

```

; S970311A.BSP LOG FILE
;
; Created 1997-03-11/10:57:18.00.
;
; BEGIN NIOSPK COMMANDS

LEAPSECONDS_FILE    = /usr/nav/naif/data/gll00007.tls
SPK_FILE            = S970311A.BSP
SPK_LOG_FILE        = S970311A-INTERPLAN.log
INCLUDE_TEXT_FILE   = interplan-comments.text
SOURCE_NIO_FILE     = orbiter/dpfil-longarc-19oct89-15feb90.nio
BODIES              = -77
BEGIN_TIME          = CAL-ET 1989 OCT 19 01:29:33.260
END_TIME            = CAL-ET 1990 FEB 03 12:00:57.184
SOURCE_NIO_FILE     = plneph/eph-de125n.nio
BODIES              = 2 3 5 10 301 399
BEGIN_TIME          = CAL-ET 1989 OCT 19 01:29:33.260
END_TIME            = CAL-ET 1990 OCT 01 00:00:57.182
SOURCE_NIO_FILE     = plneph/eph-de125n.nio
BODIES              = 3 5 10 301 399
BEGIN_TIME          = CAL-ET 1990 OCT 01 00:00:57.182
END_TIME            = CAL-ET 1991 OCT 01 00:00:58.182
SOURCE_NIO_FILE     = orbiter/dpfil-venus-od14a.nio
BODIES              = -77
BEGIN_TIME          = CAL-ET 1990 FEB 03 12:00:57.184
END_TIME            = CAL-ET 1990 FEB 07 00:00:57.184
SOURCE_NIO_FILE     = orbiter/dpfil-venus-od33.nio
BODIES              = -77
BEGIN_TIME          = CAL-ET 1990 FEB 07 00:00:57.184
END_TIME            = CAL-ET 1990 FEB 13 12:00:57.185
SOURCE_NIO_FILE     = orbiter/dpfil-900521-od22-post4b.nio
BODIES              = -77
BEGIN_TIME          = CAL-ET 1990 FEB 13 12:00:57.185
END_TIME            = CAL-ET 1990 JUN 07 00:00:57.184
SOURCE_NIO_FILE     = orbiter/dpfil-900927-od27.nio
BODIES              = -77
BEGIN_TIME          = CAL-ET 1990 JUN 07 00:00:57.184
END_TIME            = CAL-ET 1990 AUG 21 00:00:57.182
SOURCE_NIO_FILE     = orbiter/dpfil-901102-od29-all.nio
BODIES              = -77
BEGIN_TIME          = CAL-ET 1990 AUG 21 00:00:57.182
END_TIME            = CAL-ET 1990 SEP 05 00:00:57.182
SOURCE_NIO_FILE     = orbiter/dpfil-901124-od34-tcm8fd.nio
BODIES              = -77
BEGIN_TIME          = CAL-ET 1990 SEP 05 00:00:57.182
END_TIME            = CAL-ET 1990 NOV 14 00:00:57.182
SOURCE_NIO_FILE     = orbiter/dpfil-901208-od37a-e1.nio
BODIES              = -77
BEGIN_TIME          = CAL-ET 1990 NOV 14 00:00:57.182
END_TIME            = CAL-ET 1990 DEC 19 00:00:57.183
SOURCE_NIO_FILE     = orbiter/dpfil-910109-od39-nogas.nio
BODIES              = -77
BEGIN_TIME          = CAL-ET 1990 DEC 19 00:00:57.183
END_TIME            = CAL-ET 1991 MAR 15 00:00:58.185
SOURCE_NIO_FILE     = orbiter/dpfil-910624-tcm10-dsn-od44.nio
BODIES              = -77
BEGIN_TIME          = CAL-ET 1991 MAR 15 00:00:58.185
END_TIME            = CAL-ET 1991 JUN 14 00:00:58.184
SOURCE_NIO_FILE     = orbiter/dpfil-911001-tcm11-od47.nio
BODIES              = -77
BEGIN_TIME          = CAL-ET 1991 JUN 14 00:00:58.184
END_TIME            = CAL-ET 1991 AUG 13 00:00:58.182
SOURCE_NIO_FILE     = orbiter/dpfil-920401-od52-gaspra.nio
BODIES              = -77
BEGIN_TIME          = CAL-ET 1991 AUG 13 00:00:58.182
END_TIME            = CAL-ET 1991 OCT 19 00:00:58.182
SOURCE_NIO_FILE     = plneph/eph-de125gn5.nio
BODIES              = 3 5 9 10 301 399
BODY_MAP            = 9 9511010
BEGIN_TIME          = CAL-ET 1991 OCT 01 00:00:58.182
END_TIME            = CAL-ET 1991 DEC 01 00:00:58.183
SOURCE_NIO_FILE     = orbiter/dpfil-920514-od54-gaspra.nio
BODIES              = -77
BODY_MAP            = 9 9511010
BEGIN_TIME          = CAL-ET 1991 OCT 19 00:00:58.182
END_TIME            = CAL-ET 1992 JAN 01 00:00:00.000
SOURCE_NIO_FILE     = plneph/eph-de125n.nio
BODIES              = 3 5 10 301 399
BEGIN_TIME          = CAL-ET 1991 DEC 01 00:00:58.183
END_TIME            = CAL-ET 1993 JUL 04 00:01:00.184
SOURCE_NIO_FILE     = orbiter/dpfil-961024-od53.nio
BODIES              = -77
BEGIN_TIME          = CAL-ET 1992 JAN 01 00:00:00.000

```

```
END_TIME           = CAL-ET 1992 APR 19 00:00:58.185
SOURCE_NIO_FILE    = orbiter/dpfil-961030-od56.nio
BODIES             = -77
BEGIN_TIME         = CAL-ET 1992 APR 19 00:00:58.185
END_TIME           = CAL-ET 1992 JUL 10 00:00:59.183
SOURCE_NIO_FILE    = orbiter/dpfil-961105-od58.nio
BODIES             = -77
BEGIN_TIME         = CAL-ET 1992 JUL 10 00:00:59.183
END_TIME           = CAL-ET 1992 SEP 30 00:00:59.182
SOURCE_NIO_FILE    = orbiter/dpfil-920925-od59.nio
BODIES             = -77
BEGIN_TIME         = CAL-ET 1992 SEP 30 00:00:59.182
END_TIME           = CAL-ET 1992 OCT 20 00:00:59.182
SOURCE_NIO_FILE    = orbiter/dpfil-921030-od61-runout.nio
BODIES             = -77
BEGIN_TIME         = CAL-ET 1992 OCT 20 00:00:59.182
END_TIME           = CAL-ET 1992 NOV 14 00:00:59.182
SOURCE_NIO_FILE    = orbiter/dpfil-921208-od67.nio
BODIES             = -77
BEGIN_TIME         = CAL-ET 1992 NOV 14 00:00:59.182
END_TIME           = CAL-ET 1992 DEC 04 00:00:59.183
SOURCE_NIO_FILE    = orbiter/dpfil-921211-od68-gopex2-e2.nio
BODIES             = -77
BEGIN_TIME         = CAL-ET 1992 DEC 04 00:00:59.183
END_TIME           = CAL-ET 1992 DEC 12 00:00:59.183
SOURCE_NIO_FILE    = orbiter/dpfil-930301-od70-tcm19-dsn.nio
BODIES             = -77
BEGIN_TIME         = CAL-ET 1992 DEC 12 00:00:59.183
END_TIME           = CAL-ET 1993 FEB 22 00:00:59.185
SOURCE_NIO_FILE    = orbiter/dpfil-930505-od71-idacent-1rimlate.nio
BODIES             = -77
BEGIN_TIME         = CAL-ET 1993 FEB 22 00:00:59.185
END_TIME           = CAL-ET 1993 APR 28 00:00:59.185
SOURCE_NIO_FILE    = orbiter/dpfil-930802-od72-tcm20-dsn.nio
BODIES             = -77
BEGIN_TIME         = CAL-ET 1993 APR 28 00:00:59.185
END_TIME           = CAL-ET 1993 JUN 04 00:00:59.184
SOURCE_NIO_FILE    = plneph/eph-de125i9n.nio
BODIES             = 3 5 9 10 301 399
BODY_MAP           = 9 2431010
BEGIN_TIME         = CAL-ET 1993 JUL 04 00:01:00.184
END_TIME           = CAL-ET 1993 OCT 24 00:01:00.182
SOURCE_NIO_FILE    = orbiter/dpfil-940114-od79-prel-tcm22a-orbiter.nio
BODIES             = -77
BODY_MAP           = 9 2431010
BEGIN_TIME         = CAL-ET 1993 JUN 04 00:00:59.184
END_TIME           = CAL-ET 1993 JUL 05 00:01:00.183
SOURCE_NIO_FILE    = orbiter/dpfil-940520-od82-final-ida-recon.nio
BODIES             = -77
BODY_MAP           = 9 2431010
BEGIN_TIME         = CAL-ET 1993 JUL 05 00:01:00.183
END_TIME           = CAL-ET 1993 OCT 01 00:00:00.000
SOURCE_NIO_FILE    = orbiter/dpfil-940204-od80-mvf.nio
BODIES             = -77
BODY_MAP           = 9 2431010
BEGIN_TIME         = CAL-ET 1993 OCT 01 00:00:00.000
END_TIME           = CAL-ET 1994 JAN 01 00:01:00.183
SOURCE_NIO_FILE    = plneph/eph-de125n.nio
BODIES             = 3 5 10 301 399
BEGIN_TIME         = CAL-ET 1993 OCT 24 00:01:00.182
END_TIME           = CAL-ET 1994 MAR 30 00:01:00.185
SOURCE_NIO_FILE    = orbiter/dpfil-940405-od81.nio
BODIES             = -77
BEGIN_TIME         = CAL-ET 1994 JAN 01 00:01:00.183
END_TIME           = CAL-ET 1994 MAR 30 00:01:00.185
SOURCE_NIO_FILE    = orbiter/dpfil-950606-od87.nio
BODIES             = -77
BEGIN_TIME         = CAL-ET 1994 MAR 30 00:01:00.185
END_TIME           = CAL-ET 1995 JAN 16 00:01:01.184
SOURCE_NIO_FILE    = plneph/eph-de142s.nio
BODIES             = 3 5 10 301 399
BEGIN_TIME         = CAL-ET 1994 MAR 30 00:01:00.185
END_TIME           = CAL-ET 1995 JUL 02 00:01:01.184
SOURCE_NIO_FILE    = orbiter/dpfil-951023-od93.nio
BODIES             = -77
BEGIN_TIME         = CAL-ET 1995 JAN 16 00:01:01.184
END_TIME           = CAL-ET 1995 JUL 02 00:01:01.184
```

; END NIOSPK COMMANDS

GENERAL COMMENTS:

THIS FILE IS A RECONSTRUCTION OF THE GALILEO INTERPLANETARY MISSION ONLY

KEY TO FILE SEGMENTS:

19-OCT-1989 to 03-FEB-1990 Reconstruction, Injection to Venus Approach

03-FEB-1990 to 07-FEB-1990 Reconstruction, Venus Approach OD14A
 07-FEB-1990 to 13-FEB-1990 Reconstruction, Venus Closest Approach OD33
 13-FEB-1990 to 07-JUN-1990 Reconstruction, Post-Venus to Post-TCM4B OD22
 07-JUN-1990 to 21-AUG-1990 Reconstruction, Cruise OD27
 21-AUG-1990 to 05-SEP-1990 Reconstruction, Cruise OD29
 05-SEP-1990 to 14-NOV-1990 Reconstruction, Pre-Earth 1 OD34
 14-NOV-1990 to 19-DEC-1990 Reconstruction, Earth 1 Closest Approach OD37A
 19-DEC-1990 to 15-MAR-1991 Reconstruction, Post-Earth 1 OD39
 15-MAR-1991 to 14-JUN-1991 Reconstruction, Cruise OD44
 14-JUN-1991 to 13-AUG-1991 Reconstruction, Cruise OD47
 13-AUG-1991 to 19-OCT-1991 Reconstruction, Cruise Pre-Gaspra OD52
 19-OCT-1991 to 31-DEC-1991 Reconstruction, Gaspra Closest Approach OD54
 31-DEC-1991 to 19-APR-1992 Reconstruction, Cruise OD53
 19-APR-1992 to 10-JUL-1992 Reconstruction, Cruise OD56
 10-JUL-1992 to 30-SEP-1992 Reconstruction, Cruise OD58
 30-SEP-1992 to 20-OCT-1992 Reconstruction, Cruise OD59
 20-OCT-1992 to 14-NOV-1992 Reconstruction, Cruise OD61
 14-NOV-1992 to 04-DEC-1992 Reconstruction, Pre-Earth 2 OD67
 04-DEC-1992 to 12-DEC-1992 Reconstruction, Earth 2 Closest Approach OD68
 12-DEC-1992 to 22-FEB-1993 Reconstruction, Post-Earth 2 OD70
 22-FEB-1993 to 28-APR-1993 Reconstruction, Cruise OD71
 28-APR-1993 to 04-JUN-1993 Reconstruction, Cruise OD72
 04-JUN-1993 to 05-JUL-1993 Reconstruction, Cruise OD79
 05-JUL-1993 to 30-SEP-1993 Reconstruction, Ida Closest Approach OD82
 30-SEP-1993 to 01-JAN-1994 Reconstruction, Cruise OD80
 01-JAN-1994 to 30-MAR-1994 Reconstruction, Cruise OD81
 30-MAR-1994 to 16-JAN-1995 Reconstruction, Cruise OD87
 16-JAN-1995 to 02-JUL-1995 Reconstruction, Pre-Probe-Separation OD93

Each segment listed has information under the following headings:

COMMENTS
 TRAJECTORY BASIS/OD SOLUTION
 TIME SPAN
 SIGNIFICANT EVENTS
 INPUT FILES

With a few exceptions, the file segments used to make this SPK file are those parts of individual files based on orbit determination observables (Doppler and/or OPNAV). The time span of the observable data is listed under 'COMMENTS'.

The period of this file covering the Shoemaker-Levy Comet (14-JUL-1994 to 22-JUL-1994) does not contain the comet fragments. Use file SL994-07-15.BSP for those bodies.

ET is used to denote ephemeris time; it differs from UTC (universal time coordinated) in which spacecraft events are usually given by the following:

ET minus UTC = 56.184 sec (01-Jan-1988)
 = 57.184 sec (01-Jan-1990)
 = 58.184 sec (01-Jan-1991)
 = 59.184 sec (01-Jul-1992)
 = 60.184 sec (01-Jul-1993)
 = 61.184 sec (01-Jul-1994)

SCLK is spacecraft clock string.

This file was created with NAIF Version 45 software.

QUESTIONS:

Questions regarding this file may be directed to:
 Joan Pojman, (818) 354-0264, email: Joan.Pojman@jpl.nasa.gov

INJECTION TO VENUS APPROACH

COMMENTS: This segment was based on long-arc data fits from injection to Venus.

TRAJECTORY BASIS/OD SOLUTION: Longarc by Pieter H. Kallemeyn April 25, 1990

TIME SPAN:

BEGIN:	19-OCT-1989 01:29:33.2620 ET	DOY	89-292
	19-OCT-1989 01:28:37.0780 UTC	DOY	89-292
	1/00018048:59:0:2	SCLK	
END:	03-FEB-1990 12:00:57.1840 ET	DOY	90-034
	03-FEB-1990 12:00:00.0000 UTC	DOY	90-034
	1/00171060:02:1:2	SCLK	

SIGNIFICANT EVENTS:

Injection:
 19-OCT-1989 01:29:33.26 ET (01:28:37.08 UTC) 1/00018048:59:0:2 SCLK

INPUT FILES:

GIN: gin-0989.nio
 Planetary Ephemeris: eph-de125n.nio
 P-file: dpfil-longarc-19oct89-15feb90.nio

VENUS APPROACH

COMMENTS: This solution incorporated a changed Venus mass:
GM for Venus = 324859.213951884290 km**3/sec**2
(Usual value = 324857.7315556786 km**3/sec**2)
This solution is based on OD observations from 23-DEC-1989 to
13-FEB-1990.

TRAJECTORY BASIS/OD SOLUTION: OD14A

TIME SPAN:
BEGIN: 03-FEB-1990 12:00:57.1840 ET DOY 90-034
03-FEB-1990 12:00:00.0000 UTC DOY 90-034
1/00171060:02:1:2 SCLK
END: 07-FEB-1990 00:00:57.1840 ET DOY 90-038
07-FEB-1990 00:00:00.0000 UTC DOY 90-038
1/00176044:58:4:2 SCLK

SIGNIFICANT EVENTS:

INPUT FILES:
GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-venus-od14a.nio

VENUS CLOSEST APPROACH

COMMENTS: Based on OD observations from 07-FEB-1990 to 12-FEB-1990.

TRAJECTORY BASIS/OD SOLUTION: OD33

TIME SPAN:
BEGIN: 07-FEB-1990 00:00:57.1840 ET DOY 90-038
07-FEB-1990 00:00:00.0000 UTC DOY 90-038
1/00176044:58:4:2 SCLK
END: 13-FEB-1990 12:00:57.1840 ET DOY 90-044
13-FEB-1990 12:00:00.0000 UTC DOY 90-044
1/00185301:71:9:7 SCLK

SIGNIFICANT EVENTS:
Venus Closest Approach: 10-FEB-1990 05:59:45.18 ET (05:58:48.00 UTC)
Altitude: 16123.20 km.
Latitude: -40.81 deg (Venus centered, Venus True Equator of Date)

INPUT FILES:
GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-venus-od33.nio

POST-VENUS TO POST TCM 4B

COMMENTS: Based on OD observations from 10-FEB-1990 to 18-MAY-1990.

TRAJECTORY BASIS/OD SOLUTION: OD22

TIME SPAN:
BEGIN: 13-FEB-1990 12:00:57.1840 ET DOY 90-044
13-FEB-1990 12:00:00.0000 UTC DOY 90-044
1/00185301:71:9:7 SCLK
END: 07-JUN-1990 00:00:57.1840 ET DOY 90-158
07-JUN-1990 00:00:00.0000 UTC DOY 90-158
1/00346945:77:7:6 SCLK

SIGNIFICANT EVENTS:

INPUT FILES:
GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-900521-od22-post4b.nio

CRUISE OD27 07-JUN-1990 TO 21-AUG-1990

COMMENTS: Based on OD observations from 13-MAY-1990 to 16-SEP-1990.

TRAJECTORY BASIS/OD SOLUTION: OD27

TIME SPAN:
BEGIN: 07-JUN-1990 00:00:57.1840 ET DOY 90-158
07-JUN-1990 00:00:00.0000 UTC DOY 90-158
1/00346945:77:7:6 SCLK
END: 21-AUG-1990 00:00:57.1840 ET DOY 90-233
21-AUG-1990 00:00:00.0000 UTC DOY 90-233

1/00453759:10:2:7

SCLK

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-900927-od27.nio

CRUISE OD29 21-AUG-1990 TO 05-SEP-1990

COMMENTS: Based on OD observations from 13-MAY-1990 to 01-NOV-1990

TRAJECTORY BASIS/OD SOLUTION: OD29

TIME SPAN:

BEGIN:	21-AUG-1990 00:00:57.1840 ET	DOY 90-233
	21-AUG-1990 00:00:00.0000 UTC	DOY 90-233
	1/00453759:10:2:7 SCLK	
END:	05-SEP-1990 00:00:57.1840 ET	DOY 90-248
	05-SEP-1990 00:00:00.0000 UTC	DOY 90-248
	1/00475121:69:6:0 SCLK	

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-901102-od29-all.nio

PRE-EARTH 1

COMMENTS: Based on OD observations from 05-SEP-1990 to 23-NOV-1990.

TRAJECTORY BASIS/OD SOLUTION: OD34

TIME SPAN:

BEGIN:	05-SEP-1990 00:00:57.1840 ET	DOY 90-248
	05-SEP-1990 00:00:00.0000 UTC	DOY 90-248
	1/00475121:69:6:0 SCLK	
END:	14-NOV-1990 00:00:57.1840 ET	DOY 90-318
	14-NOV-1990 00:00:00.0000 UTC	DOY 90-318
	1/00574814:12:7:2 SCLK	

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-901124-od34-tcm8fd.nio

EARTH 1 CLOSEST APPROACH

COMMENTS: Based on OD observations from 14-NOV-1990 to 10-DEC-1990.

TRAJECTORY BASIS/OD SOLUTION: OD37A

TIME SPAN:

BEGIN:	14-NOV-1990 00:00:57.1840 ET	DOY 90-318
	14-NOV-1990 00:00:00.0000 UTC	DOY 90-318
	1/00574814:12:7:2 SCLK	
END:	19-DEC-1990 00:00:57.1840 ET	DOY 90-353
	19-DEC-1990 00:00:00.0000 UTC	DOY 90-353
	1/00624660:29:7:7 SCLK	

SIGNIFICANT EVENTS:

Earth 1 Closest Approach:

Time: 08-DEC-1990 20:35:31.59 ET (20:34:35.41 UTC) 1/00610215:37:0:2 SCLK
Altitude: 959.95 km.
Latitude: 25.23 deg (Earth centered, Earth True Equator of Date)
B.R = -6690.8 km, B.T = -9057.0 km (EM050)

Solar Occultation by Earth:

Enter Penumbra	08-DEC-1990 18:48:19.75 ET
	18:47:23.56 UTC
Enter Umbra	08-DEC-1990 19:32:10.36 ET
	19:31:14.17 UTC
Entry Latitude on Earth:	-52.20 deg
Entry W. Longitude on Earth:	227.91 deg

Max Earth Heliocentric Occultation Depth 08-DEC-1990 19:32:10.36 ET
19:31:14.17 UTC

Exit Umbra 08-DEC-1990 20:14:32.15 ET
20:13:35.97 UTC
Exit Latitude: -238.92 deg
Exit W. Longitude: 46.18 deg
Exit Penumbra 08-DEC-1990 20:15:39.12 ET
20:14:42.93 UTC

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-901208-od37a-e1.nio

POST-EARTH 1

COMMENTS: Based on OD observations from 09-DEC-1990 to 01-JAN-1991.

TRAJECTORY BASIS/OD SOLUTION: OD39

TIME SPAN:

BEGIN:	19-DEC-1990 00:00:57.1840 ET	DOY 90-353
	19-DEC-1990 00:00:00.0000 UTC	DOY 90-353
	1/00624660:29:7:7 SCLK	
END:	15-MAR-1991 00:00:58.1840 ET	DOY 91-074
	15-MAR-1991 00:00:00.0000 UTC	DOY 91-074
	1/00747139:49:4:3 SCLK	

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-910109-od39-nogas.nio

CRUISE OD44 15-MAR-1991 to 14-JUN-1991

COMMENTS: Based on OD observations from 17-JAN-1991 to 15-JUN-1991

TRAJECTORY BASIS/OD SOLUTION: OD44

TIME SPAN:

BEGIN:	15-MAR-1991 00:00:58.1840 ET	DOY 91-074
	15-MAR-1991 00:00:00.0000 UTC	DOY 91-074
	1/00747139:49:4:3 SCLK	
END:	14-JUN-1991 00:00:58.1840 ET	DOY 91-165
	14-JUN-1991 00:00:00.0000 UTC	DOY 91-165
	1/00876739:57:2:2 SCLK	

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-910624-tcm10-dsn-od44.nio

CRUISE OD47 14-JUN-1991 to 13-AUG-1991

COMMENTS: Based on OD observations from 21-MAR-1991 to 25-SEP-1991.

TRAJECTORY BASIS/OD SOLUTION: OD47

TIME SPAN:

BEGIN:	14-JUN-1991 00:00:58.1840 ET	DOY 91-165
	14-JUN-1991 00:00:00.0000 UTC	DOY 91-165
	1/00876739:57:2:2 SCLK	
END:	13-AUG-1991 00:00:58.1840 ET	DOY 91-225
	13-AUG-1991 00:00:00.0000 UTC	DOY 91-225
	1/00962190:21:3:4 SCLK	

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-911001-tcm11-od47.nio

CRUISE PRE-GASPRA

COMMENTS: Based on OD observations from 15-JUL-1991 to 05-DEC-1991.

TRAJECTORY BASIS/OD SOLUTION: OD52

TIME SPAN:

BEGIN:	13-AUG-1991 00:00:58.1840 ET	DOY 91-225
	13-AUG-1991 00:00:00.0000 UTC	DOY 91-225
	1/00962190:21:3:4 SCLK	
END:	19-OCT-1991 00:00:58.1840 ET	DOY 91-292
	19-OCT-1991 00:00:00.0000 UTC	DOY 91-292
	1/01057610:07:0:5 SCLK	

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-920401-od52-gaspra.nio

GASPRAS CLOSEST APPROACH

COMMENTS: Based on OD observations from 15-JUL-1991 to 05-DEC-1991.

TRAJECTORY BASIS/OD SOLUTION: OD54

TIME SPAN:

BEGIN:	19-OCT-1991 00:00:58.1840 ET	DOY 91-292
	19-OCT-1991 00:00:00.0000 UTC	DOY 91-292
	1/01057610:07:0:5 SCLK	
END:	01-JAN-1992 00:00:00.001 ET	DOY 92-001
	31-DEC-1991 23:59:01.817 UTC	DOY 91-365
	1/01162998:18:1:1 SCLK	

NOTE: Gaspra as a body is available in the SPK file from 01-OCT-1991 to 01-DEC-1991, body ID 9511010.

SIGNIFICANT EVENTS:

Gaspra Closest Approach:

Time: 29-OCT-1991 22:37:44.25 ET (22:36:46.07 UTC) 1/01073193:64:1:1 SCLK

Range: 1600.79 km

Latitude: 16.45 deg. (Gaspra centered, Gaspra True Equator of Date)

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125g8n.nio
P-file: dpfil-920514-od54-gaspra.nio

CRUISE OD53 01-JAN-1992 TO 19-APR-1992

COMMENTS: Based on OD observations from 15-NOV-1991 TO 12-APR-1992.

TRAJECTORY BASIS/OD SOLUTION: OD53

TIME SPAN:

BEGIN:	01-JAN-1992 00:00:00.001 ET	DOY 92-001
	31-DEC-1991 23:59:01.817 UTC	DOY 91-365
	1/01162998:18:1:1 SCLK	
END:	19-APR-1992 00:00:58.1840 ET	DOY 92-110
	19-APR-1992 00:00:00.0000 UTC	DOY 92-110
	1/01318234:38:7:0 SCLK	

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-961024-od53.nio

CRUISE OD56 19-APR-1992 TO 10-JUL-1992

COMMENTS: Based on OD observations from 19-APR-1992 to 16-JUL-1992.

TRAJECTORY BASIS/OD SOLUTION: OD56

TIME SPAN:

BEGIN:	19-APR-1992 00:00:58.1840 ET	DOY 92-110
	19-APR-1992 00:00:00.0000 UTC	DOY 92-110
	1/01318234:38:7:0 SCLK	
END:	10-JUL-1992 00:00:59.1840 ET	DOY 92-192
	10-JUL-1992 00:00:00.0000 UTC	DOY 92-192
	1/01435016:85:3:6 SCLK	

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-961030-od56.nio

CRUISE OD58 10-JUL-1992 TO 30-SEP-1992

COMMENTS: Based on OD observations from 10-JUL-1992 to 04-SEP-1992

TRAJECTORY BASIS/OD SOLUTION: OD58

TIME SPAN:

BEGIN:	10-JUL-1992 00:00:59.1840 ET	DOY 92-192
	10-JUL-1992 00:00:00.0000 UTC	DOY 92-192
	1/01435016:85:3:6	SCLK
END:	30-SEP-1992 00:00:59.1840 ET	DOY 92-274
	30-SEP-1992 00:00:00.0000 UTC	DOY 92-274
	1/01551799:39:2:1	SCLK

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-961105-od58.nio

CRUISE OD59 30-SEP-1992 TO 20-OCT-1992

COMMENTS: Based on OD observations from 07-AUG-1992 to 24-SEP-1992

TRAJECTORY BASIS/OD SOLUTION: OD59

TIME SPAN:

BEGIN:	30-SEP-1992 00:00:59.1840 ET	DOY 92-274
	30-SEP-1992 00:00:00.0000 UTC	DOY 92-274
	1/01551799:39:2:1	SCLK
END:	20-OCT-1992 00:00:59.1840 ET	DOY 92-294
	20-OCT-1992 00:00:00.0000 UTC	DOY 92-294
	1/01580282:87:8:5	SCLK

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-920925-od59.nio

CRUISE OD61 20-OCT-1992 TO 14-NOV-1992

COMMENTS: Based on OD observations from 08-AUG-1992 to 28-OCT-1992.

TRAJECTORY BASIS/OD SOLUTION: OD61

TIME SPAN:

BEGIN:	20-OCT-1992 00:00:59.1840 ET	DOY 92-294
	20-OCT-1992 00:00:00.0000 UTC	DOY 92-294
	1/01580282:87:8:5	SCLK
END:	14-NOV-1992 00:00:59.1840 ET	DOY 92-319
	14-NOV-1992 00:00:00.0000 UTC	DOY 92-319
	1/01615887:34:9:3	SCLK

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-921030-od61-runout.nio

PRE-EARTH 2

COMMENTS: Based on OD observations from 29-NOV-1992 to 08-DEC-1992.

TRAJECTORY BASIS/OD SOLUTION: OD67

TIME SPAN:

BEGIN:	14-NOV-1992 00:00:59.1840 ET	DOY 92-319
	14-NOV-1992 00:00:00.0000 UTC	DOY 92-319
	1/01615887:34:9:3	SCLK
END:	04-DEC-1992 00:00:59.1840 ET	DOY 92-339
	04-DEC-1992 00:00:00.0000 UTC	DOY 92-339
	1/01644370:83:5:7	SCLK

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-921208-od67.nio

EARTH 2 CLOSEST APPROACH

COMMENTS: Based on OD observations from 29-NOV-1992 to 10-DEC-1992

TRAJECTORY BASIS/OD SOLUTION: OD68

TIME SPAN:

BEGIN:	04-DEC-1992 00:00:59.1840 ET	DOY 92-339
	04-DEC-1992 00:00:00.0000 UTC	DOY 92-339
	1/01644370:83:5:7 SCLK	
END:	12-DEC-1992 00:00:59.1840 ET	DOY 92-347
	12-DEC-1992 00:00:00.0000 UTC	DOY 92-347
	1/01655764:30:2:4 SCLK	

SIGNIFICANT EVENTS:

Earth 2 Closest Approach:

Time: 08-DEC-1992 15:10:24.05 ET (15:09:24.87 UTC) 1/01650967:04:2:6 SCLK
Altitude: 303.10 km.
Latitude: -33.76 deg (Earth centered, Earth True Equator of Date)
B.R = 1096.16 km, B.T = -10529.31 km (EM050)

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-921211-od68-gopex2-e2.nio

POST-EARTH 2

COMMENTS: Based on OD observations from 11-DEC-1992 to 22-FEB-1993.

TRAJECTORY BASIS/OD SOLUTION: OD70

TIME SPAN:

BEGIN:	12-DEC-1992 00:00:59.1840 ET	DOY 92-347
	12-DEC-1992 00:00:00.0000 UTC	DOY 92-347
	1/01655764:30:2:4 SCLK	
END:	22-FEB-1993 00:00:59.1840 ET	DOY 93-053
	22-FEB-1993 00:00:00.0000 UTC	DOY 93-053
	1/01758305:04:9:0	

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-930301-od70-tcm19-dsn.nio

CRUISE OD71 22-FEB-1993 TO 28-APR-1993

COMMENTS: Based on OD observations from 09-FEB-1993 TO 27-APR-1993.

TRAJECTORY BASIS/OD SOLUTION: OD71

TIME SPAN:

BEGIN:	22-FEB-1993 00:00:59.1840 ET	DOY 93-053
	22-FEB-1993 00:00:00.0000 UTC	DOY 93-053
	1/01758305:04:9:0 SCLK	
END:	28-APR-1993 00:00:59.1840 ET	DOY 93-118
	28-APR-1993 00:00:00.0000 UTC	DOY 93-118
	1/01850876:49:2:2 SCLK	

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-930505-od71-idacent-1rimlate.nio

CRUISE OD72 28-APR-1993 TO 04-JUN-1993

COMMENTS: Based on OD observations from 30-APR-1993 to 19-JUL-1993.

TRAJECTORY BASIS/OD SOLUTION: OD72

TIME SPAN:

BEGIN:	28-APR-1993 00:00:59.1840 ET	DOY 93-118
	28-APR-1993 00:00:00.0000 UTC	DOY 93-118
	1/01850876:49:2:2	SCLK
END:	04-JUN-1993 00:00:59.1840 ET	DOY 93-155
	04-JUN-1993 00:00:00.0000 UTC	DOY 93-155
	1/01903571:07:2:2	SCLK

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-930802-od72-tcm20-dsn.nio

CRUISE OD79 04-JUN-1993 TO 05-JUL-1993

COMMENTS: Based on OD observations from 04-JUN-1993 to 28-DEC-1993.

TRAJECTORY BASIS/OD SOLUTION: OD79

TIME SPAN:

BEGIN:	04-JUN-1993 00:00:59.1840 ET	DOY 93-155
	04-JUN-1993 00:00:00.0000 UTC	DOY 93-155
	1/01903571:07:2:2	SCLK
END:	05-JUL-1993 00:01:00.1840 ET	DOY 93-186
	05-JUL-1993 00:00:00.0000 UTC	DOY 93-186
	1/01947720:52:2:2	SCLK

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0989.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-940114-od79-prel-tcm22a-orbiter.nio

IDA CLOSEST APPROACH

COMMENTS: Based on OD observations from 01-APR-1993 to 01-OCT-1993.

TRAJECTORY BASIS/OD SOLUTION: OD82

TIME SPAN:

BEGIN:	05-JUL-1993 00:01:00.1840 ET	DOY 93-186
	05-JUL-1993 00:00:00.0000 UTC	DOY 93-186
	1/01947720:52:2:2	SCLK
END:	01-OCT-1993 00:00:00.0000 ET	DOY 93-274
	30-SEP-1993 23:58:59.8160 UTC	DOY 93-273
	1/02073047:12:2:4	SCLK

NOTE: Ida as a body is available in the SPK file from 04-JUL-1993 to 24-OCT-1993, body ID 2431010. This spans the times that OPNAVS were shuttered and received (OPNAV 1, 12-Jul-1993, and OPNAV 3, 12-Aug-1993, were lost due to 'safing' events on the spacecraft).

SIGNIFICANT EVENTS:

Ida Closest Approach:

Time: 28-AUG-1993 16:53:04.84 ET (16:52:04.66 UTC) 1/02025627:06:7:6 SCLK
Range: 2391.94 km
Latitude: -69.43 deg (Ida centered, Ida True Equator of Date)

INPUT FILES:

GIN: gin-1193.nio
Planetary Ephemeris: eph-de125i9n.nio
P-file: dpfil-940520-od82-final-ida-recon.nio

CRUISE OD80 01-OCT-1993 TO 01-JAN-1994

COMMENTS: Based on OD observations from 01-APR-1993 to 30-JAN-1994

TRAJECTORY BASIS/OD SOLUTION: OD80

TIME SPAN:

BEGIN:	01-OCT-1993 00:00:00.0000 ET	DOY 93-274
	30-SEP-1993 23:58:59.8160 UTC	DOY 93-273
	1/02073047:12:2:4	SCLK
END:	01-JAN-1994 00:01:00.1840 ET	DOY 94-001
	01-JAN-1994 00:00:00.0000 UTC	DOY 94-001
	1/02204072:35:1:0	SCLK

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-1193.nio
Planetary Ephemeris: eph-de125i9n.nio
P-file: dpfil-940210-od80-semifinal-ida-recon.nio

CRUISE OD81 01-JAN-1994 TO 30-MAR-1994

COMMENTS: Based on OD observations from 03-JAN-1994 to 30-MAR-1994.

TRAJECTORY BASIS/OD SOLUTION: OD81

TIME SPAN:

BEGIN:	01-JAN-1994 00:01:00.1840 ET	DOY 94-001
	01-JAN-1994 00:00:00.0000 UTC	DOY 94-001
	1/02204072:35:1:0	SCLK
END:	30-MAR-1994 00:01:00.1840 ET	DOY 94-089
	30-MAR-1994 00:00:00.0000 UTC	DOY 94-089
	1/02329399:85:7:0	SCLK

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-1193.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-940405-od81.nio

CRUISE OD87 30-MAR-1994 TO 16-JAN-1995

COMMENTS: Based on OD observations from 08-JAN-1994 to 04-JUN-1995.

TRAJECTORY BASIS/OD SOLUTION: OD87

TIME SPAN:

BEGIN:	30-MAR-1994 00:01:00.1840 ET	DOY 94-089
	30-MAR-1994 00:00:00.0000 UTC	DOY 94-089
	1/02329399:85:7:0	SCLK
END:	16-JAN-1995 00:01:01.1840 ET	DOY 95-016
	16-JAN-1995 00:00:00.0000 UTC	DOY 95-016
	1/02745259:51:3:6	SCLK

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0894.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-950606-od87.nio

PRE-PROBE-SEPARATION

COMMENTS: Based on OD observations from 11-JAN-1995 to 20-OCT-1995.

TRAJECTORY BASIS/OD SOLUTION: OD93

TIME SPAN:

BEGIN:	16-JAN-1995 00:01:01.1840 ET	DOY 95-016
	16-JAN-1995 00:00:00.0000 UTC	DOY 95-016
	1/02745259:51:3:6	SCLK
END:	02-JUL-1995 00:01:01.1840 ET	DOY 95-183
	02-JUL-1995 00:00:00.0000 UTC	DOY 95-183
	1/02983097:07:2:0	SCLK

SIGNIFICANT EVENTS:

INPUT FILES:

GIN: gin-0894.nio
Planetary Ephemeris: eph-de125n.nio
P-file: dpfil-951023-od93.nio

NOTE: This file DOES NOT contain the Shoemaker-Levy Comet Fragments (use file SL994-07-15.BSP for those bodies).

The final probe (SPICE Body ID -344) trajectory is available in file S960730A.BSP or S960730A.TSP.

For a continuation of the Galileo trajectory, use the current tour file. The tour file is updated twice per orbit during the orbital tour. The first portion (up to the approximate date the file was created) will be based on reconstruction and the remaining portion will be our current expected trajectory. It will always begin on 01-JUL-1995 00:00:00.00 UTC. To date (13-DEC-1996) three tour files have been delivered to the GLLSVC; these will be replaced by subsequent deliveries and will always contain the reconstruction portion of the preceding file:

S960910A.BSP
S961004A.BSP
S961107A.BSP

QUESTIONS:

Questions regarding this file may be directed to:
Joan Pojman, (818) 354-0264, email: Joan.Pojman@jpl.nasa.gov