	109.5776	187.3676				
CAPELLA(R)	85.1185	23.7763				
VEGA(B)	89.0250	117.2020				
ALDEBARAN(R)	69.1925	356.7529				
RIGEL(B)	75.0520	329.5635				
GAMMA CRUCIS(R)	116.4815	243.4387				
SPICA(B)	154.7078	199.9375				
ACHERNAR(B)	53.6740	260.6802				
DENEK(B)	69.6543	102.9679				
PROCYON(B)	112.3193	339.5019				

STAR DELAY: 1.0867 SEC 278.1994 PULSES DECIMAL = 4. COARSE + 22. FINE  
 51.2876 DEG 04 26 PULSES OCTAL CKAH SUB C = 356.6549 EPSILON= 0.0000 SCN=11

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PN 11 PASS2661 PR14 # S/WSK,0 DSS63 RCVR AGC -134.1 FILE 11-1238 BD 07/14/80  
 SPACECRAFT ATTITUDE ON DAY 194 7 11,1980 1600 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5534 RCSPHAK = 286.6600

SPACECRAFT-EARTH DIRECTION: CLAT = -7.0601 CLON = 359.2251

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -6.9329 CLON = 359.7677

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PN 11 PASS2661 PR14 # S/WSK,0 DSS63 RCVR AGC -134.1 FILE 11-1238 BD 07/14/80  
 SPACECRAFT ATTITUDE ON DAY 194 7 11,1980 1600 GMT  
 SPIN PERIOD = 7.627928 SEC RTLT = 2 HR 43 MIN 27.97 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-6.9329	359.7677	-	-
SUN	5.2324	355.8794	-7.2795	5.0290	0.14261748D 10	9.5332540
EARTH	0.5534	193.3177	-7.0601	359.2251	0.14701774D 10	9.8273890
JUPITER	173.0632	268.0762	0.0000	180.0000	0.00000000	0.0000000
SATURN	87.8843	326.7154	-33.2896	91.7937	0.22831213D 09	1.5261506
SIRIUS(B)	96.1728	318.7757				
BETELGEUSE(R)	86.7753	344.2299				
CANOPUS(B)	86.8583	283.7117				
ARCTURUS(R)	147.1858	130.3614				
RIGIL KENTAURUS	106.8896	228.5331				
ANTARES(R)	109.5607	187.3726				
CAPELLA(R)	85.1400	23.7757				
VEGA(B)	89.0370	117.1998				
ALDEBARAN(R)	69.2056	356.7594				
RIGEL(B)	75.0538	329.5685				
GAMMA CRUCIS(R)	116.4564	243.4352				
SPICA(B)	154.6872	199.9670				
ACHERNAR(B)	53.6511	260.6863				
DENEK(B)	69.6715	102.9592				
PROCYON(B)	112.3254	339.4900				

STAR DELAY: 1.0867 SEC 278.2032 PULSES DECIMAL = 4, COARSE + 22, FINE  
 51.2883 DEG 04 26 PULSES C CKAH SUB C = 355.8794 EPSILON= 0.00 SCN=11

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PN 11 PASS2668 PR14 # S/WSK,0 DSS43A RCVR AGC -141.1 FILE 11-1239 BD  
 SPACECRAFT ATTITUDE ON DAY 201 JUL 19,1980 0630 GMT

07/21/80

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,2991 RCSPHAK = 60,2980

SPACECRAFT-EARTH DIRECTION: CLAT = -7,0930 CLON = 359,9461

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -6,9238 CLON = 359,0976

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PN 11 PASS2668 PR14 # S/WSK,0 DSS43A RCVR AGC -141.1 FILE 11-1239 BD  
 SPACECRAFT ATTITUDE ON DAY 201 JUL 19,1980 0630 GMT  
 SPIN PERIOD = 7,627928 SEC RTLT = 2 HR 45 MIN 30,10 SEC

07/21/80

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-6,9238	359,6976	-	-
SUN	5,7421	354,9351	-7,3953	5,4653	0,142802540 10	9,5456243
EARTH	0,2991	325,5490	-7,0930	359,9461	0,148848490 10	9,9497654
JUPITER	173,0696	267,4929	0,0000	180,0000	0,000000000	0,0000000
SATURN	87,9502	326,7080	-33,2893	91,7969	0,233711720 09	1,5622441
SIRIUS(B)	96,2311	318,7630				
BETELGEUSE(R)	86,8447	344,2220				
CANOPUS(B)	86,8836	283,7068				
ARCTURUS(R)	147,1338	130,4260				
RIGIL KENTAURUS	106,8503	228,5070				
ANTARES(R)	109,4929	187,3577				
CAPELLA(R)	85,2001	23,7641				
VEGA(B)	88,9972	117,1904				
ALDEBARAN(R)	69,2756	356,7490				
RIGEL(B)	75,1184	329,5673				
GAMMA CRUCIS(R)	116,4334	243,3938				
SPICA(B)	154,6249	199,8904				
ACHERNAR(B)	53,6488	260,7295				
DENER(B)	69,6470	102,9264				
PROCYON(B)	112,3938	339,4750				

STAR DELAY: 1,0868 SEC 278,2297 PULSES DECIMAL = 4, COARSE + 22, FINE  
 51,2932 DEG 04 26 PULSES OCTAL CKAH SUB C = 354,9351 EPSILON= 0,0000 SCN=11

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PN 11 PASS2673 PRI4 #0/0 S/WSKO DSS11A RCVR AGC 141.1 FILE 11-1240 RC  
 SPACECRAFT ATTITUDE ON DAY 206 23,1980 0000 GMT

07/24/80

JULY

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7468 RCSPHAK = 84.7300

SPACECRAFT-EARTH DIRECTION: CLAT = -7.1150 CLON = 0.4292

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -6.9905 CLON = 359.6872

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PN 11 PASS2673 PRI4 #0/0 S/WSKO DSS11A RCVR AGC -141.1 FILE 11-1240 RC  
 SPACECRAFT ATTITUDE ON DAY 206 APR 23,1980 0000 GMT  
 SPIN PERIOD = 7.627928 SEC RLTL = 2 HR 46 MIN 43.25 SEC

07/24/80

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-6.9905	359.6872	-	-
EARTH	6.0197	355.0843	-7.4669	5.7362	0.142920640 10	9.5535187
JUPITER	0.7468	350.3638	-7.1150	0.4292	0.149944900 10	10.0230546
SATURN	173.0025	267.4319	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	87.9237	326.7089	-33.2892	91.7967	0.237068800 09	1.5846045
BETELGEUSE(R)	96.1949	318.7556				
CANOPUS(B)	66.8365	344.2244				
ARCTURUS(R)	66.8212	283.7070				
RIGIL KENTAUROS	147.1778	130.5039				
ANTARES(R)	106.7935	228.5168				
CAPELLA(R)	109.4742	187.3794				
VEGA(B)	65.2363	23.7676				
ALDEBARAN(R)	29.0518	117.1885				
RIGEL(B)	69.2821	356.7132				
GAMMA CRUCIS(R)	75.0935	329.5827				
SPICA(B)	116.3692	243.4028				
ACHERNAR(B)	154.5925	200.0139				
DENEK(B)	53.5813	260.7278				
PROCYON(B)	69.7097	102.9159				
	112.3800	339.4466				

STAR DELAY: 1.0868 SEC 278.2288 PULSES DECIMAL = 4. COARSE + 22. FINE  
 51.2930 DEG 04 26 PULSES OCTAL CNAH SUB L = 355,0843 EPSILON = 0.0000 SEN=11

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PRE-PRECESSION

PN 11 PASS2676 FR14 #0/0 S/WSK,0 DSS63A RCVR AGC -141.1 FILE 11-1241 BD 07/31/80  
 SPACECRAFT ATTITUDE ON DAY 208 JUL 26,1980 1100 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTIPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9805 RCSPHAK = 87.0136  
 SPACECRAFT-EARTH DIRECTION: CLAT = -7.1270 CLON = 0.6905  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -6.9959 CLON = 359.7115

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PN 11 PASS2676 FR14 #0/0 S/WSK,0 DSS63A RCVR AGC -141.1 FILE 11-1241 BD 07/31/80  
 SPACECRAFT ATTITUDE ON DAY 208 JUL 26,1980 1100 GMT  
 SPIN PERIOD = 7.627930 SEC RTLT = 2 HR 47 MIN 20.28 SEC

	CKA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-6.9959	359.7115	-	-
SUN	6.1373	354.8653	-7.5041	5.8770	0.14298300D 10	9.557687
EARTH	0.9805	352.2566	-7.1270	0.6905	0.15050004D 10	10.060163
JUPITER	172.9982	267.6324	0.0000	180.0000	0.00000000	0.000000
SATURN	87.9014	326.7115	-33.2891	91.7996	0.23681431D 09	1.596352
SIRIUS(B)	96.1733	318.7598				
BETELGEUSE(R)	86.8119	344.2273				
CANOPUS(B)	86.8103	283.7087				
ARCTURUS(R)	147.1975	130.4839				
RIGIL KENTAURUS	106.8054	228.5262				
ANTARES(R)	109.4973	187.3853				
CAPELLA(R)	85.2165	23.7718				
VEGA(B)	89.0675	117.1917				
ALDEBARAN(R)	69.2578	356.7777				
RIGEL(B)	75.0700	329.5837				
GAMMA CRUCIS(R)	116.3751	243.4176				
SPICA(B)	154.6132	200.0447				
ACHERNAR(B)	53.5799	260.7126				
DENEK(B)	69.7203	102.9270				
PROCYON(B)	112.3556	339.4509				

STAR DELAY: 1.0868 SEC 278.2195 PULSES DECIMAL = 4 COARSE + 22 FINE  
 51.2913 DEG 04 26 PULSES OCTAL CKAH SUB C = 354.8653 EPSILON = 0.0000 SCN =

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PN 11 PASS2676 PR14 #7/10 S/WSK.0 DSS63A RCVR AGC -133.2 FILE 11-1242 BD 7/31/80  
SPACECRAFT ATTITUDE ON DAY 208 JUL 26, 1980 1500 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9633 RCSPFAK = 253.5800

SPACECRAFT-EARTH DIRECTION: CLAT = -7.1278 CLON = 0.7088

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.4256 CLON = 1.0324

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PN 11 PASS2676 PR14 #7/10 S/WSK.0 DSS63A RCVR AGC -133.2 FILE 11-1242 BD 07/31/80  
SPACECRAFT ATTITUDE ON DAY 208 JUL 26, 1980 1500 GMT  
SPIN PERIOD = 7.622190 SEC RTLT = 2 HR 47 MIN 22.82 SEC

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-7.4256	1.0324	-	-
EARTH	4.2191	358.6232	-7.5067	5.8868	0.142987330 10	9.55797
JUPITER	0.9633	162.0524	-7.1278	0.7088	0.150538040 10	10.06270
SATURN	172.3981	282.4353	0.0000	180.0000	0.00000000	0.00000
SIRIUS(B)	86.0714	326.9166	-33.2891	91.7997	0.238934910 09	1.59719
BETELGEUSE(R)	94.4543	319.0873				
CANOPUS(B)	84.8609	344.4611				
ARCTURUS(R)	85.9392	283.8391				
RIGIL KENTAURUS	148.7447	128.8174				
ANTARES(R)	107.7341	229.3017				
CAPELLA(R)	111.3291	187.8792				
VEGA(B)	83.6492	24.1266				
ALDEBARAN(R)	90.3239	117.4408				
RIGEL(B)	67.3320	357.1494				
GAMMA CRUCIS(R)	73.2086	329.6563				
SPICA(B)	116.8239	244.0109				
ACHERNAR(B)	156.2319	202.6790				
DENEK(B)	53.4839	259.5114				
PROCYON(B)	70.5790	103.8018				
	110.4195	339.7942				

STAR DELAY: 1.0832 SEC 277.3037 PULSES DECIMAL = 4. COARSE + 21. FINE  
51.1609 DEG 04 25 PULSES OCTAL CNAH SUB C = 358.6232 EPSILON = 0.0000 SEC

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PN 11 PASS2679 PRI4 #070 S/WSK,0 DSS44B RCVR AGC -139.7 FILE 11-1243  
SPACECRAFT ATTITUDE ON DAY 212 JUL 30,1980 0600 GMT

07/31/80

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6509 RCSPHAK = 246.0200

SPACECRAFT-EARTH DIRECTION: CLAT = -7.1463 CLON = 1.1054

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.4338 CLON = 1.6941

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PN 11 PASS2679 PRI4 #070 S/WSK,0 DSS44B RCVR AGC -139.7 FILE 11-1241  
SPACECRAFT ATTITUDE ON DAY 212 JUL 30,1980 0600 GMT  
SPIN PERIOD = 7.622191 SEC RLTL = 2 HR 48 MIN 15.92 SEC

07/31/80

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.4338	1.6941	-	-
SUN	4,3639	358.0408	-7.5612	6.0938	0.143080230 10	9.56418
EARTH	0.6509	153.8219	-7.1463	1.1054	0.151334120 10	10.11591
JUPITER	172.3767	282.8763	0.0000	180.0000	0.00000000	0.00000
SATURN	86.0167	326.9226	-33.2891	91.8010	0.241502500 09	1.61432
STRIUS(B)	94.4027	319.0979				
BETELGEUSE(R)	84.7998	344.4683				
CANOPUS(B)	85.9166	283.8430				
ARCTURUS(R)	148.7894	128.7553				
RIGIL KENTAURUS	107.7677	229.3263				
ANTARES(R)	111.3886	187.8936				
CAPELLA(R)	83.5967	24.1382				
VEGA(R)	90.3594	117.4485				
ALDEBARAN(R)	67.2705	357.1595				
RIGEL(B)	73.1517	329.6571				
GAMMA CRUCIS(R)	116.8427	244.6486				
SPICA(B)	156.2852	202.7579				
ACHERNAR(B)	53.4870	259.4738				
DENER(B)	70.6015	103.8300				
PROCYON(B)	110.3592	339.8072				

STAR DELAY: 1.0831 SEC 277.2827 PULSES DECIMAL = 4. COARSE + 21. FINE

51.1570 DEG 04 25 PULSES OCTAL CKAH SUB C = 358.0408 EPSILON = 0.0000 SCN

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PN 11 PASS2686 PRI4 #070 S/WSK,0 DSS63A RCVR AGC -141.1 FILE 11-1244 GN 08/07/80  
 SPACECRAFT ATTITUDE ON DAY 219 AUG 5,1980 0900 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4294 RCSPHAK = 136.3200

SPACECRAFT-EARTH DIRECTION: CLAT = -7.1799 CLON = 1.8068

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.4745 CLON = 1.4920

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~~PN 11 PASS2686 PRI4 #070 S/WSK,0 DSS63A RCVR AGC -141.1 FILE 11-1244 GN 08/07/80~~  
~~SPACECRAFT ATTITUDE ON DAY 219 AUG 5,1980 0900 GMT~~  
~~SPIN PERIOD = 7.622190 SEC RTLT = 2 HR 49 MIN 41.90 SEC~~

	CKA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.4745	1.4920	-	-
SUN	4.9120	357.5908	-7.6532	6.4438	0.143240580 10	9.57490
EARTH	0.4294	43.3166	-7.1799	1.8068	0.152622890 10	10.20206
JUPITER	172.3789	281.3221	0.0000	180.0000	0.000000000	0.00000
SATURN	86.1646	326.9063	-33.2688	91.8029	0.245847760 09	1.64336
SIRIUS(B)	94.5275	319.0590				
BETELGEUSE(R)	84.9819	344.4504				
CANOPUS(B)	85.9250	283.6313				
ARCTURUS(R)	148.6953	129.0281				
RIGIL KENTARUS	107.6062	229.2601				
ANTARES(R)	111.1845	187.6724				
CAPELLA(R)	83.7963	24.1071				
VEGA(B)	90.3032	117.4234				
ALDEBARAN(R)	67.4686	357.1544				
RIGEL(B)	73.3041	329.6719				
GAMMA CRUCIS(R)	116.7200	244.5399				
SPICA(B)	156.0846	202.6416				
ACHERNAR(B)	53.4105	259.5881				
DENEK(B)	70.5933	103.7318				
PROCYON(B)	110.5332	339.7409				

STAR DELAY: 1.0834 SEC 277.3458 PULSES DECIMAL = 4. COARSE + 21. FINE  
 51.1887 DFC 04 25 PULSES CCFAL CKAN SUB C = 357.5908 EPSILON = 0.0000 GEN

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ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR ROSEBAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRAS = 0 RCSTPJS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSMIGAK = 0.8266 RCSPHAK = 116.5700  
 SPACECRAFT-EARTH DEFLECTION: CLAT = -7.2024 CLON = 2.2627  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.5246 CLON = 1.4995

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	CHA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-7.5246	1.4995	-	-
SUN	5.1199	357.6920	-7.7104	6.0521	0.143342620 10	9.5817250
EARTH	0.8266	22.6492	-7.2024	2.2627	0.153386520 10	10.2531096
JUPITER	172.3134	281.2900	0.0000	180.0000	0.00000000	0.0000000
SATURN	36.1250	324.9104	-33.2887	91.8040	0.248559550 09	1.6614943
STRIUS (B)	04.4824	313.0568				
BETELGEUSE (B)	84.9586	244.4543				
CANOPUS (B)	85.8648	232.8328				
VECTUS (B)	148.7467	129.0319				
RIGIL KENTAUROS	107.6675	229.2753				
ANTARES (B)	111.1337	137.8969				
CAPELLA (B)	83.8140	24.1144				
VEGA (B)	90.3500	117.4245				
ALDEBARAN (B)	67.4531	357.1902				
SIGEL (B)	75.2673	329.6374				
GAMMA CRUCIS (B)	116.6689	244.5572				
SPICA (B)	156.0693	202.7741				
ACHERNAS (B)	53.3527	259.5756				
DENER (B)	70.6535	103.7302				
PROCYON (B)	110.5053	339.7217				

STAR DELAY: 1.0834 SEC 272.3377 PULSES DECIMAL = 4. COARSE + 21. FINE  
 51.1672 DEG 34.25 PULSES OCTAL CKAH SJB C = 357.6920 EPSILON = 0.0000 SCN = 11

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PN 11 PASS SPACECRAFT ATTITUDE ON DAY 222 AUG 8, 1980 0900 GMT  
 PRI4 #779 S/WSK.0 DSS43A RCVR AGC / FILE 11-1246 TG 08712

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.2280 RCSPHAK = 254.0900

SPACECRAFT-EARTH DIRECTION: CLAT = -7.2035 CLON = 2.2829

NEW ATTITUDE  
POST-PRECESION

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.6011 CLON = 3.4545

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PN 11 PASS2639 PRI4 #779 S/WSK.0 DSS43A RCVR AGC -134.9 FILE 11-1246 TG 08/12/80  
 SPACECRAFT ATTITUDE ON DAY 222 AUG 8, 1980 0900 GMT  
 SPIN PERIOD = 7.616942 SEC KTLT = 2 HR 50 MIN 35.01 SEC

	CNA	CRA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.6011	3.4545	-	-
SUN	3.1903	357.7789	-7.7128	0.6716	0.143347110 10	9.5820261
EARTH	1.2280	161.1828	-7.2035	2.2829	0.153418980 10	10.2552794
JUPITER	171.6549	294.5303	0.0000	180.0000	0.000000000	0.0000000
SATURN	84.4644	327.0856	-33.2887	91.8041	0.248677820 09	1.6622849
SIRIUS(B)	92.9714	319.3935				
BETELGEUSE(R)	83.0728	344.6665				
CANOPUS(B)	85.3350	283.9463				
ARCTURUS(R)	149.9914	126.8273				
RIGIL KENTAJRUS	108.7696	230.0317				
ANTARES(R)	113.0930	188.2922				
CAPELLA(R)	82.0750	24.4780				
VEGA(B)	91.3151	117.6573				
ALDEBARAN(R)	65.5192	357.4269				
RIGEL(B)	71.5610	329.6528				
GAMMA CRUCIS(R)	117.4234	245.7268				
SPICA(B)	157.8135	205.0188				
ACHERNAR(B)	53.6575	258.4161				
DENEK(B)	71.1928	104.6320				
PROCYON(B)	108.6620	340.1933				

STAR DELAY: 1.0802 SEC 276.5295 PULSES DECIMAL = 4. COARSE + 21. FINE  
 51.0532 DEG 04 25 PULSES OCTAL CKAH SUB C = 357.7789 EPSILON= 0.0000 SCN=11

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N 11 PASS2694 PR14 #070 S/WSKO USS11B RCVR AGC -141.1 FILE 11-1247A RC 08/15/80  
 SPACECRAFT ATTITUDE ON DAY 227 AUG 13, 1980 0000 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

**REVISED**

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7599 RCSPHAK = 240.3600  
 SPACECRAFT-EARTH DIRECTION: CLAT = -7.2262 CLON = 2.7268  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.5773 CLON = 3.4064

REPLACES FILE NO. 11-1247

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N 11 PASS2694 PR14 #070 S/WSKO USS11B RCVR AGC -141.1 FILE 11-1247 RC 08/15/80  
 SPACECRAFT ATTITUDE ON DAY 227 AUG 13, 1980 0000 GMT  
 SPIN PERIOD = 7.616942 SEC RTLT = 2 HR 51 MIN 21.05 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.5773	3.4064	-	-
SUN	3,4452	356,6162	-7.7668	6,8780	0.143445150 10	9.5885795
EARTH	0.7599	152.5238	-7.2262	2.7268	0.154109070 10	10.3014084
JUPITER	171,6963	294,2941	0.0000	180.0000	0.000000000	0.0000000
SATURN	84,5182	327,0799	-33.2886	91,8051	0.251244570 09	1.6794423
SIRIUS(B)	93.0231	319,3865				
BETELGEUSE(R)	83.1252	344,6589				
CANOPUS(B)	85.3697	283,9437				
ARCTURUS(R)	149.9437	126,8623				
RIGIL KENTAURUS	108.7572	230.0077				
ANTARES(R)	113.0492	188,2728				
CAPELLA(R)	82,1086	24,4659				
VEGA(B)	91,2718	117,6517				
ALDEBARAN(R)	65,5680	357,4107				
RIGEL(B)	71,6142	329,6477				
GAMMA CRUCIS(R)	117,4254	245,6928				
SPICA(B)	157,7803	204,9101				
ACHERNAR(B)	53,6712	258,4477				
DENEK(B)	71,1577	104,6120				
PROCYON(B)	108,7150	340,1891				

STAR DELAY: 1.0803 SEC 276,5461 PULSES DECIMAL = 4, COARSE + 21, FINE  
 51.0563 DEC 04 25 PULSES OCTAL CKAM SUB C = 356,6162 EPSILON = 0.0000 SCNR=11

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PN 11 PASS2701 PR14 #070 S/WSK,0 DSS43A RCVR AGC 41.1 FILE 11-1248 TG  
 SPACECRAFT ATTITUDE ON DAY 234 - AUG 21,1980 0500 GMT

08/21

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4864 RCSPHAK = 143.2200

SPACECRAFT-EARTH DIRECTION: CLAT = -7.2826 CLON = 3.7699

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.6467 CLON = 3.4447

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PN 11 PASS2701 PR14 #070 S/WSK,0 DSS43A RCVR AGC 41.1 FILE 11-1248 TG 08/21/80  
 SPACECRAFT ATTITUDE ON DAY 234 AUG 21,1980 0500 GMT  
 SPIN PERIOD = 7.616820 SEC RTLT = 2 HR 52 MIN 56.99 SEC

	CKA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.6467	3.4447	-	-
SUN	3.8716	356.1598	-7.8884	7.3046	0.143666780 10	9.6035281
EARTH	0.4864	48.4625	-7.2826	3.7699	0.155547140 10	10.3975361
JUPITER	171.6174	294.3404	0.0000	180.0000	0.00000000	0.0000000
SATURN	84.4502	327.0886	-33.2685	91.8070	0.257052210 09	1.7162634
SIRIUS(B)	92.9490	319.3901				
BETELGEUSE(R)	83.0702	344.6708				
CANOPUS(B)	85.2931	283.9471				
ARCTURUS(R)	150.0220	126.8869				
RIGIL KENTARUS	108.7284	230.0378				
ANTARES(R)	113.0768	188.3095				
CAPELLA(R)	82.1027	24.4820				
VEGA(B)	91.3510	117.6567				
ALDEBARAN(R)	65.5269	357.4465				
RIGEL(B)	71.5463	329.0663				
GAMMA CRUCIS(R)	117.3778	245.7307				
SPICA(B)	157.7854	205.1087				
ACHERNAR(B)	53.6108	258.4151				
DENEK(B)	71.2345	104.6236				
PROCYON(B)	108.6550	340.1764				

STAR DELAY: 1.0802 SEC 276.5230 PULSES DECIMAL = 4. COARSE + 21. FINE  
 51.0529 SEC 04 25 PULSES CENTRAL CKAF SUB C = 356.1598 EPSILON = 0.0000 SCN = 11

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PN 11 PASS2705 PR14 #070 S/WSK,0 DSS43A RCVR AGC -131.4 FILE 11-1249 JG 08/26/80  
 SPACECRAFT ATTITUDE ON DAY 238 AUG 25, 1980 0800 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE, PRE-PRECESSION

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.8541 RCSPHAK = 112.7100

SPACECRAFT-EARTH DIRECTION: CLAT = -7.3137 CLON = 4.5115

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.5545 CLON = 3.4850

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PN 11 PASS2705 PR14 #070 S/WSK,0 DSS43A RCVR AGC -131.4 FILE 11-1249 JG 08/26/80  
 SPACECRAFT ATTITUDE ON DAY 238 AUG 25, 1980 0800 GMT  
 SPIN PERIOD = 7.616820 SEC RTLT = 2 HR 53 MIN 40.62 SEC

	CMA	LKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.5545	3.4850	-	-
SUN	4.0753	354.1700	-7.9491	7.5786	0.143788610 10	9.6115
EARTH	0.8541	15.3259	-7.3137	4.5115	0.150201140 10	10.4412
JUPITER	171.6246	294.8550	0.0000	180.0000	0.00000000	0.0000
SATURN	27.4672	327.0843	-33.2884	91.8078	0.259968450 09	1.7377
SIRIUS(R)	92.9787	319.4004				
BETELGEUSE(R)	83.0560	344.6641				
CANOPUS(R)	85.3730	283.9475				
ARCTURUS(R)	149.9722	126.7411				
RIGIL KENTARUS	108.8247	230.6334				
ANTARES(R)	113.1296	188.2784				
CAPELLA(R)	82.0281	24.4779				
VEGA(B)	91.2879	117.6603				
ALDEBARAN(R)	85.4911	357.4091				
RIGEL(B)	71.5504	329.6384				
GAMMA CRUCIS(R)	117.4783	245.7352				
SPICA(B)	157.8606	204.9585				
ACHERNAR(B)	53.7092	258.4052				
DENEK(B)	71.1554	104.6501				
PROCYON(B)	108.6493	340.2156				

STAR DELAY: 1.0802 SEC 276.5211 PULSES DECIMAL = 4. COARSE + 21. FINE  
 0.0595 SEC 08 25 PULSES DECIMAL 0.0000 SEC



PN 11 PASS2706 PR14 4979 S/WSK,0 DSS63 RCVR AGC -131.4 FILE 11-1250 JG 08/26/80  
 SPACECRAFT ATTITUDE ON DAY 238 AUG 25, 1980 1200 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C, NEW ATTITUDE  
 REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE, POST-PRECSSION

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.3915 RCSPHAK = 299.9320  
 SPACECRAFT-EARTH DIRECTION: CLAT = -7.3150 CLON = 4.3336  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.1488 CLON = 5.7262

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PN 11 PASS2706 PR14 4979 S/WSK,0 DSS63 RCVR AGC -131.4 FILE 11-1250 JG 08/26/80  
 SPACECRAFT ATTITUDE ON DAY 238 AUG 25, 1980 1200 GMT  
 SPIN PERIOD = 7.611577 SEC RILT = 2 HR 53 MIN 42.31 SEC

	CMA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.1488	5.7262	-	-
SUN	2.0127	336.3719	-7.9515	7.5880	0.143799360 10	9.6122
EARTH	1.3915	186.9439	-7.3150	4.3336	0.156226540 10	10.4429
JUPITER	170.4499	308.8607	0.0000	180.0000	0.00000000	0.0000
SATURN	82.8203	327.1988	-53.2884	91.6079	0.260086280 09	1.7365
SIRIUS(B)	91.5495	319.7564				
BETELGEUSE(R)	81.0183	344.8143				
CANCRUS(B)	85.2289	284.0489				
ARCTURUS(R)	150.9180	123.4077				
RIGIL KENTAURUS	110.5533	230.8410				
ANTARES(R)	115.3878	188.5308				
CAPELLA(R)	79.8389	24.8539				
VEGA(B)	91.9648	117.8859				
ALDEBARAN(R)	63.2887	357.4539				
RIGEL(B)	69.8484	329.4080				
GAMMA CRUCIS(R)	118.7407	247.0232				
SRICA(B)	160.0377	206.6101				
ACHERNAR(B)	54.5757	257.1836				
DENEK(B)	71.3458	105.7012				
PROCYON(B)	106.6806	340.8602				

STAR DELAY: 1.0773 SEC 275.7817 PULSES DECIMAL = 4. COARSE + 20. FINE  
 50.9511 SEC 00.29 PULSES DECIMAL CLAT SUP C = 330.3749 ERSION = 0.0000 SC

PN 11 PASS 11 PRI4 #070 S/WSK,0 DSS63 RCVR AGE -131.4 FILE 11-1251 JG  
 SPACECRAFT ATTITUDE ON DAY 243 - AUG 29, 1980 0730 GMT

09/02/80

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.8055 RCSPHAK = 309.6890

SPACECRAFT-EARTH DIRECTION: CLAT = -7.3455 CLON = 4.8435

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.1093 CLON = 5.0198

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PN 11 PASS2711 PRI4 #070 S/WSK,0 DSS63 RCVR AGE -131.4 FILE 11-1251 JG  
 SPACECRAFT ATTITUDE ON DAY 243 AUG 29, 1980 0730 GMT  
 SPIN PERIOD = 7.611693 SEC RILT = 2 HR 54 MIN 19.67 SEC

09/02/80

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.1093	5.0198	-	-
SUN	2.3441	337.3298	-8.0075	7.8040	0.143902650 10	9.6191611
EARTH	0.8055	197.1032	-7.3455	4.8435	0.156786490 10	10.4803803
JUPITER	170.9467	308.4870	0.0000	180.0000	0.000000000	0.0000000
SATURN	62.9204	327.1888	-33.2883	91.8005	0.262780100 09	1.7505514
SIRIUS(B)	91.0556	319.7421				
BETELGEUSE(R)	81.1306	344.7994				
CANOPUS(B)	65.2929	284.0434				
ARCTURUS(R)	150.8268	123.5135				
RIGIL KENTAURUS	110.5172	230.7876				
ANTARES(R)	115.2092	188.4916				
CAPELLA(R)	79.9181	24.8264				
VEGA(B)	91.8804	117.8752				
ALDEBARAN(R)	63.3960	357.4232				
RIGEL(B)	69.9594	329.4020				
GAMMA CRUCIS(R)	118.7358	246.9482				
SPICA(B)	159.9611	206.5095				
ACHERNAR(B)	54.5909	257.2499				
DENEK(B)	71.2791	105.0572				
PROCYON(B)	108.8013	340.8478				

STAR DELAY: 1.0774 SEC 275.8157 PULSES DECIMAL = 4, COARSE + 20, FINE  
 50.9566 DEC 04 24 PULSES DECIMAL GRAN SUB C = 337.3298 EPSILON = 0.0000 SEN = 11

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Finme  
09/01/80

PR 11 PASS 18 PRI4 #070 S/WSK,0 DSS63 RCVR AGC 133.2 FILE 11-1252 BD  
SPACECRAFT ATTITUDE ON DAY 250 SEP 6,1980 1200 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ELLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,3980 RCSPHAK = 58,9180

SPACECRAFT-EARTH DIRECTION: CLAT = -7,4172 CLON = 5,9644

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7,1004 CLON = 5,7216

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PR 11 PASS 2718 PRI4 #070 S/WSK,0 DSS63 RCVR AGC =133.2 FILE 11-1252 BD 09/06/80  
SPACECRAFT ATTITUDE ON DAY 250 SEP 6,1980 1200 GMT  
SPIN PERIOD = 7,611693 SEC RTLT = 2 HR 55 MIN 30,16 SEC

	CMA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-7,1004	5,7216	"	"
SUN	2,7260	337,7139	-8,1269	8,2694	0,144142210 10	9,6351745
EARTH	0,3980	307,2264	-7,4172	5,9644	0,157843170 10	10,5510140
JUPITER	170,8905	309,0274	0,0000	180,0000	0,000000000	0,0000000
SATURN	82,8520	327,1935	-33,2882	91,8097	0,268560840 09	1,7951928
SIRIUS(B)	91,5843	319,7568				
BETELGEUSE(R)	81,0355	344,8065				
CALCIPUS(B)	85,2770	284,0477				
ARCTURIUS(R)	150,8750	123,3661				
RIGIL KENTAURUS	110,5879	230,8276				
ANTARES(R)	115,3904	188,5071				
CAPELLA(R)	79,8227	24,8451				
VEGA(B)	91,9198	117,8847				
ALDEBARAN(R)	63,2955	357,4291				
RIGEL(B)	69,8770	329,3930				
GAMMA CRUCIS(R)	118,7835	247,0099				
SPICA(B)	160,0554	206,6846				
ACHERNAR(B)	54,6220	257,1939				
DENEBO(B)	71,2979	105,7036				
PROCYON(B)	106,7088	340,8729				

STAR DELAY: 7,0773 SEC 275,7923 PULSES DECIMAL = 4, COARSE + 20, FINE  
50,9523 DEG 04 24 PULSES CCIAL CKAH SUB C = 337,7139 EPSILON= 0,0000 SCAN=11

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PN 11 PASS2721 PRI4 #070 S/WSKO DSS63 RCVR AGC -136.6 FILE 11-1253 RC  
 SPACECRAFT ATTITUDE ON DAY 253 SEP 9, 1980 1200 GMT

09/11/80

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

PRE-PRECESSION

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7156 RCSPHAK = 84.3350  
 SPACECRAFT-EARTH DIRECTION: CLAT = -7.4457 CLON = 6.3825  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.1357 CLON = 5.7323

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PN 11 PASS2721 PRI4 #070 S/WSKO DSS63 RCVR AGC -136.6 FILE 11-1253 RC  
 SPACECRAFT ATTITUDE ON DAY 253 SEP 9, 1980 1200 GMT  
 SPIN PERIOD = 7.611571 SEC HTLT = 2 HR 55 MIN 52.52 SEC

09/10/80

	CNA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-7.1357	5.7323	-	-
SUN	2.8726	338.7118	-8.1704	8.4362	0.144231650 10	9.6411531
EARTH	0.7155	334.2883	-7.4457	6.3825	0.158178380 10	10.5734211
JUPITER	170.8563	308.9419	0.0000	180.0000	0.00000000	0.0000000
SATURN	82.8241	327.1979	-33.2881	91.8100	0.270677380 09	1.8093408
SIRIUS(B)	91.5533	319.7575				
BETELGEUSE(R)	81.0159	344.8128				
CANCRUS(B)	85.2401	284.0489				
ARCTURUS(R)	150.9104	123.3664				
RIGIL KENTAURUS	110.5673	230.8404				
ANTARES(R)	115.3957	188.5258				
CAPELLA(R)	79.8279	24.8530				
VEGA(B)	91.9560	117.8862				
ALDEBARAN(R)	63.2832	357.4479				
RIGEL(B)	69.8498	329.4035				
GAMMA CRUCIS(R)	118.7551	247.0242				
SPICA(B)	160.0490	206.7862				
ACHERNAR(B)	54.5899	257.1823				
DENEK(B)	71.3348	105.7051				
PROCYON(B)	106.6872	340.8653				

STAR DELAY: 1.0773 SEC 275.7814 PULSES DECIMAL = 4. COARSE + 20. FINE  
 50.9511 DEG 04-24 PULSES CITAL CKAH SUB C = 338.7118 EPSILON = 0.0000 SCAN = 1

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REFER FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC

FILE 11-1254

ROLL REFERENCE PARAMETERS: ASPSGRKS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1,0660 RCSPFAK = 320,9200  
 SPACECRAFT-EARTH DIRECTION: CLAT = -7,4463 CLON = 6,3912  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7,2713 CLON = 7,4515

NEW ATTITUDE  
 POST-PRECESSION

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PN 11 PASS2721 PR14 #7/7 S/WSKO DSS63 RCVR AGC -138.1 FILE 11-1254 RC 09/10/80  
 SPACECRAFT ATTITUDE ON DAY 253 SEP 9, 1980 1330 GMT  
 SPIN PERIOD = 7,607542 SEC RTLT = 2 HR 55 MIN 52,97 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-7,2713	7,4515	-	-
SUN	1,3300	317,3497	-8,1713	8,4398	0,14423352D 10	9,6412781
EARTH	1,0660	189,5155	-7,4463	6,3912	0,1581850eD 10	10,5738676
JUPITER	169,6030	315,9403	0,0000	180,0000	0,00000000	0,0000000
SATURN	81,3162	327,3008	-33,2881	91,8100	0,27072147C 09	1,8096355
SIRIUS(B)	90,1617	319,9880				
BETELGEUSE(R)	79,3339	344,9741				
CANOPUS(B)	84,6935	284,1217				
ARCTURUS(R)	151,9352	121,0857				
RIGIL KENTAURUS	111,5299	231,6004				
ANTARES(R)	117,0610	188,9350				
CAPELLA(R)	78,3400	25,2315				
VEGA(B)	92,8756	118,0409				
ALDEBARAN(R)	61,5734	357,6965				
RIGEL(B)	68,3131	329,3315				
GAMMA CRUCIS(R)	119,2803	248,1432				
SPICA(B)	161,4882	209,6567				
ACHERNAR(B)	54,8506	256,2013				
DENE(B)	71,9375	106,4523				
PROCYON(B)	105,0301	341,2019				

STAR DELAY: 1,0752 SEC 275,2417 PULSES DECIMAL = 4, COARSE + 19, FINE  
 50,8783 DEG 04 23 PULSES OCTAL CKAH SUB C = 317,3497 EPSILON= 0,0000 SCN=11

ACHERNAR(B) 54,8506 256,2013  
 DENE(B) 71,9375 106,4523  
 PROCYON(B) 105,0301 341,2019

STAR DELAY: 1,0752 SEC 275,2417 PULSES DECIMAL = 4, COARSE + 19, FINE  
 50,8783 DEG 04 23 PULSES OCTAL CKAH SUB C = 317,3497 EPSILON= 0,0000 SCN=11

PN 11 PASS2724 PRI4 #070 S/WSK,0 DSS63 RCVR AGC -133.2 FILE 11-1255 RS  
 SPACECRAFT ATTITUDE ON DAY 256 SEP 12,1980 1040 GMT

09/12/80

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7167 RCSPFAK = 326.8360

SPACECRAFT-EARTH DIRECTION: CLAT = -7.4748 CLON = 6.7960

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.2702 CLON = 7.4885

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PN 11 PASS2724 PRI4 #070 S/WSK,0 DSS63 RCVR AGC -133.2 FILE 11-1255 RS  
 SPACECRAFT ATTITUDE ON DAY 256 SEP 12,1980 1040 GMT  
 SPIN PERIOD = 7.607000 SEC RTLT = 2 HR 56 MIN 12.60 SEC

09/12/80

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.2702	7.4885	-	-
SUN	1.4519	319.4159	-8.2130	8.6022	0.144320270 10	9.647076
EARTH	0.7167	196.6375	-7.4748	6.7960	0.158479260 10	10.593533
JUPITER	169.5774	316.0882	0.0000	180.0000	0.00000000	0.000000
SATURN	81.2862	327.3024	-33.2881	91.8102	0.272536000 09	1.821764
SIRIUS(B)	90.1344	319.9928				
BETELGEUSE(R)	79.2988	344.9767				
CANOPUS(B)	84.6857	284.1231				
ARCTURUS(R)	151.9531	121.0303				
RIGIL KENTAURUS	111.5536	231.6162				
AKTARES(R)	117.0974	188.9420				
CAPELLA(R)	78.3063	25.2392				
VEGA(B)	92.8918	118.0440				
ALDEBARAN(R)	61.5368	357.6998				
RIGEL(B)	68.2822	329.3283				
GAMMA CRUCIS(R)	119.2950	248.1668				
SPICA(B)	161.5207	209.7127				
ACHERNAR(B)	54.8605	256.1811				
DENEK(B)	71.9468	106.4666				
PROCYON(B)	104.9957	341.2101				

STAR DELAY: 1.0751 SEC 275.2148 PULSES DECIMAL = 4. COARSE + 19. FINE  
 50.8769 DEG 04 23 PULSES OCTAL CKAH SUB C = 319.4159 EPSILON = 0.0000 SCN =

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PN 11 PASS2730 FR14 #070 S/WSKO DSS448 RCVR AGC =142.5 FILE 11-1256 RC  
 SPACECRAFT ATTITUDE ON DAY 263 SEP 19, 1980 0300 GMT

19/80

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRKS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4609 RCSPHAK = 79.1400

SPACECRAFT-EARTH DIRECTION: CLAT = -7.5454 CLON = 7.7434

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.2183 CLON = 7.4160

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PN 11 PASS2730 FR14 #070 S/WSKO DSS448 RCVR AGC =142.5 FILE 11-1256 RC  
 SPACECRAFT ATTITUDE ON DAY 263 SEP 19, 1980 0300 GMT  
 SPIN PERIOD = 7.607542 SEC RTLT = 2 HR 56 MIN 51.15 SEC

09/19/80

	CNA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-7.2183	7.4160	-	-
SUN	1.8936	324.7214	-8.3092	8.9782	0.14452453D 10	9.66073
EARTH	0.4609	314.7676	-7.5454	7.7434	0.15905709D 10	10.63215
JUPITER	169.6651	316.0103	0.0000	180.0000	0.00000000	0.00000
SATURN	81.3750	327.2926	-33.2880	91.8106	0.27746224D 09	1.85463
SIRIUS(B)	90.2228	319.9836				
BETELGEUSE(R)	79.3816	344.9617				
CANOPUS(B)	84.7535	284.1192				
ARCTURUS(R)	151.8716	121.0865				
RIGIL KENTAUROS	111.5496	231.5721				
ANTARES(R)	117.0345	188.9010				
CAPELLA(R)	78.3492	25.2141				
VEGA(B)	92.8123	118.0368				
ALDEBARAN(R)	61.6107	357.0642				
RIGEL(B)	68.3704	329.3160				
GAMMA CRUCIS(R)	119.3163	248.1093				
SPICA(B)	161.4837	209.4627				
ACHERNAR(B)	50.8937	256.2298				
DENEB(B)	71.8767	106.4417				
PROCYON(B)	105.0605	341.2079				

STAR DELAY: 1.0752 SEC 275.2553 PULSES LOCAL = 0. CLARSP + 19. FINE  
 50.8808 DFC 04 23 PULSES LOCAL CLAR SPIN C = 324.7214 EPSILON = 0.0000 SC

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PN 11 PASS2737 PR14 #070 S/WSK,0 DSS63 RCVR AGC -131.4 FILE 11-1257 JG  
 SPACECRAFT ATTITUDE ON DAY 269 SEP 25,1980 1100 GMT

09/26/80

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

PRE-PRECESSION

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.2316 RCSPHAK = 104.6200

SPACECRAFT-EARTH DIRECTION: CLAT = -7.6159 CLON = 8.6512

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.1980 CLON = 7.4830

PN 11 PASS2737 PR14 #070 S/WSK,0 DSS63 RCVR AGC -131.4 FILE 11-1257 JG  
 SPACECRAFT ATTITUDE ON DAY 269 SEP 25,1980 1100 GMT  
 SPIN PERIOD = 7.607540 SEC RILT = 2 HR 57 MIN 18.60 SEC

09/26/80

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.1980	7.4830	-	-
SUN	2.1926	326.7197	-8.3972	9.3357	0.144723480 10	9.6740294
EARTH	1.2316	340.0867	-7.6159	8.6512	0.159468890 10	10.6596718
JUPITER	169.6313	316.3508	0.0000	180.0000	0.00000000	0.0000000
SATURN	169.6313	316.3508	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	90.1850	319.9922				
BETELGEUSE(B)	79.3228	344.9631				
CANOPUS(B)	84.7570	284.1212				
ARCTURUS(R)	151.8884	120.9688				
RIGIL KENTAURUS	111.6068	231.5960				
ANTARES(R)	117.1032	188.9044				
CAPELLA(R)	78.2805	25.2245				
VEGA(B)	92.8255	118.0418				
ALDEBARAN(R)	61.5452	357.6601				
RIGEL(B)	68.3237	329.3040				
GAMMA CRUCIS(R)	119.3600	248.1481				
SPICA(B)	161.5516	209.5159				
ACHERNAR(B)	54.9293	256.1963				
DENEK(B)	71.8760	106.4725				
PROCYON(B)	105.0242	341.2272				

PRE-PRECESSION

STAR DELAY: 1.0752 SEC 275.2443 PULSES DECIMAL = 4. COARSE + 19. FINE  
 50.8788 DEG 04 23 PULSES OCTAL CKAM SUB L = 326,7197 EPSILON= 0.0000 SCN=11



PN 11 PASS2737 PR14 #6/8 S/WSKO DSS63 RCVR AGC -161.1 FILE 11-1258  
SPACECRAFT ATTITUDE ON DAY 269 SEP 25, 1980 1500 GMT

09/26/80

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPPAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6566 RCSPHAK = 50.0750

NEW ATTITUDE  
POST-PRECESION

SPACECRAFT-EARTH DIRECTION: CLAT = -7.6179 CLON = 8.0751

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.0076 CLON = 8.9192

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PN 11 PASS2737 PR14 #6/8 S/WSKO DSS63 RCVR AGC -161.1 FILE 11-1258  
SPACECRAFT ATTITUDE ON DAY 269 SEP 25, 1980 1500 GMT  
SPIN PERIOD = 7.603030 SEC RTLT = 2 HR 57 MIN 19.21 SEC

09/26/80

	CMA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.0076	8.9192	-	-
SUN	1.4545	286.8361	-8.3996	9.3450	0.144728740 10	9.6743810
EARTH	0.6566	248.3776	-7.6179	8.0751	0.159477700 10	10.6602741
JUPITER	168.6747	322.1393	0.0000	180.0000	0.00000000	0.0000000
SATURN	168.6747	322.1393	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	89.2141	320.1643				
BETELGEUSE(R)	77.9954	345.0299				
CANOPUS(B)	84.5933	284.1657				
ARCTURUS(R)	152.4316	118.6251				
RIGIL KENTAUHUS	112.6362	232.1818				
ANTARES(R)	118.5407	189.1004				
CAPELLA(R)	76.9111	25.4986				
VEGA(R)	93.3288	118.1470				
ALDEBARAN(R)	60.1288	357.6994				
RIGEL(B)	67.1968	329.1164				
GAMMA CRUCIS(R)	120.0573	249.0432				
SPICA(B)	162.8766	211.4356				
ACHERNAR(B)	55.4630	255.4457				
DENEK(B)	72.1055	107.1120				
PROCYON(B)	103.7341	341.5677				

NEW ATTITUDE  
POST-PRECESION

STAR DELAY: 1.0736 SEC 274.8408 PULSES DECIMAL = 4. COARSE + 19. FINE  
50.8343 DEG 04 23 PULSES CICAL CKAH SUB C = 286.8361 EPSILON = 0.0000 SCN = 11

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N 11 PASS274 PR14 #376 S/WSKO DSS63 RCVR AGC -1.2 FILE 11-1260 BD 09/30/8  
 SPACECRAFT ATTITUDE ON DAY 274 SEP 30, 1980 1300 GMT \*FILE 11-1259 PRE

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C. NO SOLUTION  
 REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE. -POST PRECESSION-

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7331 RCSPFAK = 250.1200

SPACECRAFT-EARTH DIRECTION: CLAT = -7.6788 CLON = 9.3811

NEW ATTITUDE  
 POST-PRECESSION

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -6.9864 CLON = 9.6239

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N 11 PASS2742 PR14 #376 S/WSKO DSS63 RCVR AGC -133.2 FILE 11-1260 BD 09/30/80  
 SPACECRAFT ATTITUDE ON DAY 274 SEP 30, 1980 1300 GMT  
 SPIN PERIOD = 7.600096 SEC RTLT = 2 HR 57 MIN 34.07 SEC

	CKA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-6.9864	9.6239	-	-
SUN	1.4831	269.8670	-8.4694	9.6204	0.144884920 10	9.6848209
EARTH	0.7331	250.8428	-7.6788	9.3811	0.159700490 10	10.6751664
JUPITER	168.1270	324.3475	0.0000	180.0000	0.00000000	0.0000000
SATURN	168.1270	324.3475	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	88.6903	320.2410				
BETELGEUSE(R)	77.3251	305.0718				
CANOPUS(B)	84.4426	284.1659				
ARCTURUS(R)	152.7420	117.5016				
RIGIL KENTAURUS	113.0804	232.4955				
ANTARES(R)	119.2346	189.2362				
CAPELLA(R)	76.2710	25.6518				
VEGA(B)	93.6403	118.1947				
ALDEBARAN(R)	59.4308	357.7567				
RIGEL(B)	66.6077	329.0412				
GAMMA CRUCIS(R)	120.3247	249.5053				
SPICA(B)	163.4807	212.6900				
ACHERNAR(B)	55.6615	255.0714				
DENEK(B)	72.2928	107.4143				
PROCYON(B)	103.0770	341.7108				

NEW ATTITUDE  
 POST-PRECESSION

STAR DELAY: 1.0728 SEC 274.6252 PULSES DECIMAL = 4. COARSE + 19. FINE  
 50.8141 DEG 04 23 PULSES CITAL CKAH SUB C = 269.8670 EPSILON = 0.0000 SCR=11

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PN 11 PASS 2744 PR14 #070 S/WSK.0 DSS61 RCVR ACC -138.1 FILE 11-1259 PD  
 SPACECRAFT ATTITUDE ON DAY 276 OCT 2, 1980 1131 GMT

10/02/80

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPCS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6934 RCSPHAK = 259.5130

SPACECRAFT-EARTH DIRECTION: CLAT = -7.7039 CLCR = 9.0597

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.0269 CLCR = 9.0110

PN 11 PASS 2744 PR14 #070 S/WSK.0 DSS61 RCVR ACC -138.1 FILE 11-1259 PD  
 SPACECRAFT ATTITUDE ON DAY 276 OCT 2, 1980 1131 GMT

10/02/80

SPIN PERIOD = 7.600096 SEC WILT = 2 HR 57 MIN 38.42 SEC

	CKA	CKA	CLAT	CLCR	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-7.0269	9.0110	-	-
SUN	1.4722	260.0345	-8.4989	9.7289	0.144947160 10	9.6889020
EARTH	0.6934	257.5140	-7.7039	9.0597	0.159765740 10	10.6795201
JUPITER	107.9522	324.7230	0.0000	100.0000	0.000000000	0.0000000
SIRIUS(B)	80.5210	320.2623				
BETELGEUSE(B)	77.1352	345.0920				
CANOPUS(B)	84.3570	280.1921				
ARCTURUS(B)	152.0634	117.2397				
RIGIL KENTARUS	113.1011	232.5910				
ANTARES(B)	119.4113	189.2923				
CAPELLA(B)	76.1212	25.7034				
VEGA(B)	93.7038	118.2002				
ALDEBARAN(B)	59.2437	357.7993				
RIGEL(B)	66.4275	329.0370				
GAMMA CRUCIS(B)	120.3510	249.0303				
SPICA(B)	163.6145	213.1700				
ACHERNAR(B)	55.6703	254.9040				
DENEK(B)	72.3872	107.4890				
PROCYON(B)	102.8879	341.7302				

STAR DELAY: 1.0720 SEC 274.5920 PULSES DECIMAL = 4. COARSE + 19. FINE  
 50.8079 CFG 04 23 PULSES CTAL CKAH SUB C = 260.8395 EPSILON = 0.0000 SCR=1

PN 11 PAS 752 PR14 #0/0 S/WSK.0 DSS63P RCVR AGC -134.9 FILE 11-1262 RS  
SPACECRAFT ATTITUDE ON DAY 284 OCT 10,1980 1200 GMT

10/11/80

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD NORTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.2505 RCSPHAK = 310.5570

SPACECRAFT-EARTH DIRECTION: CLAT = -7.8140 CLON = 10.8107

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.0490 CLON = 9.8131

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PN 11 PASS2752 PR14 #0/0 S/WSK.0 DSS63P RCVR AGC -134.9 FILE 11-1262 RS  
SPACECRAFT ATTITUDE ON DAY 284 OCT 10,1980 1200 GMT  
SPIN PERIOD = 7.600099 SEC RTLT = 2 HR 57 MIN 47.24 SEC

10/14/80

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-7.0490	9.8131	-	-
SUN	1.6021	282.9782	-8.6100	10.1770	0.14520856D 10	9.7064545
EARTH	1.2505	322.2171	-7.8140	10.8107	0.15989787D 10	10.6883603
JUPITER	167.9377	324.6447	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	88.5059	320.2630				
BETELGEUSE(R)	77.1275	345.0976				
CANOPUS(B)	84.3359	284.1927				
ARCTURUS(R)	152.8839	117.2560				
RIGIL KENTAURUS	113.1449	232.5986				
ANTARES(R)	119.4098	189.3110				
CAPELLA(R)	76.1289	25.7088				
VEGA(B)	93.7842	118.2090				
ALDEBARAN(R)	59.2407	357.8126				
RIGEL(B)	66.4144	329.0457				
GAMMA CRUCIS(R)	120.3316	249.6442				
SPICA(B)	163.6042	213.2369				
ACHERNAR(B)	55.6496	254.9595				
DENE(B)	72.4089	107.4884				
PROCYON(B)	102.8790	341.7338				

STAR DELAY: 1.0726 SEC 274.5889 PULSES DECIMAL = 4. COARSE + 19. FINE  
50.8073 DEG 04 23 PULSES OCTAL CKAH SUB C = 282.9782 EPSILON= 0.0000 SCN=11

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PN 11 PASS3163 PR14 #0/0 S/WSK.0 DSS62P RCVR AGC -141.1 FILE 11-1265 RS 10/21/80  
SPACECRAFT ATTITUDE ON DAY 295 OCT 21, 1980 0930 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRPS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7985 RCSPHAK = 315.9440

SPACECRAFT-EARTH DIRECTION: CLAT = -7.9808 CLON = 12.3543

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.1824 CLON = 12.3421

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PN 11 PASS3163 PR14 #0/0 S/WSK.0 DSS62P RCVR AGC -141.1 FILE 11-1265 RS 10/21/80  
SPACECRAFT ATTITUDE ON DAY 295 OCT 21, 1980 0930 GMT  
SPIN PERIOD = 7.592234 SEC RTLT = 2 HR 57 MIN 35.56 SEC

	CNA	CKA	CLAT	CLON	R(KM)	P(A)
S/C +Z AXIS	0.0000	0.0000	-7.1824	12.3421	-	-
SUN	2.2087	225.7680	-8.7621	10.7834	0.14557351D 10	9.7300
EARTH	0.7985	270.8970	-7.9808	12.3548	0.15972282D 10	10.6760
JUPITER	165.7482	330.2559	0.0000	180.0000	0.00000000	0.0000
SIRIUS(B)	86.4875	320.5108				
BETELGEUSE(R)	74.6673	345.2322				
CANOPUS(B)	83.5899	284.2522				
ARCTURUS(P)	154.0739	113.1310				
RIGIL KENTAURUS	114.5409	233.2356				
ANTARES(P)	121.8617	189.9509				
CAPELLA(R)	73.9323	26.3487				
VEGA(B)	95.0009	118.3557				
ALDEBARAN(R)	56.7281	358.1541				
RIGEL(B)	64.1960	328.8159				
GAMMA CRUCIS(B)	121.0431	251.3882				
SPICA(B)	165.5508	219.3264				
ACHERNAP(B)	56.2010	253.6141				
DENEK(B)	73.3116	108.5252				
PROCYON(B)	109.4515	342.1814				

STAR DELAY: 1.0703 SEC 273.9854 PULSES DECIMAL = 4. COARSE + 18. FINE  
50.7478 DEG 04 22 PULSES OCTAL CNAH SUB C = 225.7680 EPSILON= 0.0000 S

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PN 11 PASS2756 PR14 #7/14 S/WSK.0 DSS63 RCVR AGC -134.9 FILE 11-1264

10/14/80

SPACECRAFT ATTITUDE ON DAY 288 CCT 14,1980 1400 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

NEW ATTITUDE  
POST-PRECESSION

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.1654 RCSPHAK = 266.8000

SPACECRAFT-EARTH DIRECTION: CLAT = -7.8741 CLUN = 11.3925

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.2011 CLUN = 12.3522

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PN 11 PASS2756 PR14 #7/14 S/WSK.0 DSS63 RCVR AGC -134.9 FILE 11-1264

10/14/80

SPACECRAFT ATTITUDE ON DAY 288 CCT 14,1980 1400 GMT

SPIN PERIOD = 7.592204 SEC RTLT = 2 HR 57 MIN 46.03 SEC

	CNA	CKA	CLAT	CLUN	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.2011	12.3522	-	-
SUN	2.4230	217.3644	-8.6672	10.4044	0.14534389D 10	9.715500Y
EARTH	1.1654	215.3373	-7.8741	11.3925	0.15987980D 10	10.6871524
JUPITER	165.7303	330.2127	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	86.4679	320.5126				
BETELGEUSE(R)	74.6529	345.2877				
CANOPUS(B)	83.5693	284.2529				
ARCTURUS(R)	154.0950	113.1285				
RIGIL KENTAURUS	114.5317	233.8456				
ANTARES(R)	121.8683	189.9647				
CAPELLA(R)	73.9317	26.3560				
VEGA(B)	95.1121	118.3570				
ALDEBARAN(R)	56.7175	358.1674				
RIGEL(B)	64.1777	328.8224				
GAMMA CRUCIS(R)	121.0285	251.3987				
SPICA(B)	165.5467	219.4083				
ACHERNAR(B)	56.1858	253.6054				
DENER(B)	73.3325	108.5275				
PROCYON(B)	100.4363	342.1800				

STAR DELAY: 1.0702 SEC 273.9788 PULSES DECIMAL = 4. COARSE + 18. FINE  
50.7471 DEG 04 22 PULSES OCTAL CKAH SUB C = 217.3644 EPSILON= 0.0000 SCN=11

PH 11 PASS2765 PR14 #070 S/W0.0 DSS63 PCVA 300 -133.2 FILE 11-1266 PD  
 SPACECRAFT ATTITUDE ON DAY 297 OCT 23, 1980 1000 GMT

10/23/80

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPEAK IS TOWARD SOUTH POLARIC POLE.

PRE - f

ROLL REFERENCE PARAMETERS: ASPSGHRS = 180 POSTPLS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.3676 RCSPEAK = 352.7300

SPACECRAFT-EARTH DIRECTION: CLAT = -8.0140 CLON = 12.6371

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.1295 CLON = 12.3353

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PH 11 PASS2765 PR14 #070 S/W0.0 DSS63 PCVA 300 -133.2 FILE 11-1266 PD  
 SPACECRAFT ATTITUDE ON DAY 297 OCT 23, 1980 1000 GMT  
 SPIN PERIOD = 7.502284 SEC PFLT = 2 HC 97 MIN 50.45 SEC

10/23/80

	CLAT	CLON	R (RM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-	-
SUN	2.1350	220.2260	0.145642450 10	9.735457
EARTH	1.2476	290.1461	0.159646240 10	10.671540
JUPITER	165.7455	330.1231	0.00000000	0.000000
SIRIUS (B)	56.4217	320.5111		
BETELGEUSE (R)	74.6694	345.2862		
CANOPUS (R)	30.5740	234.2525		
ARCTURUS (R)	154.0370	113.1503		
RIGIL KENTAURUS	114.5231	232.3369		
ANTARES (R)	121.9521	189.2500		
CAPELLA (R)	72.9440	26.4514		
VEGA (R)	95.1028	118.3561		
ALDEBARAN (R)	56.7343	352.1646		
RIGEL (R)	64.1923	328.9239		
GAMMA CRUCIS (R)	121.0244	251.3869		
SPICA (R)	165.5347	218.3605		
ACHEPNAZ (R)	55.1324	253.6143		
DENER (R)	73.3253	102.5203		
PROCYON (R)	101.4527	342.1772		

STAR DELAY: 1.0702 SEC 273.9835 PULSES DECIMAL = 4. COARSE + 18. FINE  
 50.7475 DEC 04 22 PULSES OCTAL CRAW SUB C = 220.2263 EPSILON = 0.0000 SCN =

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PH 11 PASS2765 PR14 #076 S/WQ.0 DSS63 PCVH C -134.9 FILE 11-1267 PD  
 SPACECRAFT ATTITUDE ON DAY 297 OCT 23, 1980 1400 GMT

10/23/80

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR ROCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSCRS = 120 ROCSIPCS = 180

AMPLITUDE AND PHASE ANGLE: ROCSANGAK = 1.0501 ROCSPHAK = 200.6800

SPACECRAFT-EARTH DIRECTION: CIAT = -8.9168 CLEN = 12.6603

SPACECRAFT +Z AXIS ATTITUDE: CIAT = -7.9136 CLEN = 13.7005

POST-8

PH 11 PASS2765 PR14 #076 S/WQ.0 DSS63 PCVH C -134.9 FILE 11-1267 PD 10/23/80  
 SPACECRAFT ATTITUDE ON DAY 297 OCT 23, 1980 1400 GMT  
 SPIN PERIOD = 7.522422 SEC PULS = 2 MIN 57 MIN 29.99 SEC

	CNA	CRA	CIAT	CLEN	R (KM)	P (AU)
S/C +Z AXIS	0.0000	0.0000	-7.9136	13.7005	-	-
SUN	2.0442	132.0337	-8.7925	10.9349	0.145643150 10	9.735877
EARTH	1.0501	101.2241	-8.9168	12.6603	0.159630320 10	10.671077
JUPITER	164.2631	320.3527	0.0000	180.0000	0.000000000	0.000000
SIRIUS (R)	35.0442	220.6607				
PETELGEUSE (R)	73.2050	345.5377				
CANOPUS (R)	82.6461	284.2907				
ARCTURUS (R)	155.1562	111.1901				
RICH KENTAURUS	114.2152	224.6246				
ANTARES (R)	123.0737	190.6763				
CAPPELLA (R)	73.0110	26.2724				
VEGA (R)	96.2867	119.4449				
ALDEBARAN (R)	55.2445	358.7316				
RIGEL (R)	67.7153	222.9152				
GAMMA CRUCIS (R)	120.8609	252.4509				
SPICA (R)	166.1267	224.9420				
ACHERNAP (R)	55.9457	252.1021				
DENER (R)	74.3426	102.9134				
PROCYON (R)	93.9765	342.3261				

STAR DELAY: 1.0432 SEC 273.6456 PULSES DECIMAL = 4. COARSE + 18. FINE  
 50.7000 SEC 04 22 PULSES OCTAL CRAWL SUB C = 199.6838 EPSILON = 0.0000 SEC



PN 11 PASS2768 PRI4 #070 S/WSK.0 DSS62A RCVR AGC -142.5 FILE 11-1268 TS  
 SPACECRAFT ATTITUDE ON DAY 300 OCT 26, 1980 1420 GMT

10/28/80

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7103 RCSPHAK = 269.7110

SPACECRAFT-EARTH DIRECTION: CLAT = -8.0677 CLON = 13.0781

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.8102 CLON = 13.7465

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PN 11 PASS2768 PRI4 #070 S/WSK.0 DSS62A RCVR AGC -142.5 FILE 11-1267 TS  
 SPACECRAFT ATTITUDE ON DAY 300 OCT 26, 1980 1420 GMT  
 SPIN PERIOD = 7.588622 SEC RTLT = 2 HR 57 MIN 20.58 SEC

10/28/80

	CNA	CKA	CLAT	CLON	R (KM)	F (AU)
S/C +Z AXIS	0.0000	0.0000	-7.8102	13.7465	-	-
SUN	2.8375	201.3427	-8.3341	11.0720	0.145751710 10	9.7427614
EARTH	0.7103	201.2990	-8.0677	13.0781	0.159498340 10	10.6616537
JUPITER	164.2269	330.9482	0.0000	150.0000	0.00000000	0.0000000
SIRIUS(B)	35.0131	320.6644				
BETELGEUSE(R)	73.1617	345.5395				
CANOPUS(B)	82.6382	284.2911				
ARCTURUS(R)	155.1799	111.0923				
RIGIL KENTAURUS	114.8444	234.7071				
ANTARES(R)	123.1191	190.6864				
CAPELLA(R)	72.9687	26.8841				
VEGA(B)	96.3054	113.4465				
ALDEBARAN(R)	55.3191	358.7348				
RIGEL(B)	62.6755	325.9078				
GAMMA CRUCIS(R)	120.8760	252.4824				
SFICA(B)	166.1614	225.0691				
ACHERNAR(B)	56.0025	252.7797				
DENER(B)	74.3543	109.0320				
PROCYON(B)	98.9341	342.3350				

STAR DELAY: 1.0689 SEC 273.6431 PULSES DECIMAL = 4. COARSE + 18. FINE  
 50.7089 DEG 04 22 PULSES OCTAL' CKAH SUB C = 201.3427 EPSILON= 0.0000 SCN=1

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PN 11 PASS2772 PRI4 #0/0 S/WSK.0 DSS62 RCVR AGC -142.5 FILE 11-1269 RS 30/80  
 SPACECRAFT ATTITUDE ON DAY 304 OCT 30,1980 1400 GMT

RCLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.3352 RCSPHAK = 323.5500

SPACECRAFT-EARTH DIRECTION: CLAT = -8.1375 CLON = 13.6245

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.8109 CLON = 13.7010

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PN 11 PASS2772 PRI4 #0/0 S/WSK.0 DSS62 RCVR AGC -142.5 FILE 11-1268 RS 10/30/80  
 SPACECRAFT ATTITUDE ON DAY 304 OCT 30,1980 1400 GMT  
 SPIN PERIOD = 7.588622 SEC RTLT = 2 HR 57 MIN 5.09 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-7.8109	13.7010	-	-
SUN	2.6152	204.5181	-8.8891	11.2928	0.14588996D 10	9.752 0
EARTH	0.3352	256.9548	-8.1375	13.6245	0.15926609D 10	10.6 2
JUPITER	164.2660	330.8621	0.0000	180.0000	0.00000000	0.0 0
SIRIUS(B)	85.0476	320.6608				
BETELGEUSE(R)	73.2052	345.5369				
CANOPUS(B)	82.6487	284.2906				
ARCTURUS(R)	155.1643	111.1776				
RIGIL KENTAURUS	114.8177	234.6841				
ANTARES(R)	123.0747	190.6752				
CAPELLA(R)	73.0093	26.8718				
VEGA(B)	96.2845	118.4447				
ALDEBARAN(R)	55.3642	358.7297				
RIGEL(B)	62.7178	328.9139				
GAMMA CRUCIS(R)	120.8637	252.4506				
SPIGA(B)	166.1290	224.9355				
ACHERNAR(B)	55.9884	252.8024				
DENEK(B)	74.3402	109.0138				
PROCYON(B)	98.9768	342.3266				

STAR DELAY: 1.0689 SEC 273.6459 PULSES DECIMAL = 4. COARSE + 18. FINE  
 50.7094 DEG 04 22 PULSES OCTAL CKAH SUB C = 204.5181 EPSILON= 0.0000 SCI

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PN 11 PASS2778 PR14 #070 S/WSK,0 DSS62 RCVR AGC =142.5 FILE 11-1270  
 SPACECRAFT ATTITUDE ON DAY 310 NOV 5,1980 1030 GMT

11/05/80

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.8555 RCSPHAK = 34.7150

SPACECRAFT-EARTH DIRECTION: CLAT = -8.2451 CLON = 14.4119

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7.8598 CLON = 13.6404

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PN 11 PASS2778 PR14 #070 S/WSK,0 DSS62 RCVR AGC =142.5 FILE 11-1270  
 SPACECRAFT ATTITUDE ON DAY 310 NOV 5,1980 1030 GMT  
 SPIN PERIOD = 7.588622 SEC RTLT = 2 HR 56 MIN 36.12 SEC

11/05/80

S/C +Z AXIS	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
SUN	0.0000	0.0000	-7.8598	13.6404	-	-
EARTH	2.2891	209.1366	-8.9693	11.6163	0.146095880 10	9.7657674
JUPITER	0.8555	333.1747	-8.2451	14.4119	0.158831860 10	10.6171029
SIRIUS(R)	164.2945	330.5981	0.0000	180.0000	0.00000000	0.0000000
BETELGEUSE(R)	85.0630	320.6591				
CANOPUS(B)	73.2511	345.5474				
ARCTURUS(R)	82.6161	284.2914				
RIGIL KENTAURUS	155.1881	111.3285				
ANTARES(R)	114.7432	234.6663				
CAPELLA(R)	123.0067	190.6909				
VEGA(R)	73.0849	26.8686				
ALDEBARAN(R)	96.2989	118.4448				
RIGEL(B)	55.4231	358.7561				
GAMMA CRUCIS(R)	62.7440	328.9432				
SPICA(B)	120.7990	252.4170				
ACHERNAR(B)	166.0520	224.8960				
DENEB(B)	55.9240	252.8231				
PROCYON(B)	74.3669	108.9852				
	99.0192	342.3080				

STAR DELAY: 1.0689 SEC 273.6414 PULSES DECIMAL = 4, COARSE + 18, FINE  
 50.7086 DEG 04 22 PULSES OCTAL CKAH SUB C = 209.1366 EPSILON = 0.0000 SCN=11

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N 11 PASS2781 PR14 #070 S/WSK,0 DSS62P RCVR AGC -145,0 FILE 11-1271 BD  
 SPACECRAFT ATTITUDE ON DAY 313 NOV 8,1980 1200 GMT

11/10/80

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRHS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1,2453 RCSPHAK = 38,9730

SPACECRAFT-EARTH DIRECTION: CLAT = -8,3039 CLON = 14,8154

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -7,8793 CLON = 13,6330

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N 11 PASS2781 PR14 #070 S/WSK,0 DSS62P RCVR AGC -145,0 FILE 11-1271 BD  
 SPACECRAFT ATTITUDE ON DAY 313 NOV 8,1980 1200 GMT  
 SPIN PERIOD = 7,588622 SEC RTLT = 2 HR 56 MIN 18,09 SEC

11/10/80

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-7,8793	13,6330	-	-
SUN	2,1497	211,9000	-9,0110	11,7853	0,148206770 10	9,7731798
EARTH	1,2453	339,9797	-8,3039	14,8154	0,158561600 10	10,5990374
JUPITER	164,2913	330,5238	0,0000	180,0000	0,000000000	0,0000000
SIRIUS(B)	85,0563	320,6598				
BETELGEUSE(R)	73,2533	345,5526				
CANOPUS(B)	82,5990	284,2919				
ARCTURUS(R)	155,2036	111,3577				
RIGIL KENTAURUS	114,7230	234,6677				
ANTARES(R)	122,9958	190,7015				
CAPELLA(R)	73,1003	26,8719				
VEGA(B)	96,3126	118,4456				
ALDEBARAN(R)	55,4301	358,7687				
RIGEL(B)	62,7402	328,9528				
GAMMA CRUCIS(R)	120,7782	252,4154				
SPICA(B)	166,0330	224,9297				
ACHERNAR(B)	55,9032	252,8230				
DENEK(B)	74,3830	108,9805				
PROCYON(B)	99,0202	342,3037				

STAR DELAY: 1,0689 SEC 273,6386 PULSES DECIMAL = 4, COARSE + 18, FINE  
 50,7081 DEG 04 22 PULSES OCTAL CKAH SUB C = 211,9000 EPSILON = 0,0000 SCN=11

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SPCRAFT ATTITUDE ON DAY 313 NOV 8, 1980 1300 GMT  
 ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C,

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1,0078 RCSPFAK = 262,5300  
 SPACECRAFT-EARTH DIRECTION: CLAT = -8,3048 CLON = 14,8209  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -8,2130 CLON = 15,8350

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PK 11 PASS2781 FR14 #7711 S/WSK,0 DSS62P RCVR AGC -141,1 FILE 11-1272 BD 11/10780  
 SPACECRAFT ATTITUDE ON DAY 313 NOV 8, 1980 1300 GMT  
 SPIN PERIOD = 7,580931 SEC RLTL = 2 HR 5c MIN 17,83 SEC

	CNA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0,0000	0,0000	-8,2130	15,8350	-	-
SUN	4,0807	191,5849	-9,0116	11,7876	0,148206300 10	9,775108
EARTH	1,0078	185,2987	-8,3048	14,8209	0,158557720 10	10,598718
JUPITER	162,2104	333,2676	0,0000	180,0000	0,00000000	0,000000
SIRIUS(B)	83,1560	320,8523				
BETELGEUSE(R)	71,0582	345,7912				
CANOPUS(B)	81,7369	284,5209				
ARCTURUS(R)	156,2417	107,3487				
RIGIL KENTHAUS	115,6905	235,9092				
ANTARES(R)	125,0711	191,5146				
CAPELLA(R)	71,3142	27,5956				
VEGA(B)	97,6460	118,5387				
ALDEBARAN(R)	53,2444	359,2898				
RIGEL(B)	60,7012	328,8084				
GAMMA CRUCIS(R)	121,0881	254,0325				
SPICA(B)	167,2143	233,0860				
ACHERNAR(B)	56,2504	251,8660				
DENEK(B)	75,4219	109,8137				
PROCYON(B)	96,8406	342,8591				

STAR DELAY: 1,0672 SEC 273,2052 PULSES DECIMAL = 4, COARSE + 17, FINE  
 50,6791 DEG 04 21 PULSES CTAL CKAM SUB C = 191,5849 EPSILON = 0,0000 SEC

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PN 11 PASS 2788 PR14 #0/0 S/WSK.0 DSS62A RCVR AGC -142.5 FILE 11-1273 JG 11/17/80  
 SPACECRAFT ATTITUDE ON DAY 320 NOV 15, 1980 0945 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.2246 RCSPHAK = 335.3920

SPACECRAFT-EARTH DIRECTION: CLAT = -8.4426 CLLN = 15.6995

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -8.2225 CLLN = 15.7446

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PN 11 PASS2788 PR14 #0/0 S/WSK.0 DSS62A RCVR AGC -142.5 FILE 11-1273 JG 11/17/80  
 SPACECRAFT ATTITUDE ON DAY 320 NOV 15, 1980 0945 GMT  
 SPIN PERIOD = 7.582274 SEC RTLT = 2 HR 55 MIN 30.58 SEC

	CNA	CKA	CLAT	CLLN	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-8.2225	15.7446	-	-
SUN	3.6472	194.2612	-9.1045	12.1648	0.146453270 10	9.7896571
EARTH	0.2246	258.5374	-8.4426	15.6995	0.157849450 10	10.5514338
JUPITER	162.2860	333.1021	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	83.2200	320.8470				
BETELGEUSE(R)	71.1426	345.7890				
CANOPUS(B)	81.7498	284.3209				
ARCTURUS(R)	156.2239	107.5361				
RIGIL KENTAURUS	115.6324	235.8632				
ANTARES(R)	124.9815	191.4957				
CAPELLA(R)	71.3979	27.5715				
VEGA(B)	97.6116	118.5369				
ALDEBARAN(R)	53.3337	359.2848				
RIGEL(B)	60.7728	328.8260				
GAMMA CRUCIS(R)	121.0543	253.9693				
SPICA(B)	167.1527	232.7843				
ACHERNAR(B)	56.2133	251.7079				
DENEK(B)	75.4005	109.7780				
PROCYON(B)	96.9232	342.6418				

STAR DELAY: 1.0674 SEC 273.2536 PULSES DECIMAL = 4. COARSE + 17. FINE  
 50.6791 DEG 04 21 PULSES OCTAL CKAH SUB C = 194.2612 EPSILON= 0.0000 SCN=11

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PN 11 PASS2793 PRI4 #070 S/WSK,0 DSS62P RCVR AGC -142.5 FILE 11-1274 RS 11/20/80  
 SPACECRAFT ATTITUDE ON DAY 325 NOV 20,1980 1115 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,6707 RCSPHAK = 51,2192

SPACECRAFT-EARTH DIRECTION: CLAT = -8,5501 CLON = 16,3259

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -8,2814 CLON = 15,7047

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PN 11 PASS2793 PRI4 #070 S/WSK,0 DSS62P RCVR AGC -142.5 FILE 11-1274 RS 11/20/80  
 SPACECRAFT ATTITUDE ON DAY 325 NOV 20,1980 1115 GMT  
 SPIN PERIOD = 7,582150 SEC RTLT = 2 HR 54 MIN 49,80 SEC

S/C +Z AXIS	CNA	CKA	CLAT	CLON	H(KM)	H(AL)
SUN	0,0000	0,0000	-8,2814	15,7047	-	-
EARTH	3,3404	195,7030	-9,1729	12,4435	0,146639020 10	9,8020735
JUPITER	0,6707	336,3399	-8,5501	16,3259	0,157238240 10	10,5105775
SIRIUS(B)	162,2944	332,8756	0,0000	180,0000	0,00000000	0,0000000
BETELGEUSE(R)	83,2134	320,8497				
CANOPUS(B)	71,1665	345,8061				
ARCTURUS(R)	81,7024	284,3229				
RIGIL KENTAURUS	156,2682	107,8564				
ANTARES(R)	115,5614	235,8577				
CAPELLA(R)	120,9310	191,5248				
VEGA(B)	71,4602	27,5772				
ALDEBARAN(R)	97,6446	116,5396				
RIGEL(B)	53,3725	359,3233				
GAMMA CRUCIS(R)	60,7761	328,8599				
SPICA(B)	120,9867	253,9506				
ACHERNAR(B)	167,0819	232,7970				
DENEB(B)	56,1409	251,7149				
FROCYON(B)	75,4426	109,7575				
	96,9433	342,6278				

STAR DELAY: 1,0673 SEC 273,2386 PULSES DECIMAL = 4, COARSE + 17, FINE  
 50,6771 DEG 04 21 PULSES OCTAL CKAH SUB C = 195,7030 EPSILON= 0,0000 SCN=11

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PN 11 PASS 2795 PRI4 #070 S/WSK,0 DSS63P RCVR AGC -131.4 FILE 11-1275 RS  
SPACECRAFT ATTITUDE ON DAY 327 NOV 22,1980 1000 GMT

11/24/80

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRKS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.8598 RCSPFAK = 53.6270

SPACECRAFT-EARTH DIRECTION: CLAT = -8.5926 CLON = 16.5603

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -8.2883 CLON = 15.7474

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PN 11 PASS2795 PRI4 #070 S/WSK,0 DSS63P RCVR AGC -131.4 FILE 11-1275 RS  
SPACECRAFT ATTITUDE ON DAY 327 NOV 22,1980 1000 GMT  
SPIN PERIOD = 7.582152 SEC RTLT = 2 HR 54 MIN 32.92 SEC

11/24/80

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-8.2883	15.7474	-	-
SUN	3.2885	196.3176	-9.1991	12.5503	0.146710940 10	9.8068810
EARTH	0.8598	339.2089	-8.5926	16.5603	0.156985170 10	10.4936611
JUPITER	162.2536	332.9230	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	83.1763	320.8533				
BETELGEUSE(R)	71.1238	345.8110				
CANOPUS(B)	81.6854	284.3233				
ARCTURUS(R)	156.2875	107.5755				
RIGIL KENTAURUS	115.5795	235.8824				
ANTARES(R)	124.9711	191.5416				
CAPELLA(R)	71.4259	27.5920				
VEGA(B)	97.6708	116.5412				
ALDEBARAN(R)	53.3301	359.3342				
RIGEL(B)	60.7364	328.8571				
GAMMA CRUCIS(R)	120.9918	253.4823				
SPICA(B)	167.1020	232.9683				
ACHERNAR(B)	56.1517	251.6927				
DENEK(B)	75.4634	109.7734				
PROCYON(B)	96.9009	342.6347				

STAR DELAY: 1.0673 SEC 273.2563 PULSES DECIMAL = 4. COARSE + 17. FINE  
50.6767 DEG 04 21 PULSES OCTAL CNAH SUB C = 196.3176 EPSILON = 0.0000 SCN=11

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PN 11 PASS 2795 PRI4 #5710 S/WSK.0 DSS63P RCVR AGC -131.4 FILE 11-1276 RS  
 SPACECRAFT ATTITUDE ON DAY 327 NOV 22, 1980 1200 GMT

11/24/80

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

NEW ATTITUDE  
 POST-PRECESSION

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9082 RCSPFAK = 259.1230

SPACECRAFT-EARTH DIRECTION: CLAT = -8.5945 CLON = 16.5703

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -8.6384 CLON = 17.4878

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PN 11 PASS 2795 PRI4 #5710 S/WSK.0 DSS63P RCVR AGC -131.4 FILE 11-1276 RS  
 SPACECRAFT ATTITUDE ON DAY 327 NOV 22, 1980 1200 GMT  
 SPIN PERIOD = 7.576292 SEC RTLT = 2 HR 54 MIN 32.18 SEC

11/24/80

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-8.6384	17.4878	-	-
SUN	4.9055	186.9543	-9.2002	12.5549	0.146714030 10	9.8070876
EARTH	0.9082	177.2952	-8.5945	16.5703	0.156974110 10	10.4929218
JUPITER	160.5549	334.5119	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	81.6191	321.0009				
BETELGEUSE(R)	69.3689	346.0387				
CANOPUS(B)	80.9200	284.3375				
ARCTURUS(R)	157.0961	104.2105				
RIGIL KENTAURUS	116.2404	236.9294				
ANTARES(R)	126.5831	192.3009				
CAPELLA(R)	70.0686	28.2377				
VEGA(B)	98.8016	118.6028				
ALDEBARAN(R)	51.6062	359.8499				
RIGEL(B)	59.0824	328.7703				
GAMMA CRUCIS(R)	121.1103	255.2938				
SPICA(B)	167.7542	240.5466				
ACHERNAR(B)	56.3739	250.7849				
DENEK(B)	76.3835	110.4048				
PROCYON(B)	95.1529	342.9094				

STAR DELAY: 1.0662 SEC 272.9483 PULSES DECIMAL = 4, COARSE + 17; FINE  
 50.6625 DEG 04 21 PULSES QICAL CKAN SUB C = 186.9543 EPSILON = 0.0000 SCN=1

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PN 11 PA 99 FRI 4070 S/WSK.0 DSS63A RCVR A 134.9 FILE 11-1277 TS  
 SPACECRAFT ATTITUDE ON DAY 331 NOV 26, 1980 0800 GMT  
 ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.  
 ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPJS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4774 RCSPHAK = 263.1900  
 SPACECRAFT-EARTH DIRECTION: CLAT = -8.6802 CLON = 17.0210  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -8.6690 CLON = 17.5038

PN 11 PASS2799 FRI 4070 S/WSK.0 DSS63A RCVR AGC -134.9 FILE 11-1277 TS  
 SPACECRAFT ATTITUDE ON DAY 331 NOV 26, 1980 0800 GMT  
 SPIN PERIOD = 7.576292 SEC KILT = 2 HR 53 MIN 57.00 SEC

S/C +Z AXIS	CKA	CKA	CLAT	CLON	R (KM)	R (AU)
SUN	0.0000	0.0000	-8.6690	17.5038	0.146850030 10	9.8106197
EARTH	4.7172	187.4579	-9.2515	12.7646	0.156446670 10	10.4576651
JUPITER	0.4774	181.3796	-8.6802	17.0210	0.00000000	0.0000000
STRIUS(B)	160.5275	334.4554	0.0000	180.0000		
BE TELGEUSE (R)	81.5076	321.0053				
CANOPUS (B)	69.3462	346.0509				
ARCTURUS (R)	80.8665	284.3387				
RIGIL KENTAURUS	157.1296	104.1944				
ANTARES (R)	116.2234	236.9465				
CAPELLA (R)	126.5920	192.3280				
VEGA (B)	70.0692	28.2526				
ALDEBARAN (R)	98.8360	116.6053				
RIGEL (B)	51.5904	359.8765				
GAMMA CRUCIS (R)	59.0530	328.7835				
SPICA (B)	121.0847	255.3101				
ACHERNAR (B)	167.7353	240.6814				
DENEUB (B)	56.3502	250.7707				
PRUCYON (B)	76.4177	110.4082				
	95.1289	342.9096				

STAR DELAY: 1.0662 SEC  
 50.6613 UEG  
 272.9420 PULSES DECIMAL = 4, COARSE + 17, FINE  
 04 21 PULSES OCTAL CKAM SUB C = 187.4579 EPSTION

PR 11 PASS2807 PR14 HC70 S74950 USS62A RCVR ACC -142.5 FILE 11-1278 RC  
 SPACECRAFT ATTITUDE ON DAY 339 DEC 4, 1980 0700 GMT

12/04/80

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR KOSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARALLEL: KOSPHAKS = 180 KOSTRDS = 180

AMPLITUDE AND PHASE ANGLE: KOSPHAK = 0.5374 KOSPHAK = 61.7300

SPACECRAFT-EARTH DIRECTION: CLAT = -8.8665 CLON = 17.9089

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -8.6299 CLON = 17.3953

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 PR 11 PASS2807 PR14 HC70 S74950 USS62A RCVR ACC -142.5 FILE 11-1278 RC 12/04/80  
 SPACECRAFT ATTITUDE ON DAY 339 DEC 4, 1980 0700 GMT  
 SPIN PERIOD = 7.576292 SEC PULS = 2 PR 52 MIN 36.54 SEC

	CPA	CPA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-8.6299	17.3953		
SUN	0.1972	109.4734	-9.3572	15.1945	0.14715700D 10	9.8366974
EARTH	0.5374	340.7739	-8.8665	17.9089	0.15523771D 10	10.3768523
JUPITER	160.6151	334.2541	0.0000	180.0000	0.00000000	0.0000000
SIRIUS (B)	81.6570	321.0013				
DEHELGELSE (R)	69.4452	340.0519				
CANOPUS (B)	80.8920	289.3390				
ARCTURUS (R)	157.1234	174.4305				
RIGIL KENTAURUS	116.1474	238.6910				
ANTARES (R)	126.4220	192.5092				
CAPELLA (R)	70.1735	20.2245				
VEGA (B)	92.8030	118.0051				
ALDEBARAN (R)	61.6975	359.5768				
RIGEL (B)	59.1539	320.5110				
GAMMA CRUCIS (R)	121.0373	255.2345				
SPICA (B)	167.6643	240.2843				
ACHERNAR (B)	56.2952	250.0172				
DENER (B)	76.3999	110.3658				
PROCYON (B)	95.2252	342.5880				

STAR DELAY: 1.0662 SEC 272.9360 PULSES DECIMAL = 4, COARSE + 17, FINE  
 50.6602 DEC 04 21 PULSES OCTAL CPAH SUB C = 109.4734 EPSILON = 0.0000 SCAN 11

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11 PASS2813 PRI4 #0/0 S/WSKO DSS63A RCVR AGC -133.2 FILE 11-1279 PS 12/11/80  
 SPACECRAFT ATTITUDE ON DAY 345 DEC 10, 1980 0700 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRKS = 180 RCSTIPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.1070 RCSPHAK = 62.1250

SPACECRAFT-EARTH DIRECTION: CLAT = -9.0141 CLON = 18.5310

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -8.6900 CLON = 17.4596

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 11 PASS2813 PRI4 #0/0 S/WSKO DSS63A RCVR AGC -133.2 FILE 11-1279 PS 12/11/80  
 SPACECRAFT ATTITUDE ON DAY 345 DEC 10, 1980 0700 GMT  
 SPIN PERIOD = 7.576292 SEC RTLT = 2 HR 51 MIN 29.44 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-8.6900	17.4596	-	-
SUN	3.9551	191.1729	-9.4365	13.5282	0.147387280 10	9.8520909
EARTH	1.1070	342.9230	-9.0141	18.5310	0.154234860 10	10.3098168
JUPITER	160.5576	334.3482	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	81.6080	321.0052				
BETELGEUSE(R)	69.3834	340.0561				
CANOPUS(B)	80.8764	284.3397				
ARCTURUS(LF)	157.1398	104.3000				
RIGIL KENTAURUS	116.1815	230.9276				
ANTARES(R)	126.5447	192.3300				
CAPELLA(R)	70.1179	28.2453				
VEGA(B)	98.8340	118.6062				
ALDEBARAN(R)	51.6340	354.8870				
RIGIL(B)	59.0792	328.8014				
GAMMA CRUCIS(R)	121.0527	255.2813				
SPICA(B)	167.6950	240.5485				
ACHERNAR(B)	56.3154	250.7868				
DENEK(B)	76.4227	110.3898				
PROCYON(B)	95.1643	342.8999				

STAR DELAY: 1.0662 SEC 272.9368 PULSES DECIMAL = 4, COARSE + 17, FINE  
 50.6603 DEC 04 21 PULSES OCTAL CNAH SUB C = 191.1729 EPSILON = 0.0000 SCN=11

PN 11 PASS2R16 PR14 RC70 S/ASD.0 DSS03A RCYR AGC -131.4 FILE 11-1280 BU  
 SPACECRAFT ATTITUDE ON DAY 348 DEC 13, 1980 0700 GMT

12/18/80

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRMS = 180 RCSTPOS = 180

PRE-PRECSSION

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.4405 RCSPHAK = 61.7240

SPACECRAFT-EARTH DIRECTION: CLAT = -9.0902 CLON = 18.8255

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -8.6697 CLON = 17.4310

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PN 11 PASS2R16 PR14 RC70 S/ASD.0 DSS03A RCYR AGC -131.4 FILE 11-1280 BU

12/18/80

SPACECRAFT ATTITUDE ON DAY 348 DEC 13, 1980 0700 GMT

SPIN PERIOD = 7.576292 SEC RILT = 2 HR 50 MIN 54.27 SEC

	CNA	CRA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-8.6697	17.4310	-	-
SUN	3.7412	192.5953	-9.4756	15.6893	0.14750367D 10	9.8598710
EARTH	1.4405	342.9188	-9.0902	18.8255	0.15570773D 10	10.2745809
JUPITER	160.5921	374.5548	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	81.6431	321.0011				
BETELGEUSE(R)	69.4158	348.0467				
CANOPUS(B)	80.9036	284.3389				
ARCTURUS(R)	157.1126	104.3491				
RIGIL KENTAURUS	116.1836	236.9060				
ANTARES(R)	126.5210	192.3061				
CAPELLA(R)	70.1329	28.2295				
VEGA(B)	98.8022	118.6042				
ALDEBARAN(R)	51.6823	359.8662				
RIGEL(B)	50.1102	328.7952				
GAMMA CRUCIS(R)	121.0058	255.2573				
SPICA(B)	187.0493	240.3843				
ACHERNAR(B)	56.3259	250.2048				
DENEK(B)	76.3933	110.3809				
PROCYON(B)	95.1974	342.8967				

STAR DELAY: 1.0002 SEC 272.9400 PULSES DECIMAL = 4. COARSE + 17. FINE  
 50.6011 DEG 04 21 PULSES COTAL CRAH SUB C = 192.5953 EPSILON = 0.0000 SCN = 11

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NEW ATTITUDE  
 POST-PRECSSION  
 PN 11 PAGE 16 PRIN 45/12 S/WASK.0 DSS63P RCVR A 133.2 FILE 11-1281 BD  
 SPACECRAFT ATTITUDE ON DAY 348 DEC 13, 1980 1100 GMT

12

NEW ATTITUDE  
 POST- PRECESSION

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPEAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRHS = 180 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.9051 RCSPEAK = 276.1800  
 SPACECRAFT-EARTH DIRECTION: CLAT = -9.0945 CLON = 18.8415  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -8.9186 CLON = 19.7403

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P 11 PASS2RIF PRIN 45/12 S/WASK.0 DSS63P RCVR A 133.2 FILE 11-1281 BD 12/15/80  
 SPACECRAFT ATTITUDE ON DAY 348 DEC 13, 1980 1100 GMT  
 SPIN PERIOD = 7.569334 SEC RATE = 2 RPM 50.418 52.29 SEC

	CRX	CRY	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-8.9186	19.7403	-	-
SUN	5.9415	185.8522	-9.4776	13.7277	0.147510160 10	9.8603048
EARTH	0.9051	191.2704	-9.0945	18.8415	0.153677970 10	10.2725916
JUPITER	158.9119	336.8344	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	70.7111	321.1520				
RETELCELUSP (R)	87.1403	306.2700				
CANOPUS (R)	80.0973	284.3323				
ARCTURUS (R)	157.0673	99.4390				
RIGIL KENTAUUS	117.1504	230.2951				
ANTARES (R)	128.6924	193.2349				
CAPPELLA (R)	70.2490	27.0810				
VEGA (B)	100.1101	118.6434				
ALDEBARAN (R)	49.3800	0.4292				
RIGEL (B)	57.0353	328.5413				
GAMMA (PUCIS) (R)	121.3716	256.9890				
SPICA (B)	168.4135	251.0719				
ACHERNAB (R)	56.8171	249.6857				
DENEK (B)	77.4363	111.2094				
PROCYON (B)	92.9415	303.2801				

STAR DELAY: 1.0653 SEC 272.7250 PULSES DECIMAL = 4, COARSE + 17, FINE  
 50.8577 DEG 04 21 PULSES OCTAL CRAX SUB 0 = 185.8502 EPSILON = 0.0000 SCN = 1

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PN 11 PASS2832 PR14 #070 S/WASH 0 USS63A RCVR AGC -133.2 FILE 11-1282 PS 12/29/80

SPACECRAFT ATTITUDE ON DAY 364 DEC 29, 1980 0700 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

PRE-PRECESSION

ROLL REFERENCE PARAMETERS: ASPSGHRS = 180 KCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7968 RCSPHAK = 28.0200

SPACECRAFT-EARTH DIRECTION: CLAT = -9.5187 CLON = 20.1905

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -8.8874 CLON = 19.6981

PN 11 PASS2832 PR14 #070 S/WASH 0 USS63A RCVR AGC -133.2 FILE 11-1282 PS 12/29/80

SPACECRAFT ATTITUDE ON DAY 364 DEC 29, 1980 0700 GMT

SPIN PERIOD = 7.569334 SEC RTLT = 2 HR 47 MIN 38.10 SEC

	CLAT	CLON	CLAT	CLON	R(KM)	R(AL)
S/C +Z AXIS	0.0000	0.0000	-8.8874	19.6981	-	-
SUN	5.1377	189.3195	-9.6830	14.5550	0.148138050 10	9.9022761
EARTH	0.7968	307.5400	-9.5187	20.1905	0.150677200 10	10.6720053
JUPITER	158.4626	336.6586	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	79.7632	321.1444				
BETELGEUSE(R)	67.1883	308.2035				
CANOPUS(B)	20.1379	284.5315				
ARCTURUS(R)	157.7597	99.5215				
ANTARES(R)	129.6589	193.1764				
CAPELLA(R)	89.2707	29.0561				
VEGA(B)	108.0047	110.4407				
ALDEBARAN(R)	49.4222	0.3950				
RIGEL(B)	57.4872	320.5316				
GAMMA CRUCIS(R)	121.5920	250.9517				
SPICA(B)	189.4295	280.0230				
ACHERNAR(R)	50.8700	209.7117				
PROCYON(B)	78.6421	111.1700				
PRILYON(R)	80.5400	303.2740				

STAR DELAY:

11 PASS2829 PRI# 4070 S/WSM.0 USS63A RLVK AGC =131.4 FILE 11-1283 TG 12/29/80  
 SPACECRAFT ATTITUDE OF DAY 301 SEC 20,1400 0700 GMT

ROLL REFERENCE HORIZ IS SUN SUN IS ON RIGHT SIDE OF S/E.

REFERENCE FOR HORIZON IS TOWARD SOUTH ELLIPTIC POLE.

ROLL REFERENCE PARAMETERS: RSPSGRKS = 180 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLES: RCBANGK = 0.6215 RCBPHAK = 10.1970  
 SPACECRAFT-EARTH DIRECTION: CLAT = -9.4350 CLON = 19.7022  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -8.8586 CLON = 19.7044

11 PASS2829 PRI# 4070 S/WSM.0 USS63A RLVK AGC =131.4 FILE 11-1283 TG 12/29/80  
 SPACECRAFT ATTITUDE OF DAY 301 SEC 20,1400 0700 GMT  
 SPIR PERIOD = 7.520334 SEC RTLT = 2 HR 40 MIN 11.53 SEC

	CRK	ERA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-8.8586	19.7044		
SUN	5.2992	188.8395	-9.4444	14.3931	0.148017290 10	9.8942039
EARTH	0.6215	294.1481	-7.4350	19.5022	0.151200240 10	10.1119134
JUPITER	158.4645	336.7094	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	79.7701	321.1420				
RETELGEUSE(R)	67.1067	306.2562				
CANOPUS(B)	80.1045	284.3306				
ARCTURUS(R)	157.7722	99.4999				
RIGIL KENTAURUS	117.2202	136.8695				
ANTARES(R)	128.8602	193.1634				
CAPELLA(R)	68.2542	29.0510				
VEGA(B)	106.0532	118.6391				
ALDEBARAN(R)	49.4159	0.3806				
RIGEL(B)	57.0917	326.5201				
GAMMA CRUCIS(R)	121.4122	256.9561				
SPICA(B)	168.4492	250.8228				
ACHERNAR(B)	56.8977	249.7131				
DENEK(B)	77.3769	111.2009				
PROCYON(B)	92.9809	343.2705				

STAR DELAYS: 1.0654 SEC 272.7351 PULSES DECIMAL = 0, COARSE + 17, FINE  
 50.6294 DEG 04 21 PULSES DECIAL CRK# SUB C = 188,8395 EPSILON = 0.0000 SCN#1

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PR 11 PASS2832 EP10 1070 1/2 50.0 000000 0000 000 -155.2 FILE 11-1284 PS 12/29/80

SPACECRAFT ATTITUDE ON DAY 364 DEC 29, 1980 0700 GMT

ROLL REFERENCE POINT IS S/C S/C AXIS ON RIGHT SIDE OF S/C.

REFERENCE FOR ROSEPHAR IS TOWARD SOUTH ECLIPTIC POLE.

PRE-PRECESSION

ROLL REFERENCE PARAMETERS: ASPROBNS = 180 KCSTRUS = 180

AMPLITUDE AND PHASE MULTI: COS(φ) = 0.7902 ROSEPHAR = 20.0000

SPACECRAFT-EARTH DISTANCE: CLAT = -9.5187 CLKR = 20.1905

SPACECRAFT XZ AXIS ATTITUDE: CLAT = -1.8674 CLKR = 17.0901

PR 11 PASS2832 EP10 1070 1/2 50.0 000000 0000 000 -155.2 FILE 11-1282 PS 12/29/80

SPACECRAFT ATTITUDE ON DAY 364 DEC 29, 1980 0700 GMT

SPIN PERIOD = 17.560337 SEC RATE = 2.70 47 RPM 32.17 SEC

	CLAT	CLKR	CLAT	CLKR	R(AB)	R(AB)
S/C XZ AXIS	2.1177	179.3105	-0.0034	17.0901	-	-
SUN	2.1177	179.3105	-9.0030	18.5550	0.140130050 10	9.902270
EARTH	2.1177	179.3105	-9.5187	20.1905	0.150077200 10	10.672005
JUPITER	157.6080	330.0507	0.0000	180.0000	0.000000000	0.00000000
SIRIUS(B)	70.7032	321.1000				
MICHELLEUSE(B)	21.1000	300.0000				
CANCERUS(B)	21.1000	284.3310				
ARCTURUS(R)	157.7107	90.5210				
RIGIL KENTIAHUS	117.2111	230.2010				
ANTARES(R)	120.6589	193.1704				
CAPELLA(R)	84.2707	29.0501				
VEGA(B)	106.0000	110.0000				
ALDEBARAN(R)	40.4222	0.3950				
RIGEL(B)	57.0072	520.5310				
GAMMA ERICIS(R)	21.5000	250.0000				
SPICA(B)	160.0000	250.0000				
ACHERNAR(B)	56.0000	209.7117				
OSIRIS(B)	77.3000	111.0000				
PROCYON(R)	92.9000	513.2700				

Star DELAY: ... 17.560337 SEC ...



SPACECRAFT ATTITUDE ON DAY 2 JAN 20, 1981 0900 GMT

ROLL REFERENCE BODY IS S/C SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ELLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRHS = 180 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6952 RCSPHAK = 284.5200  
 SPACECRAFT-EARTH DIRECTION: CLAT = -9.6336 CLON = 20.4788  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -9.4377 CLON = 21.1552

SPACECRAFT ATTITUDE ON DAY 2 JAN 20, 1981 0900 GMT

SPIN PERIOD = 7.565062 SEC KILT = 2 HR 46 MIN 37.72 SEC

	CNA	CRA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-9.4377	21.1552	-	-
SUN	8.2921	183.2375	-9.7354	14.7749	0.148503650 10	9.9133456
EARTH	0.6952	196.4167	-9.6336	20.4788	0.149862000 10	10.0175134
JUPITER	156.9236	337.0359	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	78.2972	321.2849				
BETELGEUSE(R)	65.6608	346.5816				
CANOPUS(B)	79.2485	284.3348				
ARCTURUS(R)	158.5341	96.3879				
RIGIL KENTAURUS	117.4763	239.2774				
ANTARES(R)	129.9267	194.1442				
CAPELLA(R)	67.2879	29.7726				
VEGA(B)	101.2396	118.6849				
ALDEBARAN(R)	47.9912	1.1276				
RIGEL(B)	55.5728	328.5764				
GAMMA CRUCIS(R)	121.1657	258.1110				
SPICA(B)	168.2789	258.4981				
ACHERNAH(B)	56.8709	248.9387				
CENEB(B)	78.4301	111.6725				
PROCYON(B)	91.4547	343.5020				

STAR DELAY: 1.0647 SEC 272.5504 PULSES DECIMAL = 4. COARSE + 17. FINE  
 50.6652 DEG 04 21 PULSES OCTAL CRAM SUB C = 183.2375 EPSILON = 0.0000 SCN=11

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PN 11 PASS2H40 FR14 4070 S/WASN.0 DSS63A RCVR AGC -131.4 FILE 11-1287 15  
 SPACECRAFT ATTITUDE ON DAY 6 JAN 6, 1981 0800 GMT

01/06/81

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR ROLLOFF IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSCRHS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5463 RCSPHAK = 309.0900

SPACECRAFT-EARTH DIRECTION: CLAT = -9.7466 CLON = 20.7341

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -9.3779 CLON = 21.1430

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PN 11 PASS2H40 FR14 4070 S/WASN.0 DSS63A RCVR AGC -131.4 FILE 11-1287 15  
 SPACECRAFT ATTITUDE ON DAY 6 JAN 6, 1981 0800 GMT  
 SPIN PERIOD = 7.565002 SEC RTLT = 2 HR 45 MIN 04.43 SEC

01/06/81

	CRA	CRA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-9.3779	21.1430	-	-
SUN	6.0830	184.3537	-9.7858	14.9877	0.14846557D 10	9.9241691
EARTH	0.5463	222.4728	-9.7466	20.7341	0.14906331D 10	9.9641250
JUPITER	153.9579	337.1522	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	78.3440	321.2748				
BETELGEUSE(R)	65.6064	346.5546				
CANOPUS(B)	79.3095	284.3322				
ARCTURUS(R)	158.4734	96.3954				
RIGIL KENTAURUS	117.5215	239.2541				
ANTARES(R)	129.9295	194.0912				
CAPELLA(R)	67.2687	29.7464				
VEGA(B)	101.1813	118.0794				
ALDEBARAN(R)	48.0021	1.0718				
RIGEL(B)	55.6173	326.5438				
GAMMA CRUCIS(R)	121.2218	258.0950				
SPICA(B)	168.3351	258.3811				
ACHERNAR(B)	50.9224	248.9580				
DENEK(B)	78.3701	111.6727				
PROCYON(B)	91.4432	343.5014				

STAR DELAY: 1.0047 SEC 272.5723 PULSES DECIMAL = 4. COARSE + 17. FINE  
 50.6678 DEG 04 21 PULSES COTAL CRAH SUB L = 184.3537 EPSILON = 0.0000 SCN=1

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PR 11 PASS2849 PR14 #070 S/WSP.0 DSS634 RCVR AGC -129.0 FILE 11-1288 TS  
 SPACECRAFT ATTITUDE ON DAY 15 JAN 15, 1981 0700 GMT

01/15/81

ROLL REFERENCE BODY IS SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR SCROLLS IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: RSPSOPRS = 180 RCSIPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSIPOAK = 0.1450 RCSIPOAK = 40.0020

SPACECRAFT-HEALTH DIRECTIONS: CLON = -10.0300 CLON = 21.0030

SPACECRAFT +Z AXIS ATTITUDE: CLON = -9.9307 CLON = 21.1539

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PR 11 PASS2849 PR14 #070 S/WSP.0 DSS634 RCVR AGC -129.0 FILE 11-1288 TS  
 SPACECRAFT ATTITUDE ON DAY 15 JAN 15, 1981 0700 GMT  
 SPIN PERIOD = 7.500000 SEC ROLL = 2.18 43 ROL 20.07 SEC

01/15/81

	OPR	OPR	CLON	CLON	R(KR)	R(A)
S/C +Z AXIS	0.0000	0.0000	-9.9307	21.1539	-	-
SUN	5.5000	180.0000	-9.9307	15.5212	0.14007907E 10	9.9517
Earth	0.1450	317.0000	-10.0300	21.0030	0.14704622E 10	9.8297
JUPITER	150.7250	335.0000	0.0000	180.0000	0.00000000	0.0000
STARUS(B)	77.5000	321.0000				
BETELGEUSE (R)	05.5407	340.0000				
CANOPUS (B)	70.7000	204.0000				
ARCTURUS (A)	150.0000	00.0000				
RIGIL KENTAUUS	157.0000	239.0000				
ANTARES (R)	139.0000	199.0000				
CAPELLA (R)	07.5000	27.0000				
VEGA (B)	101.0000	110.0000				
ALDEBARAN (R)	42.0000	1.0000				
RIGEL (B)	55.0000	320.0000				
GAMMA CRUCIS (R)	120.0000	250.0000				
SPICA (B)	107.0000	200.0000				
ACHERNAR (B)	00.0000	00.0000				
DENERG (B)	70.0000	111.0000				
PROCYON (B)	91.0000	303.0000				

STAR DELAY: 1.0000 SEC 272.4000 PULSES DECIMAL = 4. COARSE + 10. FINE  
 50.0000 SEC 04 20 PULSES DECIMAL COARSE 500 0 = 100.2000 EPSILON = 0.0000 S

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PN 11 PASS2849 PR14 #070 S75SN.0 DSS65A RCVR AGC -129.6 FILE 11-1289 TS  
 SPACECRAFT ATTITUDE ON DAY 15 JAN 15, 1981 0700 GMT

01/16/81

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPKAK IS TOWARD SOUTH ELLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRS = 180 RCSTPCS = 180

REVISED

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6312 RCSPKAK = 5.4434

REPLACES FILE NO. 11-1288

SPACECRAFT-EARTH DIRECTION: CIAI = -10.0074 CLON = 21.2174

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -9.3856 CLON = 21.1066

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PN 11 PASS2849 PR14 #070 S75SN.0 DSS65A RCVR AGC -129.6 FILE 11-1289 TS  
 SPACECRAFT ATTITUDE ON DAY 15 JAN 15, 1981 0700 GMT  
 SPIA PERIOD = 7.565062 SEC HTLT = 2 MK 43 MIN 43.54 SEC

01/16/81

	CIA	CIA	CLAT	CLON	H (KM)	H (AU)
S/C +Z AXIS	0.0000	0.0000	-9.3856	21.1066	-	-
SUN	5.5830	185.7452	-9.8991	15.4675	0.14883708E 10	9.9490027
EARTH	0.6312	279.9515	-10.0074	21.2174	0.14724824E 10	9.8427968
JUPITER	156.9480	337.0407	0.0000	180.0000	0.00000000	0.0000000
SIRIUS (R)	78.3672	321.2742				
BEIELGELSE (R)	65.7195	340.5554				
CANOPUS (B)	79.3109	234.3332				
ARCTURUS (R)	158.4770	96.4802				
RIGIL KENTAURUS	117.4966	234.2342				
ANTARES (R)	129.8928	194.0242				
CAPELLA (R)	67.3037	29.7352				
VEGA (P)	101.1700	118.6804				
ALDEBARAN (R)	48.0381	1.0722				
RIGEL (B)	55.6409	328.5552				
GAMMA CRUCIS (R)	121.2058	250.0007				
SPICA (B)	168.3203	250.2125				
ACHERNAH (B)	56.9023	246.9721				
DENEK (B)	78.3640	111.6543				
PROCYON (B)	91.5154	343.4950				

STAR DELAY: 1.0647 SEC 272.5670 PULSES DECIMAL = 4, COARSE + 17, FINE  
 50.6668 LFC 04 21 PULSES DIGITAL CIAH SUB C = 185.7452 EPSILON = 0.0000 SCN = 1

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PN 11 PASS2H53 FR14 4070 S/WSP.0 USS63A RCVR AGC -135.2 FILE 11-1290 TS  
 SPACECRAFT ATTITUDE ON DAY 19 JAN 19, 1981 0700 GMT

01/19/81

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

PRE-PRECESSION

REFERENCE FOR ROSSPAK IS TOWARD SOUTH ELLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRKS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: ROSSANGK = 0.7808 ROSSPAK = 15.0890

SPACECRAFT-EARTH DIRECTION: CLAT = -10.1255 CLON = 21.5904

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -9.5944 CLON = 21.1121

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PN 11 PASS2H53 FR14 4070 S/WSP.0 USS63A RCVR AGC -135.2 FILE 11-1290 TS  
 SPACECRAFT ATTITUDE ON DAY 19 JAN 19, 1981 0700 GMT  
 SPIN PERIOD = 7.565052 SEC HTLT = 2 HR 42 MIN 49.70 SEC

01/19/81

	ORA	ORA	CLAT	CLON	R(KF)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-9.5944	21.1121	-	-
SUN	5.3621	186.3698	-9.9493	15.6814	0.149005350 10	9.9602507
EARTH	0.7808	290.5390	-10.1255	21.5904	0.140444140 10	9.7890468
JUPITER	156.9796	337.0836	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(R)	78.3575	321.2764				
BETELGEUSE(R)	65.7122	340.5000				
CANOPUS(R)	72.3011	284.3335				
ARCTURUS(R)	158.4053	95.4759				
RIGIL MENTALHUS	117.4918	239.2398				
ANTARES(R)	120.8960	194.0933				
CAPELLA(R)	67.3034	24.7410				
VEGA(B)	101.1811	118.0612				
ALDEBARAN(R)	48.0329	1.0810				
RIGEL(B)	55.0317	328.5593				
GAMMA CRUCIS(R)	121.1994	258.0739				
SPICA(B)	153.3128	258.2477				
ACHENNAR(B)	56.4961	240.9677				
DENEK(B)	78.3741	111.0608				
PROCYON(B)	91.5078	343.4957				

STAR DELAY: 1.0647 SEC 272.5649 PULSES DECIMAL = 4. COARSE + 17. FINE  
 30.6665 DEC 04 21 PULSES CITAL ORAH SUB C = 186.3698 EPSILON= 0.0000 SCN=11.

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PN 11 PAS 253 PR10 #277 S/WSN,0 USS63A RCVR AG -131.4 FILE 11-1291 IS 01/19/81  
 SPACECRAFT ATTITUDE ON DAY 19 JAN 19, 1981 1300 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C, NEW ATTITUDE  
 REFERENCE FOR RCSPPAK IS TOWARD SOUTH ECLIPTIC POLE. POST- PRECESSION

ROLL REFERENCE PARAMETERS: ASPSGERS = 180 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6918 RCSPPAK = 175.7400  
 SPACECRAFT-EARTH DIRECTION: CLAT = -10.1528 CLON = 21.4002  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -10.8055 CLON = 21.2380

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PN 11 PASS253 PR10 #277 S/WSN,0 USS63A RCVR AG -131.4 FILE 11-1291 IS 01/19/81  
 SPACECRAFT ATTITUDE ON DAY 19 JAN 19, 1981 1300 GMT  
 SPIN PERIOD = 7.561034 SEC RILT = 2 HR 42 MIN 46.39 SEC

	CMA	CMA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-10.8055	21.2380	-	-
SUN	5.5369	171.6107	-9.9524	15.6947	0.149015240 10	9.9609519
EARTH	0.6918	76.4071	-10.1528	21.4002	0.146394550 10	9.7857320
JUPITER	156.2860	334.2453	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(R)	77.5817	321.5160				
BETELGEUSE(R)	65.2730	347.1950				
CANOPUS(B)	77.9038	284.4020				
ARCTURUS(R)	159.9022	98.0017				
RIGIL KENTAUROS	116.3304	239.6709				
ANTARES(R)	129.6562	195.2772				
CAPELLA(R)	67.9037	30.2914				
VEGA(R)	102.4770	118.8227				
ALDEBARAN(R)	47.9535	2.3705				
RIGEL(B)	54.7907	329.3773				
GAMMA CRUCIS(R)	119.8429	256.3301				
SPICA(B)	166.9407	200.0204				
ACHERNAR(B)	55.6209	246.5722				
DENEK(B)	79.7304	111.0030				
PROCYON(B)	90.9898	343.4007				

STAR DELAY: 1.0627 SEC 272.0519 PULSES DELTAAL = 4. COARSE + 16. FINE  
 50.5980 DEC 04 20 PULSES CTAL CMAH SUB C = 171.6107 EPSILON= 0.0000 SCN=11

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P- 11 PARS2856 PRI4 W07C S7ASH,0 DSS 14 RCVR REC -134.9 FILE 11-1292 RS  
 SPACECRAFT ATTITUDE ON DAY 22 JAN 22, 1981 1534 GMT

01 2701

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR ROSEPHAR IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASHSPERS = 180 ROSEPHAR = 180

AMPLITUDE AND PHASE ANGLE: ROSEPHAR = 0.0425 ROSEPHAR = 167.0000

SPACECRAFT-EARTH DIRECTION: CLAT = -10.2225, CLON = 21.5148

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -10.7537, CLON = 21.6100

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P- 11 PARS2856 PRI4 W07C S7ASH,0 DSS 14 RCVR REC -134.9 FILE 11-1292 RS  
 SPACECRAFT ATTITUDE ON DAY 22 JAN 22, 1981 1534 GMT  
 SPIN PERIOD = 7.50156 SEC ROT = 2.10 42.11 4.21 SEC

01/22/81

	CLAT	CLON	CLAT	CLON	R(PI)	R(AL)
S/C +Z AXIS	0.0000	0.0000	-10.7537	21.6100	-	-
SUN	0.3295	171.0279	-9.9712	15.0004	0.145147590 10	9.9697507
EARTH	0.0425	167.0000	-10.2225	21.5148	0.145777320 10	9.7444735
JUPITER	102.3095	339.2404	0.0000	150.0000	0.000000000	0.0000000
SIRIUS(B)	77.4007	321.5157				
BETELGEUSE(R)	25.2907	347.1900				
CANCER(S(B)	77.9207	294.0717				
ARCTURUS(R)	130.0082	96.0473				
RIGIL KENTAURUS	116.3387	234.0639				
ANTARES(R)	120.5900	195.2570				
CAPELLA(R)	27.9100	30.2775				
VEGA(B)	102.4572	118.0215				
ALDEBARAN(R)	27.9725	2.3014				
RIGEL(R)	50.8220	329.5734				
GAMMA CRUCIS(R)	119.8900	290.3200				
SPICA(R)	122.9980	289.9320				
ACHEKMAR(R)	50.0287	248.0000				
DEAFB(B)	79.7120	111.5774				
PRICION(B)	91.0120	303.4551				

STAR DELAY: 1.0027 SEC 272.0579 PULSES DELTA = 4.0000E + 10. FINE  
 0.5000 SEC 10.0000 PULSES DELTA = 171.0279 EPSILON = 0.0000 SEC=1

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PN 11 PASS 2864 PRI4 #070 S/WSK,0 DSS62A RCVR ACC =141.1 FILE 11-1293 PS  
 SPACECRAFT ATTITUDE ON DAY 30 JAN 30, 1981 0400 GMT

01/30/81

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0,6667 RCSPHAK = 130,8500

SPACECRAFT-EARTH DIRECTION: CLAT = -10,4484 CLON = 21,7246

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -10,8198 CLON = 21,1612

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PN 11 PASS 2864 PRI4 #070 S/WSK,0 DSS62A RCVR ACC =141.1 FILE 11-1293 PS  
 SPACECRAFT ATTITUDE ON DAY 30 JAN 30, 1981 0400 GMT  
 SPIN PERIOD = 7,561034 SEC RTLT = 2 HR 40 MIN 28,18 SEC

01/30/81

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0,0000	0,0000	-10,8198	21,1612	.	.
SUN	4,8753	171,7759	-10,0845	16,2602	0,14946969D 10	9,991289
EARTH	0,6667	33,7969	-10,4484	21,7246	0,14432286D 10	9,647250
JUPITER	158,3467	334,1291	0,0000	180,0000	0,00000000	0,000000
SIRIUS(B)	77,4303	321,5175				
BETELGEUSE(R)	65,3415	347,1955				
CANCPUS(B)	77,9083	284,4040				
ARCTURUS(R)	159,9077	96,7916				
RIGIL KENTAURUS	116,2890	239,6371				
ANTARES(R)	129,5816	195,2586				
CAPELLA(R)	67,9743	30,2674				
VEGA(B)	102,4540	118,8244				
ALDEBARAN(R)	48,0275	2,3725				
RIGEL(B)	54,8557	329,3982				
GAMMA CRUCIS(R)	119,8141	258,2825				
SPICA(B)	166,9228	259,7136				
ACHEKNAR(B)	55,5848	248,6014				
DENEK(B)	79,7171	111,5762				
PROCYON(B)	91,0562	343,4741				

STAR DELAY: 1,0627 SEC 272,0412 PULSES DECIMAL = 4, COARSE + 16, FINE  
 50,5960 DEG 04 20 PULSES OCTAL .CKAH SUB C = 171,7759 EPSILON= 0,0000 SCN=11

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PN 11 PASS2871 PRI4 #0/0 S/WSK,0 DSS63A RCVR AGC -131.4 FILE 11-1294 PS 02/06/81  
 SPACECRAFT ATTITUDE ON DAY 37 FEB 6,1981 0430 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRHS = 180 KCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.6573 RCSPHAK = 106.8300

SPACECRAFT-EARTH DIRECTION: CLAT = -10.6555 CLON = 21.8340

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -10.7807 CLON = 21.1773

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PN 11 PASS2871 PRI4 #0/0 S/WSK,0 DSS63A RCVR AGC -131.4 FILE 11-1294 PS 02/06/81  
 SPACECRAFT ATTITUDE ON DAY 37 FEB 6,1981 0430 GMT  
 SPIN PERIOD = 7.561034 SEC RYLT = 2 HR 39 MIN 2.35 SEC

	CNA	CKA	CLAT	CLON	H(KM)	H(AU)
S/C +Z AXIS	0.0000	0.0000	-10.7807	21.1773		
SUN	4.5112	172.6463	-10.1707	16.6318	0.14977456D 10	10.0116684
EARTH	0.6573	10.9134	-10.6555	21.8340	0.14303632D 10	9.5612513
JUPITER	156.3495	334.2283	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	77.4423	321.5115				
EFTELGEUSE(R)	65.3347	347.1794				
CANCPUS(B)	77.9422	284.4017				
ARCTURUS(R)	159.8708	96.7391				
RIGIL KENTAURUS	116.3307	239.6371				
ANTARES(R)	129.6071	195.2338				
CAPELLA(R)	67.9409	30.2599				
VEGA(B)	105.4274	118.8202				
ALDEBARAN(R)	48.0101	2.3410				
RIGEL(B)	54.8620	329.3714				
GAMMA CRUCIS(R)	119.8556	258.2898				
SPICA(B)	166.9641	259.7537				
ACHERNAR(B)	55.6270	248.6041				
DENEK(B)	79.6865	111.5846				
PRUCYON(B)	91.0521	343.4779				

STAR DELAY: 1.0627 SEC 272.0538 PULSES DECIMAL = 4. COARSE + 16. FINE  
 50.5983 DEG 04 20 PULSES OCTAL CKAH SUB C = 172.6463 EPSILON = 0.0000 SCN#11

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PN 11 PASS2877 PR14 #0/0 S/WSK.0 DSS44 RCVR AGC =141.1 FILE 11-1295 RM 02/12/81

SPACECRAFT ATTITUDE ON DAY 43 FEB 12, 1981 1810 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ELLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7190 RCSPHAK = 90.7254

SPACECRAFT-EARTH DIRECTION: CLAT = -10.8467 CLON = 21.0025

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -10.7698 CLON = 21.1348

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PN 11 PASS2877 PR14 #0/0 S/WSK.0 DSS44 RCVR AGC =141.1 FILE 11-1295 RM 02/12/81

SPACECRAFT ATTITUDE ON DAY 43 FEB 12, 1981 1810 GMT

SPIN PERIOD = 7.561034 SEC RCST = 2 HR 37 MIN 47.49 SEC

	CNA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-10.7698	21.1348	-	-
SUN	4.1187	173.1438	-10.2500	10.9791	0.150064370 10	10.0310408
EARTH	0.7190	353.7920	-10.8467	21.0625	0.141914130 10	9.4862386
JUPITER	156.3918	334.2011	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	77.4818	321.5074				
BETELGEUSE(R)	65.3779	347.1708				
CANOPUS(B)	77.9631	284.4018				
ARCTURUS(R)	159.8550	90.8400				
RIGIL KENTAURUS	116.3190	239.0000				
ANTARES(R)	129.5690	195.2001				
CAPELLA(R)	67.9716	30.2397				
VEGA(B)	102.3977	110.0191				
ALDEBARAN(R)	48.0514	2.3217				
RIGEL(B)	50.9035	329.3723				
GAMMA CRUCIS(R)	119.8578	258.2571				
SPICA(B)	166.9673	259.5597				
ACHERNAR(B)	55.6219	248.0253				
DENEK(B)	79.6610	111.5702				
PROCYON(B)	91.0953	343.4099				

STAR DELAY: 1.0027 SEC 272.0532 PULSES DECIMAL = 4. COARSE + 10. FINE  
 50.5982 SEC 04 20 PULSES OCIAL CKAN 300 C = 173.1438 EPSILON = 0.0000 SCN=11

PN 11 PASS2885 PR14 #070 S/WSK.0 DSS43A KLVK AGC -141.1 FILE 11-1296 TS 02/21/81

SPACECRAFT ATTITUDE ON DAY 51 FEB 20, 1981 1430 GMT

RCLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ELLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRNS = 100 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7316 RCSPHAK = 70.6927

SPACECRAFT-EARTH DIRECTION: CLAT = -11.0680 CLON = 21.8074

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -10.7484 CLON = 21.1372

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PN 11 PASS2885 PR14 #070 S/WSK.0 DSS43A KLVK AGC -141.1 FILE 11-1296 TS 02/21/81

SPACECRAFT ATTITUDE ON DAY 51 FEB 20, 1981 1430 GMT

SPIN PERIOD = 7.581934 SEC RILT = 2 HR 30 MIN 27.14 SEC

	CMA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-10.7484	21.1372	-	-
SUN	3.7040	174.1018	-10.3455	17.3919	0.150414930 10	10.054473
EARTH	0.7316	334.0285	-11.0680	21.8074	0.140709660 10	9.405725
JUPITER	156.3990	334.2481	0.0000	180.0000	0.000000000	0.000000
SIRIUS(B)	77.4932	321.5038				
BETELGEUSE(R)	25.3203	347.1014				
CANCER(B)	77.9233	284.4000				
ARCTURUS(B)	159.8340	96.0270				
RIGIL KENTACRUS	116.3387	239.6047				
ANTARES(R)	129.5776	195.1920				
CAPELLA(R)	67.9587	30.2331				
VEGA(B)	103.3801	118.0169				
ALDEBARAN(R)	48.0481	2.3030				
RIGEL(B)	50.9123	329.3590				
GAMMA CRUCIS(R)	119.8793	258.2504				
SPICA(B)	166.9888	259.5535				
ACHERNAR(B)	55.6427	248.0297				
DENEK(B)	79.6420	111.5725				
PROCYON(B)	91.0991	303.4707				

STAR DELAY: 1.0627 SEC 272.0590 PULSES DECIMAL = 4. COARSE + 16. FINE  
50.5994 DEF 04 20 PULSES CICAL CMAH SUB C = 174.1018 EPSILON = 0.0000 SCN =

N 11 PASS 2891 PR14 40/C S/W SK.C DSS 42 RCVR AGC -136.6 FILE 11-1297 RM  
 SPACECRAFT ATTITUDE ON DAY 57 FEB 26, 1981 1700 GMT

02/26/81

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/W.

REFERENCE FOR POSPIAN IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASFSORPS = 130 POSTPOS = 130

AMPLITUDE AND PHASE ANGLE: POSANGAK = 0.7292 POSPIAN = 55.4406

SPACECRAFT-TO-SUN DIRECTION: CLAT = -11.2332 CLON = 21.7017

SPACECRAFT TO AXIS ATTITUDE: CLAT = -10.7617 CLON = 21.2404

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N 11 PASS 2891 PR14 40/C S/W SK.C DSS 42 RCVR AGC -136.6 FILE 11-1297 RM  
 SPACECRAFT ATTITUDE ON DAY 57 FEB 26, 1981 1700 GMT  
 ROLL PERIOD = 7.561034 SEC PILL = 2.15 30 MIN 32.51 SEC

02/26/81

	CLAT	CLON	R (KM)	R (AU)
S/W TO AXIS	0.0000	0.0000	-	-
SUN	174.5039	-10.4115	174.5039	10.0729432
EARTH	319.2540	-11.2332	17.7125	0.139890860 10
JUPITER	334.2244	0.0000	21.7017	0.2509933
SIRIUS (B)	321.5062	150.0000	0.0000000	0.0000000
ETHELCEUS (F)	347.1076			
CANIS (B)	284.4013			
ARCTICUS (B)	96.8242			
RIGIL KENIAHUS	239.6099			
ANTARES (B)	195.2030			
CAPPELLA (F)	20.2390			
VEGA (B)	118.8183			
ALCEBARAN (F)	2.3197			
RIGEL (B)	329.3665			
GAMMA CRUCIS (F)	258.2603			
SPICA (B)	259.5778			
ACHERNAR (B)	248.0290			
DENEB (B)	111.5728			
PRECEYON (B)	343.4711			

STAR DELAY: 1.0827 SEC 272.0541 PULSES DECIMAL = 4. COURSE + 16. FINE  
 50.5887 DEC 04 30 PULSES LOCAL CRAWL 305 C = 174.5039 EPSILON = 0.0000 SCAN=11

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PN 11 PASS 2898 PRI4 40/0 S/W SK.0 DSS 11A RCVR AGC -141.1 FILE 11-1298 TS 03/05/81  
 SPACECRAFT ATTITUDE ON DAY 04 MAR 5~~4~~, 1981 1315 GMT

RCLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRNS = 180 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7813 RCSPHAK = 32.0100  
 SPACECRAFT-EARTH DIRECTION: CLAT = -11.4088 CLON = 21.5234  
 SPACERAFT +Z AXIS ATTITUDE: CLAT = -10.7162 CLON = 21.1549

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 PN 11 PASS 2898 PRI4 40/0 S/W SK.0 DSS 11A RCVR AGC -141.1 FILE 11-1298 TS 03/05/81  
 SPACECRAFT ATTITUDE ON DAY 04 MAR 5~~4~~, 1981 1315 GMT  
 SPIN PERIOD = 7.561434 SEC RTLI = 2 PR 34 MIN 40.09 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AL)
S/C +Z AXIS	0.0000	0.0000	-10.7162	21.1549	-	-
SUN	3.0406	176.2016	-10.4997	18.0672	0.151004600 10	10.0938944
EARTH	0.7813	297.5396	-11.4088	21.5234	0.139114030 10	9.2990662
JUPITER	156.3973	334.3349	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	77.4996	321.4991				
BETELGEUSE(R)	66.3705	347.1400				
CANOPUS(B)	78.0101	284.3900				
ARCTURUS(R)	159.8042	96.7736				
RIGIL KENTAURUS	116.3752	239.6073				
ANTARES(R)	129.6028	195.1734				
CAPELLA(R)	67.9275	30.2207				
VEGA(B)	102.3603	110.0134				
ALDEBARAN(R)	48.0295	2.2781				
RIGEL(B)	54.9138	329.3300				
GAMMA CRUCIS(R)	119.9142	258.2057				
SPICA(B)	167.0236	259.0057				
ACHERNAH(B)	55.6789	248.6300				
DENEK(B)	79.6185	111.5810				
PROCYON(B)	91.0916	343.4747				

STAR DELAY: 1.0628 SEC 272.0702 PULSES DECIMAL = 4, COARSE + 16, FINE  
 50.6014 DEG 04 20 PULSES TOTAL CNAH SUB C = 176.2016 EPSILON = 0.0000 SUB = 11

N 11 PASS 2901 PRI4 #0/0 S/W SK.0 DSS 14P RCVR AGC -131.4 FILE 11-1299 BD  
 SPACECRAFT ATTITUDE ON DAY 67 MAR 8,1981 1200 GMT

03/10/81

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

PRE-PRECESSION

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7827 RCSPHAK = 23.2270

SPACECRAFT-EARTH DIRECTION: CLAT = -11.4809 CLON = 21.4288

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -10.7393 CLON = 21.1738

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N 11 PASS 2901 PRI4 #0/0 S/W SK.0 DSS 14P RCVR AGC -131.4 FILE 11-1299 BD  
 SPACECRAFT ATTITUDE ON DAY 67 MAR 8,1981 1200 GMT  
 SPIN PERIOD = 7.561034 SEC RTLT = 2 HR 34 MIN 21.70 SEC

03/10/81

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-10.7393	21.1738	-	-
SUN	2.9074	176.2341	-10.5345	18.2229	0.151141010 10	10.1030087
EARTH	0.7827	288.6148	-11.4809	21.4288	0.138829360 10	9.2800374
JUPITER	156.3705	334.3095	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	77.4707	321.5041				
BETELGEUSE(R)	65.3473	347.1605				
CANOPUS(B)	77.9832	284.3995				
ARCTURUS(R)	159.8292	96.7344				
RIGIL KENTAURUS	116.3647	239.6246				
ANTARES(R)	129.6147	195.1994				
CAPELLA(R)	67.9230	30.2441				
VEGA(B)	102.3895	118.8158				
ALDEBARAN(R)	48.0118	2.3030				
RIGEL(B)	54.8860	329.3474				
GAMMA CRUCIS(R)	119.8955	258.2824				
SPICA(B)	167.0043	259.7066				
ACHERNAR(B)	55.6643	248.6159				
DENEK(B)	79.6467	111.5861				
PROCYON(B)	91.0672	343.4779				

STAR DELAY: 1.0628 SEC 272.0653 PULSES DECIMAL = 4. COARSE + 16. FINE  
 50.6005 DEG 04 20 PULSES OCTAL CKAH SUB C = 176.2341 EPSILON= 0.0000 SCN=11

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N 11 PASS 2901 PR14 #4/8 S/W SK.0 DSS 14P RCVR AGC -133.2 FILE 11-1300 RS  
 SPACECRAFT ATTITUDE ON DAY 67 MAR 8,1981 1500 GMT

03/10/81

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.1192 RCSPHAK = 144.8900

NEW ATTITUDE  
 POST- PRECESSION

SPACECRAFT-EARTH DIRECTION: CLAT = -11.4839 CLON = 21.4245

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -11.9173 CLON = 20.3708

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N 11 PASS 2901 PR14 #4/8 S/W SK.0 DSS 14P RCVR AGC -133.2 FILE 11-1300 RS  
 SPACECRAFT ATTITUDE ON DAY 67 MAR 8,1981 1500 GMT  
 SPIN PERIOD = 7.556517 SEC RTLT = 2 HR 34 MIN 20.94 SEC

03/10/81

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-11.9173	20.3708	-	-
SUN	2.5139	146.8796	-10.5359	18.2294	0.151146800 10	10.1033957
EARTH	1.1192	22.6776	-11.4839	21.4245	0.138817970 10	9.2792761
JUPITER	156.5279	330.9202	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	77.3556	321.6617				
BETELGEUSE(R)	65.8583	347.6022				
CANOPUS(B)	77.0386	284.4757				
ARCTURUS(R)	160.8869	99.2200				
RIGIL KENTAURUS	114.9501	239.4279				
ANTARES(R)	128.5411	195.7927				
CAPELLA(R)	69.1971	30.3299				
VEGA(B)	103.0408	118.9420				
ALDEBARAN(R)	48.8545	3.1556				
RIGEL(B)	54.9731	330.1826				
GAMMA CRUCIS(R)	118.5799	257.8299				
SPICA(B)	165.6928	257.3366				
ACHERNAR(B)	54.2804	248.6715				
DENEK(B)	80.4562	111.2243				
PROCYON(B)	91.4849	343.2900				

STAR DELAY: 1.0605 SEC 271.4932 PULSES DECIMAL = 4. COARSE + 15. FINE  
 50.5243 DEG 04 17 PULSES OCTAL CKAH SUB C = 146.8796 EPSILON= 0.0000 SCN=11

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PN 11 PASS 2903 PR14 #0/0 S/W SA,0 DSS 44 RCVR AGC 142,5 FILE 11-1301 BD  
 SPACECRAFT ATTITUDE ON DAY 69 MAR 10, 1981 1700 GMT

03/11/81

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 180 RCSTROS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1,0744 RCSPHAK = 144,7900  
 SPACECRAFT-EARTH DIRECTION: CLAT = -11,5566 CLON = 21,3150  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -11,9160 CLON = 20,2808

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PN 11 PASS 2903 PR14 #0/0 S/W SA,0 DSS 44 RCVR AGC 142,5 FILE 11-1301 BD  
 SPACECRAFT ATTITUDE ON DAY 69 MAR 10, 1981 1700 GMT  
 SPIN PERIOD = 7,556395 SEC RTLT = 2 HR 34 MIN 3,48 SEC

03/11/81

S/C +Z AXIS	CNA	CKA	CLAT	CLON	H(KM)	H(AU)
SUN	0,0000	0,0000	=11,9160	20,2808		
EARTH	2,2904	144,2621	=10,5721	18,3898	0,15129010D 10	10,1129746
JUPITER	1,0744	19,4390	=11,5566	21,3150	0,13855624D 10	9,2617807
SIRIUS(B)	156,6054	330,8055	0,0000	180,0000	0,00000000	0,0000000
BETELGEUSE(R)	77,4255	321,6551				
CANCPUS(B)	65,9446	347,5915				
ARCTURUS(R)	77,0619	284,4767				
RIGIL KENTAURUS	160,8713	99,4513				
ANTARES(R)	114,9064	239,3738				
CAPELLA(R)	128,4568	195,7540				
VEGA(B)	69,2720	30,2940				
ALDEBARAN(R)	102,9970	118,9411				
RIGEL(B)	48,9423	3,1316				
GAMMA CRUCIS(R)	55,0502	330,1938				
SPICA(B)	118,5627	257,7643				
ACHERNAR(B)	165,6746	256,9806				
DENEK(B)	50,2496	248,7123				
PROCYON(B)	80,4231	111,1920				
	91,5696	343,2704				

STAR DELAY: 1,0605 SEC 271,4838 PULSES DECIMAL = 4, COARSE + 15, FINE  
 50,5233 DEC 04 17 PULSES OCTAL CKAN SUB C# 144,2621 EPSILON= 0,0000 SCN=11

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PN 1 PASS 2911 PR14 #0/0 S/W SK.0 DSS 42 RCVR AGC -136.6 FILE 11-1302  
SPACECRAFT ATTITUDE ON DAY 77 MAR 18, 1981 1500 GMT

03/18/81

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7113 RCSPHAK = 144.3290

SPACECRAFT-EARTH DIRECTION: CLAT = -11.7090 CLUN = 21.0357

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -11.9139 CLUN = 20.3398

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PN 11 PASS 2911 PR14 #0/0 S/W SK.0 DSS 42 RCVR AGC -136.6 FILE 11-1302  
SPACECRAFT ATTITUDE ON DAY 77 MAR 18, 1981 1500 GMT  
SPIN PERIOD = 7.556395 SEC RTLT = 2 HR 33 MIN 33.25 SEC

03/18/81

	CNA	CKA	CLAT	CLUN	R (KM)	R (A)
S/C +Z AXIS	0.0000	0.0000	-11.9139	20.3398	-	-
SUN	2.0054	141.2134	-10.6527	18.7485	0.151674460 10	10.134
EARTH	0.7113	16.6713	-11.7090	21.0357	0.138103210 10	9.231
JUPITER	156.5561	330.8868	0.0000	180.0000	0.000000000	0.000
SIRIUS(B)	77.3816	321.6589				
BETELGEUSE(R)	65.8887	347.5972				
CANOPUS(B)	77.0495	284.4759				
ARCTURUS(R)	160.8736	99.2984				
RIGIL KENTAURUS	114.9376	239.4085				
ANTAPES(R)	128.5129	195.7771				
CAPELLA(R)	69.2215	30.3165				
VEGA(B)	103.0231	118.9414				
ALDEBARAN(R)	43.8846	3.1447				
RIGEL(B)	55.0011	330.1847				
GAMMA CRUCIS(R)	118.5769	257.8070				
SPICA(B)	165.6895	257.2112				
ACHERNAR(B)	54.2726	248.6863				
DENEK(B)	80.4420	111.2134				
PROCYON(B)	91.5149	343.2835				

STAR DELAY: 1.0605 SEC 271.4880 PULSES DECIMAL = 4. COARSE + 15. FINE  
50.5241 DEG 04 17 PULSES DIGITAL CNAH SUB C = 141.2134 EPSILON= 0.0000 S

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PN 11 PASS 2919 PRI4 #0/0 S/W SA,0 DSS 62A RLVK AGC -139.7 FILE 11-1287 PS  
SPACECRAFT ATTITUDE ON DAY 85 MAR 26, 1981 0300 GMT

03/26/81

ROLL REFERENCE BODY IS SUN SUN IS ON RIGHT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRKS = 180 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4046 RCSPHAK = 142.1800

SPACECRAFT-EARTH DIRECTION: CLAT = -11.8562 CLON = 20.2907

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -11.9080 CLON = 20.2806

*Broomhall*

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PN 11 PASS 2919 PRI4 #0/0 S/W SA,0 DSS 62A RLVK AGC -139.7 FILE 11-1287 PS  
SPACECRAFT ATTITUDE ON DAY 85 MAR 26, 1981 0300 GMT  
SPIN PERIOD = 7.556395 SEC RILT = 2 HR 33 MIN 15.06 SEC

03/26/81

	CMA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-11.9080	20.2806	-	-
SUN	1.6204	133.9533	-10.7393	19.1360	0.151970610 10	10.1584632
EARTH	0.4046	7.3163	-11.8562	20.2907	0.137830490 10	9.2132680
JUPITER	156.6095	330.8213	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	77.4306	321.6537				
BETELGEUSE(R)	65.9865	347.5860				
CANOPUS(B)	77.0697	284.4762				
ARCTURUS(R)	100.8630	99.4480				
RIGIL KENTAURUS	114.9132	239.3718				
ANTARES(R)	128.4588	195.7479				
CAPELLA(R)	69.2685	30.2918				
VEGA(B)	102.9899	116.9402				
ALDEBARAN(R)	48.9420	3.1246				
RIGEL(B)	55.0543	330.1890				
GAMMA CRUCIS(R)	118.5704	257.7633				
SFICA(B)	165.6823	256.9729				
ACHERNAR(B)	50.2570	248.7145				
DENEB(B)	50.4156	111.1924				
PROCYON(B)	91.5720	343.2710				

STAR DELAY: 1.0005 SEC 271.4862 PULSES DECIMAL = 4, COARSE + 15, FINE  
50.5238 DEG 04 17 PULSES OCTAL. CKAM SUB C = 133.9533 EPSILON = 0.0000 SCN=1

PN 11 PASS 2954 PR14 #0/G S/W SK.0 DSS 44 RCVR AGC -141.1 FILE 11-1310  
 SPACECRAFT ATTITUDE ON DAY 120 APR 20, 1981 1620 GMT

05/01/81

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPLS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5391 RCSPHAK = 54.4456

SPACECRAFT-EARTH DIRECTION: CLAT = -12.2595 CLON = 18.9094

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -12.1407 CLON = 18.3715

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PN 11 PASS 2954 PR14 #0/G S/W SK.0 DSS 44 RCVR AGC -141.1 FILE 11-1310  
 SPACECRAFT ATTITUDE ON DAY 120 APR 20, 1981 1620 GMT  
 SPIN PERIOD = 7.551260 SEC RTLT = 2 HR 35 MIN 29.88 SLC

05/01/81

	GMA	GKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-12.1407	18.3715	-	-
SUN	0.7123	21.2625	-11.1376	20.9510	0.153720890 10	10.27544
EARTH	0.5391	247.2173	-12.2595	18.9094	0.139836360 10	9.24735
JUPITER	154.0053	227.4547	0.0000	180.0000	0.00000000	0.00000
SILHUS (?)	74.7124	221.5390				
BETHELGUSE (?)	67.7124	247.4601				
CAMPUS (?)	77.2114	224.5022				
ARCTICUS (?)	100.7046	104.4322				
RIGIL KENTAURUS	110.7478	238.3059				
ANTARES (?)	126.5969	195.1404				
CAPPELLA (?)	71.0027	29.7285				
VEGA (B)	100.2000	113.4742				
ALDEBARAN (?)	50.2123	2.0402				
RIGEL (B)	56.5425	230.5550				
GAMMA CRUCIS (B)	117.0263	256.4154				
SPICA (B)	144.0071	240.0067				
SCHEPHERD (?)	82.2740	240.4324				
DENEK (?)	70.8500	110.4706				
PROCYON (B)	50.2005	242.8405				

STAR DELAY: 1.0592 SEC 271.1591 PULSES DECIMAL = 4. COARSE + 15. FINE  
 50.4872 DEG 04 17 PULSES OCTAL CNAH SUB C = 21.3925 EPSILON = 0.0000 SCN

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FM 11 PASS 2962 FRID 4070 S/W SN.0 USS 12A KLVK AGC -136.6 FILE 11-1311 TG  
 SPACECRAFT ATTITUDE ON DAY 128 MAY 27, 1981 0500 GMT

05/08/81

HULL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR ROSEPHAK IS TOWARD SOUTH ECLIPTIC POLE.

HULL REFERENCE PARAMETERS: ASPSGRHS = 0 ROSTHOS = 180

AMPLITUDE AND PHASE ANGLE: RCSARGAN = 0.2534 ROCPHAK = 25.2430

SPACECRAFT-EARTH DIRECTION: CLAT = -12.2624 CLON = 18.5992

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -12.0910 CLON = 18.4292

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FM 11 PASS 2962 FRID 4070 S/W SN.0 USS 12A KLVK AGC -136.6 FILE 11-1311 TG  
 SPACECRAFT ATTITUDE ON DAY 128 MAY 27, 1981 0500 GMT  
 SPIN PERIOD = 7.551390 SEC RILT = 2 HR 36 MIN 42.63 SEC

05/08/81

	CLA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-12.0910	18.4292		
SUN	2.9721	16.7572	-11.2194	21.3305	0.154104520 10	10.5010909
EARTH	0.2534	510.9320	-12.2624	18.5992	0.140941930 10	9.4212520
SUPHER	153.0704	527.0064	0.0000	180.0000	0.000000000	0.0000000
SIRIUS (R)	72.7201	521.5364				
BETELGEUSE (R)	67.8751	507.4673				
GAMMA (R)	77.3450	284.4970				
ARCTURUS (R)	160.0704	104.2550				
RIGIL KENTAURUS	113.8190	238.3277				
ANTARES (R)	126.0045	195.1270				
CAPELLA (R)	70.9208	29.0303				
VEGA (R)	102.2730	110.9303				
ALDEBARAN (R)	58.7600	2.0147				
RIGEL (R)	56.5370	330.5211				
GAMMA CRUCIS (R)	117.9079	250.4505				
SPICA (R)	160.9931	250.1430				
ACHERNAR (R)	53.4400	249.5181				
DENEK (R)	70.9420	110.5032				
PROCYON (R)	93.2512	382.0564				

STAR DELAY: 1.0593 SEC 271.1797 PULSES DECIMAL = 4, COARSE + 15, FINE  
 50.5002 DEG 04 17 PULSES CITAL CRAW SUB C = 10.7572 EPSILON = 0.0000 SGN = 11

PN 11 PASS 2969 PRI4 #0/0 S/W SKO DSS 11A RCVR AGC -141.1 FILE 11-1312 RC 05/19/81  
 SPACECRAFT ATTITUDE ON DAY 135 MAY 15, 1981 0600 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.2314 RCSPHAK = 312.1300

SPACECRAFT-EARTH DIRECTION: CLAT = -12.2864 CLON = 18.3576

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -12.0916 CLON = 18.4854

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PN 11 PASS 2969 PP14 #0/0 S/W SKO DSS 11A RCVR AGC -141.1 FILE 11-1312 RC 05/19/81  
 SPACECRAFT ATTITUDE ON DAY 135 MAY 15, 1981 0600 GMT  
 SPIN PERIOD = 7.551268 SEC RTLT = 2 HR 38 MIN 4.48 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(V)
S/C +Z AXIS	0.0000	0.0000	-12.0916	18.4854	-	-
SUN	3.2318	13.9413	-11.2951	21.6839	0.15444669D 10	10.32
EARTH	0.2314	237.3342	-12.2864	18.3576	0.14216880D 10	9.50
JUPITER	158.0274	327.9292	0.0000	180.0000	0.00000000	0.00
SIRIUS(B)	78.6927	321.5415				
BETELGEUSE(R)	67.6214	347.4544				
CANOPUS(B)	77.3312	284.4997				
ARCTURUS(R)	160.6845	104.1134				
RIGIL KENTAURUS	113.8480	238.3602				
ANTARES(R)	126.7173	195.1507				
CAPELLA(R)	70.8815	29.6577				
VEGA(B)	102.3009	118.9317				
ALDEBARAN(R)	50.7052	2.8292				
RIGEL(B)	56.4897	330.5153				
GAMMA CRUCIS(R)	118.0001	256.4907				
SPICA(B)	165.0110	250.3489				
ACHERNAR(B)	53.4590	249.4916				
DENEK(B)	79.9619	110.5241				
PROCYON(B)	93.1985	342.8691				

STAR DELAY: 1.0593 SEC 271.1761 PULSES DECIMAL = 4. COARSE + 15. FINE  
 50.5003 DEG 04 17 PULSES OCTAL CKAH SUB C = 13.9413 EPSILON= 0.0000 S

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PN 11 PASS 2976 PR14 4070 S/W 500 DSS 11A RCVR AGC -141.1 FILE 11-1313 RC 05/21/81  
 SPACECRAFT ATTITUDE ON DAY 142 MAY 22, 1981 0500 GMT

FULL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR ROSEPHAK IS TOWARD SOUTH ECLIPTIC POLE.

FULL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.3706 RCSPHAK = 281.0500

SPACECRAFT-EARTH DIRECTION: CLAT = -12.2756 CLON = 10.1732

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -12.1230 CLON = 10.5167

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 PN 11 PASS 2976 PR14 4070 S/W 500 DSS 11A RCVR AGC -141.1 FILE 11-1313 RC 05/21/81  
 SPACECRAFT ATTITUDE ON DAY 142 MAY 22, 1981 0500 GMT

SPIN PERIOD = 7.551208 SEC RILT = 2 HR 39 MIN 36.47 SEC

	RA	DEC	CLAT	CLON	R(KK)	R(AL)
S/C +Z AXIS	0.0000	0.0000	-12.1230	10.5167	-	-
SUN	2.5211	12.9012	-11.3691	22.0310	0.154829060 10	10.3495361
EARTH	0.3706	204.3501	-12.2756	10.1732	0.143547060 10	9.5954318
JUPITER	157.9832	327.9133	0.0000	180.0000	0.000000000	0.0000000
SATURN(S)	78.6477	321.5493				
BETELGEUSE(R)	67.5828	347.4711				
CANOPUS(S)	77.2927	284.5013				
ARCTURUS(S)	160.7228	104.0519				
RIGIL KENTAURUS	113.6384	238.3887				
ANTARES(R)	120.7405	195.1000				
CAPELLA(R)	70.8587	29.6797				
VEGA(B)	102.3441	118.9350				
ALDEBARAN(R)	50.6743	2.0651				
RIGEL(B)	36.4459	330.5298				
GAMMA CRUCIS(R)	117.9773	256.5184				
SPICA(S)	164.9924	250.5090				
ACHERNAR(B)	53.4411	249.4678				
DEHEB(S)	80.0027	110.5345				
PRUCYON(B)	93.1561	342.6749				

STAR DELAY: 1.0592 SEC 271.1673 PULSES DECIMAL = 4. COARSE + 15. FINE  
 50.4987 DEC 04 17 PULSES OCTAL GRAH SUB C = 12.0012 EPSILON = 0.0000 SCN=11



PN 11 PASS 2983 PR14 #C/C S/W SK.0 DSS 11A RCVR GC -141.1 FILE 11-1314 TG  
 SPACECRAFT ATTITUDE CN DAY 149 MAY 29, 1981 0500 GMT 7/29/81

RCLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPFAK IS TOWARD SCUTH ECLIPTIC POLE.

RCLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPLS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4780 RCSPHAK = 275.1100

SPACECRAFT-EARTH DIRECTION: CLAT = -12.2518 CLUN = 18.0485

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -12.1209 CLUN = 18.5188

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PN 11 PASS 2983 PR14 #C/C S/W SK.0 DSS 11A RCVR AGC -141.1 FILE 11-1314 TG C5/29/81  
 SPACECRAFT ATTITUDE CN DAY 149 MAY 29, 1981 0500 GMT  
 SPIN PERIOD = 7.551268 SEC RTLT = 2 HR 41 MIN 19.08 SEC

	CMA	CKA	CLAT	CLUN	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-12.1209	18.5188	-	-
SUN	3.8403	9.7710	-11.4428	22.3802	0.15519707D 10	10.274135
EARTH	0.4780	195.9505	-12.2518	18.0485	0.14508571D 10	9.698242
JUPITER	157.9842	327.9179	0.0000	180.0000	0.00000000	0.000000
SIRIUS(B)	78.6490	321.5490				
BETELGEUSE(R)	67.5831	347.4703				
CANOPUS(B)	77.2948	284.5012				
ARCTURUS(R)	160.7208	104.0502				
RIGIL KENTAURUS	113.8403	238.3863				
ANTARES(R)	126.7412	195.1851				
CAPELLA(R)	70.8675	29.6791				
VEGA(B)	102.3423	118.9355				
ALDEBARAN(R)	50.6740	2.8614				
RIGEL(B)	56.4468	330.5285				
GAMMA CRUCIS(R)	117.9793	256.5183				
SPICA(B)	164.9945	250.5074				
ACHERNAR(B)	53.4431	249.4683				
DENEK(B)	80.0007	110.5347				
PROCYON(B)	93.1587	242.8751				

STAR DELAY: 1.0592 SEC 271.1679 PULSES DECIMAL = 4. COARSE + 15. FINE  
 50.4588 DEG 04 17 PULSES OCTAL CKAH SUB C = 9.7710 EPSILON = 0.0000 SCN =

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PA 11 PASS 288 FR14 #070 S/W SK.0 DSS 42P RUVK AGC 138.1 FILE 11-1315 TG

06/03/81

SPACECRAFT ATTITUDE ON DAY 154 JUN 30, 1981 1320 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR ROSSPAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPGRKS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5085 ROSSPAK = 275.7020

SPACECRAFT-EARTH DIRECTION: CLAT = -12.2262 CLON = 17.9978

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -12.1145 CLON = 18.5053

PA 11 PASS 288 FR14 #070 S/W SK.0 DSS 42P RUVK AGC 138.1 FILE 11-1315 TG

06/03/81

SPACECRAFT ATTITUDE ON DAY 154 JUN 30, 1981 1320 GMT

SPIN PERIOD = 7.554266 SEC RTLT = 2 HR 42 MIN 45.53 SEC

	CRA	CRA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-12.1145	18.5053		
SUN	4.0989	8.2141	-11.4986	22.6453	0.155480670 10	10.3930929
EARTH	0.5085	192.7409	-12.2262	17.9978	0.146351690 10	9.7828670
JUPITER	157.9988	327.9110	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	78.6633	321.5468				
DETELGEISE(R)	67.5974	347.4680				
GAMMA CRUS(B)	77.3042	284.5009				
ARCTURUS(R)	160.7114	104.0795				
RIGIL KENTAURUS	113.0388	238.3770				
ANTARES(R)	126.7301	195.1751				
CAPELLA(R)	70.8758	29.6721				
VEGA(B)	102.3304	118.9345				
ALDEBARAN(R)	50.6869	2.6528				
RIGEL(B)	54.4614	330.5263				
GAMMA CRUCIS(R)	117.9825	250.5078				
SPICA(B)	104.9460	250.4502				
ACHERNAR(B)	53.4444	249.4763				
DENEK(B)	70.9901	110.5301				
PROCYON(B)	93.1732	342.6723				

STAR DELAY: 1.0593 SEC 271.1696 PULSES DECIMAL = 4, COARSE + 15, FINE  
50.4991 DEC 04 17 PULSES OCTAL GRAH SUB C E 8.2141 EPSILON = 0.0000 SCN = 11

PN 11 PASS 2995 PRI4 #0/0 S/W SK.0 DSS 11P RCVR AGC -141.1 FILE 11-1316 BD 06/16/81

SPACECRAFT ATTITUDE ON DAY 161 JUN 10, 1981 0400 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.5235 RCSPHAK = 271.1200

SPACECRAFT-EARTH DIRECTION: CLAT = -12.1871 CLON = 180.1980

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -11.8021 CLON = 180.5606

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PN 11 PASS 2995 PRI4 #0/0 S/W SK.0 DSS 11P RCVR AGC -141.1 FILE 11-1316 BD 06/16/81

SPACECRAFT ATTITUDE ON DAY 161 JUN 10, 1981 0400 GMT

SPIN PERIOD = 7.551390 SEC RTLT = 2 HR 44 MIN 34.27 SEC

	CNA	CKA	CLAT	CLON	R(KM)	P(AU)
S/C +Z AXIS	0.0000	0.0000	-11.8021	180.5606	-	-
SUN	147.7295	225.6074	-11.5670	22.9721	0.15583437D 10	10.41673
EARTH	0.5235	227.3862	-12.1871	180.1980	0.14801167D 10	9.89382
JUPITER	11.8152	92.7389	0.0000	180.0000	0.00000000	0.00000
SIRIUS(B)	72.4148	218.0888				
BETELGEUSE(R)	88.8042	196.1300				
CANOPUS(B)	75.1402	255.7742				
ARCTURUS(R)	48.0907	62.8098				
RIGIL KENTAURUS	59.0706	317.1000				
ANTARES(R)	68.3751	359.7329				
CAPELLA(R)	102.8028	158.9261				
VEGA(B)	107.1783	61.3067				
ALDEBARAN(R)	109.3806	190.1789				
RIGEL(B)	95.6430	213.4568				
GAMMA CRUCIS(R)	46.8052	302.6092				
SPICA(B)	24.7229	21.4889				
ACHERNAR(B)	107.7101	278.2779				
DENEB(B)	128.2883	73.9833				
PROCYON(B)	63.1238	192.1268				

STAR DELAY: 1.6618 SEC 425.4329 PULSES DECIMAL = 6. COARSE + 41. FINE

70.2280 SEC 06.71 PULSES OCTAL CKAR SUP C = 225.6074 EPSTION = 0.0000 SEC

PN 11 PASS 3003 FR14 #070 S/W SK 0 DSS 43P RCVR AGC -142.5 FILE 11-1317 TKG  
 SPACECRAFT ATTITUDE ON DAY 169 JUN 18, 1981 1000 GMT

06/23/81

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.4550 RCSPHAK = 264.8860  
 SPACECRAFT-EARTH DIRECTION: CLAT = -12.1294 CLON = 18.0740  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -12.1319 CLON = 18.5394

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 PN 11 PASS 3003 FR14 #070 S/W SK 0 DSS 43P RCVR AGC -142.5 FILE 11-1317 TKG 06/23/81  
 SPACECRAFT ATTITUDE ON DAY 169 JUN 18, 1981 1000 GMT  
 SPIN PERIOD = 7.551268 SEC RTLT = 2 HR 47 MIN 0.47 SEC

	CNA	CKA	CLAT	CLON	H(KM)	H(AU)
S/C +Z AXIS	0.0000	0.0000	-12.1319	18.5394	-	-
SUN	4.7588	5.2929	-11.6514	23.3778	0.150280240 10	10.4465401
EARTH	0.4550	179.7342	-12.1294	18.0740	0.150203140 10	10.0403168
JUPITER	157.9613	327.9255	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	72.6263	321.5523				
BETELGEUSE(R)	67.5611	347.4712				
CANOPUS(B)	77.2790	284.5016				
ARCTURUS(R)	160.7364	104.0063				
RIGIL KENTAURUS	113.8414	238.4008				
ANTARES(R)	126.7577	195.2014				
CAPELLA(R)	78.8555	29.6902				
VEGA(B)	102.3618	118.9372				
ALDEBARAN(R)	50.6545	2.8756				
RIGEL(B)	56.4238	330.5327				
GAMMA CRUCIS(R)	117.9733	256.5344				
SPICA(B)	164.9907	250.5963				
ACHERNAR(B)	53.4398	249.4558				
DENEK(B)	80.0181	110.5416				
PROCYON(B)	93.1362	342.8791				

STAR DELAY: 1.0592 SEC 271.1649 PULSES DECIMAL = 4, COARSE + 15, FINE  
 50.4982 DEG 04 17 PULSES OCTAL CKAH SUB C = 5.2929 EPSILON = 0.0000 SCN=11

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PN 11 PASS 3008 PR14 #0/0 S/W SK.0 DSS 61P RCVR AGC -136.6 FILE 11-1318 RS  
 SPACECRAFT ATTITUDE ON DAY 173 JUN 22,1981 1940 GMT

06/22/81

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.3591 RCSPHAK = 262.1110

SPACECRAFT-EARTH DIRECTION: CLAT = -12.0957 CLON = 18.1594

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -12.1218 CLON = 18.5257

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PN 11 PASS 3008 PR14 #0/0 S/W SK.0 DSS 61P RCVR AGC -136.6 FILE 11-1318 RS  
 SPACECRAFT ATTITUDE ON DAY 173 JUN 22,1981 1940 GMT  
 SPIN PERIOD = 7.551490 SEC RLTT = 2 HR 48 MIN 21.43 SEC

06/22/81

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-12.1218	18.5257	-	-
SUN	4.9769	4.3814	-11.6960	23.5936	0.156520290 10	10.4625862
EARTH	0.3591	175.8658	-12.0957	18.1594	0.151416590 10	10.1214298
JUPITER	157.9780	327.9262	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	78.6431	321.5499				
BETELGEUSE(R)	67.5763	347.4715				
CANOPUS(B)	77.2922	234.5012				
ARCTURUS(R)	160.7233	104.0336				
RIGIL KENTAURUS	113.8430	238.3905				
ANTARES(R)	126.7474	195.1886				
CAPELLA(R)	70.8621	29.6820				
VEGA(B)	102.3464	118.9358				
ALDEBARAN(R)	50.6673	2.8639				
RIGEL(B)	56.4405	330.5283				
GAMMA CRUCIS(R)	117.9800	256.5233				
SPICA(B)	164.9958	250.5338				
ACHERNAR(B)	53.4446	249.4648				
DENEB(B)	80.0040	110.5372				
PROCYON(B)	93.1519	342.8766				

STAR DELAY: 1.0593 SEC 271.1757 PULSES DECIMAL = 4. COARSE + 15. FINF  
 50.4988 DEG 04 17 PULSES OCTAL CNAH SUB C = 4.3814 EPSILON= 0.0000 SCN=11

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FIMMEL

PN 11 PASS 3017 FR14 #070 S/W SK.0 DSS 11P RCVR AGC =141.1 FILE 11-1319 TS 07/02/81  
SPACECRAFT ATTITUDE ON DAY 183 JUL 27 1981 0530 GMT

ROLL REFERENCE BODY IS SUN. SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ELLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.1766 RCSPHAK = 180.4160  
SPACECRAFT-EARTH DIRECTION: CLAT = -12.0276 CLON = 18.4028  
SPACECRAFT +Z AXIS ATTITUDE: CLAT = -12.2019 CLON = 18.4318

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PN 11 PASS 3017 FR14 #070 S/W SK.0 DSS 11P RCVR AGC =141.1 FILE 11-1319 TS 07/02/81  
SPACECRAFT ATTITUDE ON DAY 183 JUL 27 1981 0530 GMT  
SPIN PERIOD = 7.551390 SEC RTLT = 2 HR 51 MIN 0.23 SEC

	CNA	LKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-12.2019	18.4318		
SUN	5.4067	3.8396	-11.7804	24.0039	0.15695732D 10	10.4917495
EARTH	0.1766	99.2424	-12.0276	18.4028	0.15379697D 10	10.2805461
JUPITER	158.0130	327.6176	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	78.6652	321.5540				
BETELGEUSE(R)	67.6486	347.4921				
CANOPUS(B)	77.2378	284.5061				
ARCTURUS(R)	160.7725	104.3250				
HIGIL KENTAURUS	113.7267	238.3548				
ANTARES(R)	126.6378	195.2085				
CAPELLA(R)	70.9816	29.6706				
VEGA(B)	102.3721	118.9421				
ALDEBARAN(R)	50.7631	2.9058				
RIGEL(B)	56.4811	330.5847				
GAMMA CRUCIS(R)	117.8807	256.4661				
SPICA(B)	164.8896	250.2922				
ACHERNAK(B)	53.3374	249.4881				
DENEK(B)	80.0468	110.4973				
PROCYON(B)	93.2161	342.6510				

STAR DELAY: 1.0592 SEC 271.1461 PULSES DECIMAL = 4, COARSE + 15, FINE  
50.4939 DEC 04 17 PULSES OCTAL CKAH SUB C = 3.8396 EPSILON = 0.0000 SCN=11  
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DN 11 PASS 3024 PR14 #070 S/W SK.0 DSS 43P RCVR AGC -134.9 FILE 11-1320 TG  
 SPACECRAFT ATTITUDE ON DAY 190 JUL 9, 1981 1200 GMT

07/09/81  
 PAGE 1

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR ROCSHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASNSGORS = 0 RCSTPLS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.2492 #ROCSHAK = 120.4540

SPACECRAFT-EARTH DIRECTION: CLAT = -11.9586 CLON = 18.7442

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -12.1508 CLON = 18.4218

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DN 11 PASS 3024 PR14 #070 S/W SK.0 DSS 43P RCVR AGC -134.9 FILE 11-1320 TG  
 SPACECRAFT ATTITUDE ON DAY 190 JUL 9, 1981 1200 GMT  
 SOUTH DEPTH = 7.551700 SEC FLIT = 2.400000 MIN TO 0.75 SEC

07/09/81

	CLAT	CLON	R (KI)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-	-
SUN	5.9597	2.1945	0.157442440 10	10.5242273
EARTH	0.2492	21.2225	0.156188120 10	10.4403824
JUPITER	159.2422	237.7005	0.00000000	0.0000000
SIRIUS (R)	72.7247	221.5451		
BETELGEUSE (R)	67.6692	247.4704		
CANOPUS (R)	77.2996	294.5032		
ARCTURUS (R)	160.7265	104.3123		
RIGIL KENTAURUS	113.7650	222.3372		
ANTARES (R)	126.6419	195.1678		
CAPPELLA (R)	70.9649	20.6515		
VEGA (R)	122.2226	118.2364		
ALDERAMAN (R)	50.7702	2.3614		
RIGEL (R)	56.5147	220.5563		
GAMMA CRUCIS (R)	117.9281	256.4526		
SPIGA (R)	164.9244	250.1213		
ACHERNAP (R)	52.3819	249.5061		
DENER (R)	79.2955	110.4967		
PROCYON (R)	93.2405	242.8515		

STAR DELAY: 1.2592 SEC 271.1615 PULSES DECIMAL = 4. COARSE + 15. FINE  
 50.4968 DEG 04 17 PULSES TOTAL GRAH SUB C = 2.1965 EPSILON = 0.0000 SCN=11

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# FIMMEL

PN 10 PASS 3032 PR23 #070 S/W SN,0 DSS 11A RCVR AGC =142.5 FILE 10-1321 TG  
 SPACECRAFT ATTITUDE ON DAY 198 JUL 17, 1981 0500 GMT

07/20/81

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRKS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7482 RCSPHAK = 108.2500

SPACECRAFT-EARTH DIRECTION: CLAT = -11.8950 CLON = -19.1500

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -12.1316 CLON = 18.4243

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 PN 10 PASS 3032 PR23 #070 S/W SN,0 DSS 11A RCVR AGC =142.5 FILE 10-1321 TG  
 SPACECRAFT ATTITUDE ON DAY 198 JUL 17, 1981 0500 GMT  
 SPIN PERIOD = 0.000000 SEC RTLT = 2 HR 56 MIN 9.26 SEC

07/20/81

	CMA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-12.1316	18.4243	-	-
SUN	6.2165	1.1227	-11.9377	24.7776	0.157875380 10	10.5531671
EARTH	0.7482	18.3608	-11.8950	19.1500	0.158429240 10	10.5901898
JUPITER	158.0567	327.7536	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(R)	78.7146	321.5423				
BETELGEUSE(R)	67.6710	347.4630				
LANCPLS(B)	77.3075	284.5021				
ARCTURUS(R)	160.7086	104.2939				
RIGIL KENTAURUS	113.7827	238.3342				
ANTARES(R)	126.6492	195.1550				
CAPELLA(R)	70.9531	29.6467				
VEGA(B)	103.3071	118.9345				
ALDEBARAN(R)	50.7668	2.8466				
RIGEL(B)	56.5220	330.5450				
GAMMA CRUCIS(R)	117.9473	256.4521				
SPICA(B)	164.9532	250.1769				
ACHERNAH(B)	53.4007	249.5099				
CENEH(B)	79.9784	110.4989				
PROCYON(B)	93.2438	342.8531				

STAR DELAY: 0.0000 SEC 0.0000 PULSES DECIMAL = 0. COARSE + 0. FINE  
 50.4979 DEG 00 00 PULSES OCTAL CMAH SUB C = -2.0978 EPSILON= 3.2205 SCN=10

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R. FIMMEL

PN 11 PASS 3038 FR14 #070 S/W SKO DSS 11A RCVR AGC -141.1 FILE 11-1322 RC 07/22/81  
SPACECRAFT ATTITUDE ON DAY 204 JUL 23, 1981 0430 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCS PHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.1057 RCSPHAK = 106.9100

SPACECRAFT-EARTH DIRECTION: CLAT = -11.8474 CLON = 19.5203

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -12.1682 CLON = 18.4385

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PN 11 PASS 3038 FR14 #070 S/W SKO DSS 11A RCVR AGC -141.1 FILE 11-1322 RC 07/22/81  
SPACECRAFT ATTITUDE ON DAY 204 JUL 23, 1981 0430 GMT  
SPIN PERIOD 7.551512 SEC RTLT = 2 HR 58 MIN 4.66 SEC

	CNA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-12.1682	18.4385	-	-
SUN	6.4819	0.8302	-11.9956	25.0651	0.158214110-10	10.5758095
EARTH	1.1057	16.7519	-11.8474	19.5203	0.160159120 10	10.7058235
JUPITER	158.0254	327.6982	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	78.6810	321.5493				
BETELGEUSE(R)	67.6495	347.4794				
CANOPUS(B)	77.2686	284.5042				
ARCTURUS(R)	160.7475	104.2842				
RIGIL KENTAURUS	113.7588	238.3509				
ANTARES(R)	126.6530	195.1870				
CAPELLA(R)	70.9592	29.0630				
VEGA(B)	102.3458	118.9387				
ALDEBARAN(R)	50.7548	2.8800				
RIGEL(B)	56.4919	330.5646				
GAMMA CRUCIS(R)	117.9150	256.4668				
SPICA(B)	164.9235	250.2745				
ACHERNAB(B)	53.3712	249.4937				
DENEB(B)	80.0176	110.5014				
PROCYON(B)	93.2197	342.8544				

STAR DELAY: 1.0592 SEC 271.160% PULSES DECIMAL = 4. COARSE + 15. FINE  
50.4958 DEG 04 17 PULSES OCTAL CNAH SUB C = 0.8302 EPSILON= 0.0000 SCN=11

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PN 11 PASS 3440 PR14 #979 S/W SK.0 DSS 14P RCVR AGC =131.4 FILE 11-1324 BD  
 SPACECRAFT ATTITUDE ON DAY 206 JUL 24, 1981 0500 GMT

07/27/81

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

NEW ATTITUDE  
 POST-PRECESSION

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRHS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSENGAK = 1.0198 RCSPHAK = 295.2700  
 SPACECRAFT-EARTH DIRECTION: CLAT = -11.8319 CLON = 19.6561  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -11.4935 CLON = 20.6384

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 PN 11 PASS 3440 PR14 #979 S/W SK.0 DSS 14P RCVR AGC =131.4 FILE 11-1324 BD 07/27/81  
 SPACECRAFT ATTITUDE ON DAY 206 JUL 24, 1981 0500 GMT  
 SPIN PERIOD = 7.546529 SEC RTLT = 2 HR 58 MIN 43.41 SEC

	CNA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-11.4935	20.6384	0.15832916D 10	10.5835000
SUN	4.4522	352.8266	-12.0150	25.1620	0.16073983D 10	10.7446410
EARTH	1.0198	199.4754	-11.8319	19.6561	0.00000000	0.0000000
JUPITER	156.4996	332.1195	0.0000	180.0000		
SIRIUS(B)	77.4132	321.6052				
BETELGEUSE(R)	65.6940	347.4449				
CANOPUS(B)	77.3835	284.4484				
ARCTURUS(R)	160.5081	98.3499				
RIGIL KENTAURUS	115.4483	239.4870				
ANTARES(R)	128.9080	195.5766				
CAPELLA(R)	68.7569	30.2944				
VEGA(R)	102.7966	118.8967				
ALDEBARAN(R)	48.5705	2.8503				
RIGEL(B)	50.9577	329.8877				
GAMMA CRUCIS(R)	119.0493	257.9763				
SPICA(B)	166.1627	258.0521				
ACHERNAR(B)	50.7705	248.6617				
DENEK(B)	80.1564	111.3466				
PROCYON(B)	91.3554	343.3566				

FIMMEL

PN 11 PASS 3040 PR14 #0/0 S/W SK.0 DSS 14P RCYR AGC -131.4 FILE 11-1323 BD  
 SPACECRAFT ATTITUDE ON DAY 206 JUL 24, 1981 0000 GMT

07/27/81

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,

PRE-PRECESSION

REFERENCE FOR RCSBEAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180  
 AMPLITUDE AND PHASE ANGLE: RCSANGAK = 1.1618 RCSPHAK = 105.5100  
 SPACECRAFT-EARTH DIRECTION: CLAI = -11.8335 CLON = 19.0418  
 SPACECRAFT +Z AXIS ATTITUDE: CLAT = -12.1357 CLON = 18.4950

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PN 11 PASS 3040 PR14 #0/0 S/W SK.0 DSS 14P RCYR AGC -131.4 FILE 11-1323 BD  
 SPACECRAFT ATTITUDE ON DAY 206 JUL 24, 1981 0000 GMT  
 SPIN PERIOD = 7.551212 SEC RTLT = 2 HR 58 MIN 39.42 SEC

07/27/81

	CMA	CKA	CLAT	CLON	R (KM)	R (AU)
S/C +Z AXIS	0.0000	0.0000	-12.1357	18.4950		
SUN	6.5107	0.3810	-12.0130	25.1520	0.15831729D 10	10.5827066
EARTH	1.1617	14.9576	-11.8335	19.0418	0.16068016D 10	10.7406524
JUPITER	157.9460	327.8513	0.0000	180.0000	0.00000000	0.0000000
SIRIUS(B)	78.6520	321.5492				
BETELGEUSE(R)	67.6026	347.4733				
CANOPUS(B)	77.2863	284.5021				
ARCTURUS(R)	160.7294	104.1200				
RIGIL KENTAURUS	113.8155	238.3760				
ANTARES(R)	126.7149	195.1863				
CAPELLA(R)	70.4950	29.6746				
VEGA(B)	102.3440	118.9366				
ALDEBARAN(R)	50.0980	2.6675				
RIGEL(B)	56.4598	330.5397				
GAMMA CRUCIS(R)	117.9595	256.5031				
SPICA(B)	164.9727	250.4392				
ACHERNAM(B)	53.4211	249.4750				
DENEK(B)	20.0064	110.5249				
PROCYON(B)	93.1765	342.8689				

1.0593 SEC 271.1717 PULSES DECIMAL = 4, COARSE + 15, FINE  
 CMAH SUB C = 0.3810 EPSILON = 0.0000 SCN#1

FIMMEL

PN 11 PASS 3044 PRI4 4070 S/W SK,0 DSS 12P RCVR AGC =136.6 FILE 11-1325 BD 07/28/81  
SPACECRAFT ATTITUDE ON DAY 210 JUL 28, 1981 0100 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C,  
REFERENCE FOR RCSPEAK IS TOWARD SOUTH ECLIPTIC POLE,

ROLL REFERENCE PARAMETERS: ASPSGRHS = 0 KCSTPOS = 180  
AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.7776 RCSPEAK = 298.6600  
SPACECRAFT-EARTH DIRECTION: CLAT = -11.8032 CLON = 19.9279  
SPACECRAFT +Z AXIS ATTITUDE: CLAT = -11.5116 CLON = 20.6639

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PN 11 PASS 3044 PRI4 4070 S/W SK,0 DSS 12P RCVR AGC =136.6 FILE 11-1325 BD 07/28/81  
SPACECRAFT ATTITUDE ON DAY 210 JUL 28, 1981 0100 GMT  
SPIN PERIOD = 7.46649 SEC RTLT = 2 HR 59 MIN 56.37 SEC

	CMA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-11.5116	20.6639	-	-
SUN	2.6143	352.8036	-12.0517	25.3455	0.158548210 10	10.5981424
EARTH	0.7776	202.1008	-11.8032	19.9279	0.161833570 10	10.6177520
JUPITER	158.4691	332.1147	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	77.3524	321.6100				
BETELGEUSE(R)	65.8657	347.4555				
CANOPUS(B)	77.3598	284.4491				
ARCTURUS(R)	160.5296	98.2925				
RIGIL KENTAUROS	115.4454	239.5067				
ANTARES(R)	128.9272	195.6012				
CAPPELLA(R)	68.7415	30.3105				
VEGA(B)	102.8244	118.8988				
ALDEBARAN(R)	48.5465	2.8724				
RIGEL(B)	54.9271	329.8950				
GAMMA CRUCIS(R)	119.0366	257.9971				
SPICA(B)	166.1502	258.1715				
ACHERNAB(B)	54.7628	248.6457				
DENEK(B)	80.1824	111.3546				
PROCYON(B)	91.3263	343.3611				

STAR DELAY: 1.0597 SEC 271.2810 PULSES DECIMAL = 4, COARSE + 15, FINE  
50.5509 DEG 04 17 PULSES OCIAL CKAH SUB C = 352,8036 EPSILON= 0.0000 SCN=11

PN 11 PASS 3052 PR14 40% S/W SKO DSS 11A RCVR A -141.1 FILE 11-1326 RC 08/06/81  
 SPACECRAFT ATTITUDE ON DAY 218 AUG 6, 1981 0400 GMT

ROLL REFERENCE BODY IS SUN SUN IS ON LEFT SIDE OF S/C.

REFERENCE FOR RCSPHAK IS TOWARD SOUTH ECLIPTIC POLE.

ROLL REFERENCE PARAMETERS: ASPSGRRS = 0 RCSTPOS = 180

AMPLITUDE AND PHASE ANGLE: RCSANGAK = 0.3105 RCSPHAK = 353.0200

SPACECRAFT-EARTH DIRECTION: CLAT = -11.7471 CLON = 20.5638

SPACECRAFT +Z AXIS ATTITUDE: CLAT = -11.4466 CLON = 20.6436

*John B*

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PN 11 PASS 3052 PR14 40% S/W SKO DSS 11A RCVR AUG -141.1 FILE 11-1326 RC 08/06/81  
 SPACECRAFT ATTITUDE ON DAY 218 AUG 6, 1981 0400 GMT  
 SPIN PERIOD = 7.546751 SEC RLTL = 5 HR 2 MIN 27.84 SEC

	CNA	CKA	CLAT	CLON	R(KM)	R(AU)
S/C +Z AXIS	0.0000	0.0000	-11.4466	20.6436		
SUN	5.0283	351.6871	-12.1288	25.7329	0.159015920 10	10.6294064
EARTH	0.3105	255.4284	-11.7471	20.5638	0.164103960 10	10.5695160
JUPITER	156.5171	332.2215	0.0000	180.0000	0.000000000	0.0000000
SIRIUS(B)	77.4384	321.5973				
BETELGEUSE(R)	65.6993	347.4247				
CANOPUS(B)	77.4278	284.4457				
ARCTURUS(R)	160.4624	98.3176				
RIGIL KENTAURUS	116.4913	239.4788				
ANTARES(R)	128.9255	195.5422				
CAPELLA(R)	68.7289	30.2807				
VEGA(B)	102.7579	118.8910				
ALDEBARAN(R)	48.5632	2.8101				
RIGEL(B)	50.9769	329.8585				
GAMMA CRUCIS(R)	119.0963	257.9747				
SPICA(B)	166.2098	258.0337				
ACHERNAH(B)	50.8161	248.6715				
DENER(B)	80.1145	111.3515				
PROCYON(B)	91.3640	343.3584				

STAR DELAY: 1.0598 SEC 271.3035 PULSES DECIMAL = 4, COARSE + 15, FINE  
 50.5543 SEC 04 17 PULSES OCIAL CNAH SUB C = 351.6871 EPSILON = 0.0000 SCN=11

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