

## Central Intelligence Agency



Washington, D.C. 20505

17 June 2005

Captain H. Ray Lahr (ret.)  
18254 Coastline Drive  
Malibu, CA 90265

Reference: F-2004-00078

Dear Captain Lahr:

This letter expands on our 28 February 2005 response to your 8 October 2003 Freedom of Information Act (FOIA) request and subsequent litigation (H. Ray Lahr v. National Transportation Safety Board and Central Intelligence Agency, Civil Action No. 03CV08023-AHM, filed 6 November 2003) for "all records upon which...[the CIA-produced video-animation of TWA Flight 800] flight path climb conclusion was based".

We inadvertently failed to include the following in our earlier response to you and we apologize for the oversight:

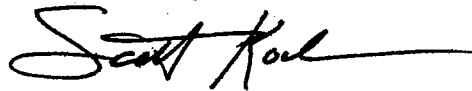
Enclosed at Tab A are six additional documents (MORI documents 1214986-1214990 and 1215118), which we have determined may be released in their entirety. Also enclosed at Tab B are nine documents (MORI documents 1215013-1215018 and 1215200-1215202), which may be released in segregable form with deletions made on the basis of FOIA exemptions (b)(3), (b)(4), (b)(6), and (b)(7)(c).

We also located additional material, which we have determined is exempt from release and must be denied in its entirety on the basis of FOIA exemptions (b)(5), (b)(6), and (b)(7)(c).

As indicated in our 28 February 2005 response, we had identified documents that required us to consult with other federal agencies or entities. (Six were in process as of that date.) Subsequent to our response, we identified ten additional documents that required consultation. The consultation process for nine documents is complete. One of these documents is among those addressed in Tab A above, and three are among those included in Tab B. Five documents are exempt from release and must be denied in their entirety on the basis of FOIA exemptions (b)(4) and (b)(5). Once the consultation process on the remaining documents is complete, we will provide a supplemental response concerning these documents.

Finally, we also located additional United States Government material that was not originated by CIA. This material appears to be relevant to your request, and has been referred to the originating agency for review and direct response to you.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Koch", with a long horizontal flourish extending to the right.

Scott Koch  
Information and Privacy Coordinator

Enclosures

SECTION A

~~FOR OFFICIAL USE ONLY~~

## TWA 800 Q&A

***Why did the FBI request CIA's technical and analytical assistance in this "criminal investigation", and under what authority did the CIA respond?***

The possibility existed that the crash of TWA Flight 800 was foreign terrorism, potentially one of the most lethal acts of terrorism ever perpetrated against the U.S. In full accordance with its charter, the CIA responded to the FBI's request for assistance by applying the technical and analytical expertise normally used to monitor and assess foreign weapons threats to U.S. national security.

***What was the CIA's involvement with the TWA Flight 800 investigation?***

CIA's involvement with the investigation began with requests from FBI for technical information regarding portable surface-to-air missiles, capabilities of these missiles against civilian aircraft, and terrorist possession of these systems. Soon thereafter, the FBI requested CIA technical assistance in analyzing more than 200 eyewitness reports to determine what these eyewitnesses saw.

***Why did the CIA attention focus on the eyewitness accounts?***

Many people who saw something ascend and culminate in an explosion thought they had seen a missile destroy the aircraft. So the first step in CIA's analytical process focused on determining what the eyewitnesses had seen. This led to CIA's use of "sound propagation analysis" [explained in the CIA video], and the subsequent conclusion that the eyewitnesses saw only events that took place after the aircraft exploded.

***What did the eyewitnesses see that night?***

A few eyewitnesses saw the burning aircraft ascend, just *after* the aircraft exploded. This ascent was caused by the sudden loss of the front third of the aircraft, including the cockpit, just after the aircraft exploded. But this was difficult to see against the relatively light sky. Most eyewitnesses saw only the most spectacular event, the burning aircraft shortly before it hit the water.

***What did the "sound propagation analysis" entail?***

The initial explosion on TWA Flight 800 produced a very loud sound which shook houses ten miles away. This sound took more than 40 seconds to reach the closest eyewitness. By correlating what eyewitnesses saw at about the time they heard this sound, CIA analysts were able to determine that almost all eyewitnesses saw only the burning aircraft near the end of its crippled flight.

***What information did the analysis use?***

The analysis primarily used the visual and audio observations of the eyewitnesses, as reported by the FBI, to determine the timing and direction of key events that occurred to TWA Flight 800. The aircraft's initial location and flight conditions, the air traffic control radar data, the location of the aircraft wreckage on the ocean floor, the Cockpit Voice Recorder, and Flight Data Recorder, all provided reference points that were used to refine the flight path of the crippled aircraft.

***We know the first loud boom was caused by the aircraft exploding. What caused the second series of 'booms' that some eyewitnesses reported?***

At this time, we do not know for certain the exact source of the second series of "booms". We are certain that they were produced after the first loud "boom", and therefore could not be associated with events prior to the aircraft exploding.

~~FOR OFFICIAL USE ONLY~~

APPROVED FOR RELEASE  
DATE: JUN 2005

~~FOR OFFICIAL USE ONLY~~

***What are the analytical findings that allowed CIA analysts to determine the vast majority of eyewitnesses did not see a missile?***

The CIA found that most eyewitnesses observations were limited to 10 to 15 seconds prior to the aircraft debris hitting the water. Two methods were used to determine this. First, since sound from the aircraft explosion takes over 40 seconds to reach Long Island, eyewitness visual observation that coincide with a loud "boom" are taking place well after the aircraft exploded. Second, sound propagation analysis show that the large fuel fire near the end of TWA Flight 800's flight, occurred about 40 second after the aircraft exploded. This fuel fire was the most spectacular visual effect, reported by eyewitnesses over 40 miles away. Since the sound propagation analysis showed that the aircraft took about 50 seconds to hit the water, any eyewitness observing events only during the final moments of TWA Flight 800 could not have seen events near the aircraft exploding.

***Are there any eyewitness statements that disagree with the CIA analysis?***

There are a handful of eyewitness reports that do not correlate with the other eyewitness accounts. For any event observed by several eyewitnesses, each eyewitness will relate a different version of the event. This analysis does not explain every observations made that night, but it does capture the main events reported by the vast majority of eyewitnesses.

***Why wasn't this analysis released earlier to the public?***

The CIA analysis is a only piece of the overall investigation into what happened to TWA Flight 800. It is being released now, as part of the entire investigation into the TWA Flight 800 tragedy.

~~FOR OFFICIAL USE ONLY~~

## Special Projects: The TWA 800 Disaster

Boeing 747  
in flight

The world was stunned with the news on July 17, 1996 of the explosion of TWA Flight 800 shortly after takeoff from New York with the loss of all 230 passengers and crew on board.

The possibility that the explosion may have been the result of a criminal act precipitated the most expensive criminal investigation in U.S. history.

Eyewitness  
Locations  
Map

Of particular concern to FBI investigators were reports from dozens of eyewitnesses on the evening of July 17th who recalled seeing an object (usually described as a "flare" or firework") ascend and then culminate in an explosion.

Shoulder-fired  
missile

This suggested that a missile, possibly launched by foreign terrorists, might have been used to destroy the aircraft.

Soon after the incident, the FBI asked CIA's Office of Weapons, Technology and Proliferation to help determine what these eyewitnesses saw.

DI analysts have concluded that none of these eyewitnesses saw a missile. DI/OTI analysts used a number of innovative analytical techniques to determine that the eyewitness sightings of greatest concern --- the ones interpreted to be of a possible missile attack --- took place after the first of several explosions aboard the aircraft. What these eyewitnesses actually saw was the Boeing 747 in various stages of crippled flight.

Estimated  
Flight  
Profile

CIA analysts have provided the full details of their work to FBI Assistant Director James Kallstrom, who has been heading the criminal investigation since the night of the disaster.

The DI also is in the final phases of production of an elaborate video that will give a detailed explanation of the analysis, and may be released to the public.

UNCLASSIFIED

APPROVED FOR RELEASE  
DATE: JUN 2005

~~UNCLASSIFIED~~

18 November 1997

SUBJECT: CIA Support to the FBI's Investigation Into the Crash of TWA Flight 800

1. The FBI this afternoon will hold a press conference to announce that its 16-month investigation into the crash of TWA Flight 800 has uncovered no evidence of criminal involvement. CIA's analysis of the eyewitness reports, combined with FBI and National Transportation Safety Board forensic work, form the technical basis for the FBI's decision to suspend its criminal investigation into the cause of the crash.

- Both the FBI and the NTSB have considered three possibilities for the cause of the crash: mechanical failure, a bomb, or a missile.
- The possibility that a missile caused the crash was considered seriously because many eyewitnesses, recounting what they had seen, described what could have been a missile ascending toward the aircraft. (U)

2. At the request of the FBI, CIA weapons analysts focused on determining whether the eyewitnesses saw a missile. Using almost 250 eyewitness reports, data from tracking radars, and other technical information, CIA analysts concluded that eyewitnesses saw only the burning aircraft in various stages of crippled flight, not a missile.

- CIA has turned over to the FBI a 15-minute unclassified video explaining its analysis.
- The video, identified as a CIA product, is likely to be shown at the press conference and disseminated by the FBI to the media. (U)

3. CIA weapons analysts used air traffic control radar data to determine the location, heading, velocity, and altitude of Flight 800 when it exploded and the cockpit voice recorder ceased operation. Combining this information with the known locations of key eyewitnesses, it was possible to use the physics of "sound propagation" to determine when sounds from the aircraft's explosion reached each eyewitness.

- This information was correlated with some eyewitnesses' descriptions of what they saw and heard and with infrared data detected by a US satellite.
- Analysts then created a template of what happened to Flight 800 from when it exploded to the time major pieces of flaming wreckage hit the water less than a minute later. This template was consistent with descriptions from almost all of the remaining eyewitnesses. (U)

4. The FBI and the NTSB are in broad agreement with CIA's hypothetical construct of the aircraft's flight path after the plane exploded and with CIA's interpretation of eyewitness descriptions. In addition, the exhaustive forensic work on the debris and reconstructed airframe of Flight 800 performed by the FBI and the NTSB shows no evidence of a missile impact or detonation. (U)

~~FOR OFFICIAL USE ONLY~~**TWA Flight 800: OTI Analysis for the FBI****Background**

At the request of the FBI, missile analysts in OTI have been working closely with FBI special agents during the past 14 months to examine the hypothesis that a missile was used to shoot down TWA Flight 800. The possibility existed that this was an act of terrorism. Of particular concern to FBI investigators were reports from dozens of eyewitnesses who, on the evening of 17 July 1996, recalled seeing an object—usually described as a "flare" or "fireworks"—ascend and culminate in an explosion. Many people have postulated that these eyewitnesses saw a missile destroy the aircraft.

OTI's detailed technical analysis concludes that what these eyewitnesses saw was, in fact, only the burning Boeing 747 in various stages of crippled flight—not a missile. Based on "sound propagation" analysis using 244 eyewitness reports, radar data, infrared data, and cockpit recorder information, OTI analysts have determined:

- 1) No eyewitness observed the aircraft's initial explosion; all eyewitness sightings thought to be of a missile took place later.
- 2) A few eyewitnesses saw the burning aircraft—shortly after the first explosion—ascend and explode a second time. This ascent was caused by the sudden loss of the front third of the jet after the initial explosion. But this was difficult to see against the relatively light sky.
- 3) Most eyewitnesses saw only the most conspicuous portion of the disaster—the burning aircraft shortly before it hit the water.

**Status**

Last week in several letters to congressmen, and at a press conference, the FBI credited CIA with working on the investigation. In this week's Aviation Week, CIA's assistance to the FBI is the focus of a full-page article (see attachment). We anticipate that public questions about CIA's involvement will begin soon. Public hearings on the investigation are scheduled to take place in December. While neither the information used in CIA's analysis nor the analytical methodologies applied are classified, CIA has treated its involvement in this work as sensitive.

The OTI has produced a 16-minute video—"TWA Flight 800: What Did the Eyewitnesses See?"—which explains how this conclusion was reached. This video will be released to the public pending FBI approval. Also, within the next 60 days, a detailed report will be delivered to the FBI.

At the request of the FAA, CIA is drafting an NIE—"The Standoff Threat to Civil Aviation"—to address the threat from terrorist-employed portable surface-to-air missiles against civilian airliners.

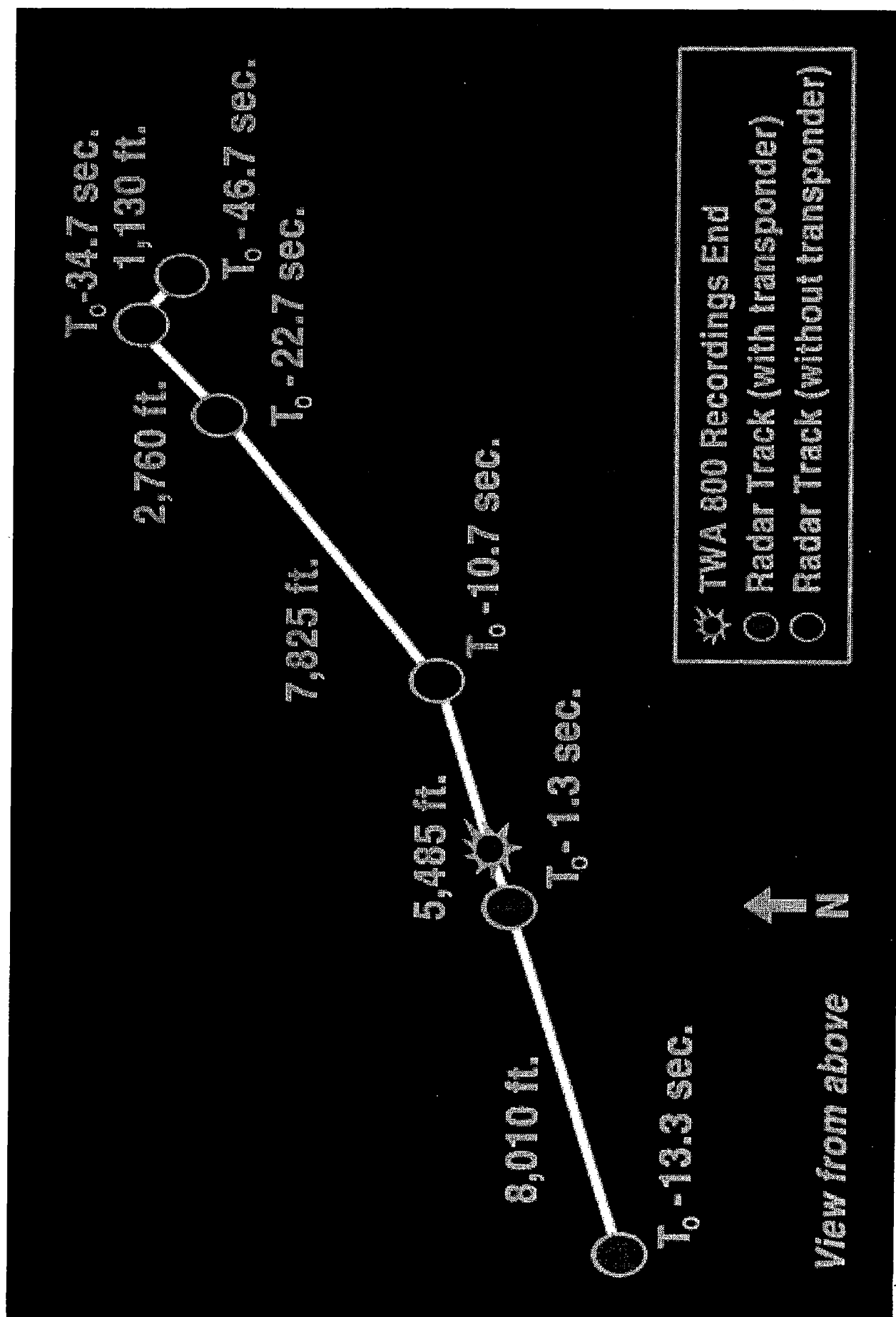
***What was the CIA's involvement with the TWA Flight 800 investigation?***

CIA's involvement with the investigation began with requests from the FBI to OTI and CTC for technical information regarding portable surface-to-air missiles, capabilities of these missiles against civilian aircraft, and terrorist possession of these systems. Soon thereafter, the FBI requested CIA technical assistance in analyzing more than 200 eyewitness reports to determine what these eyewitnesses saw.

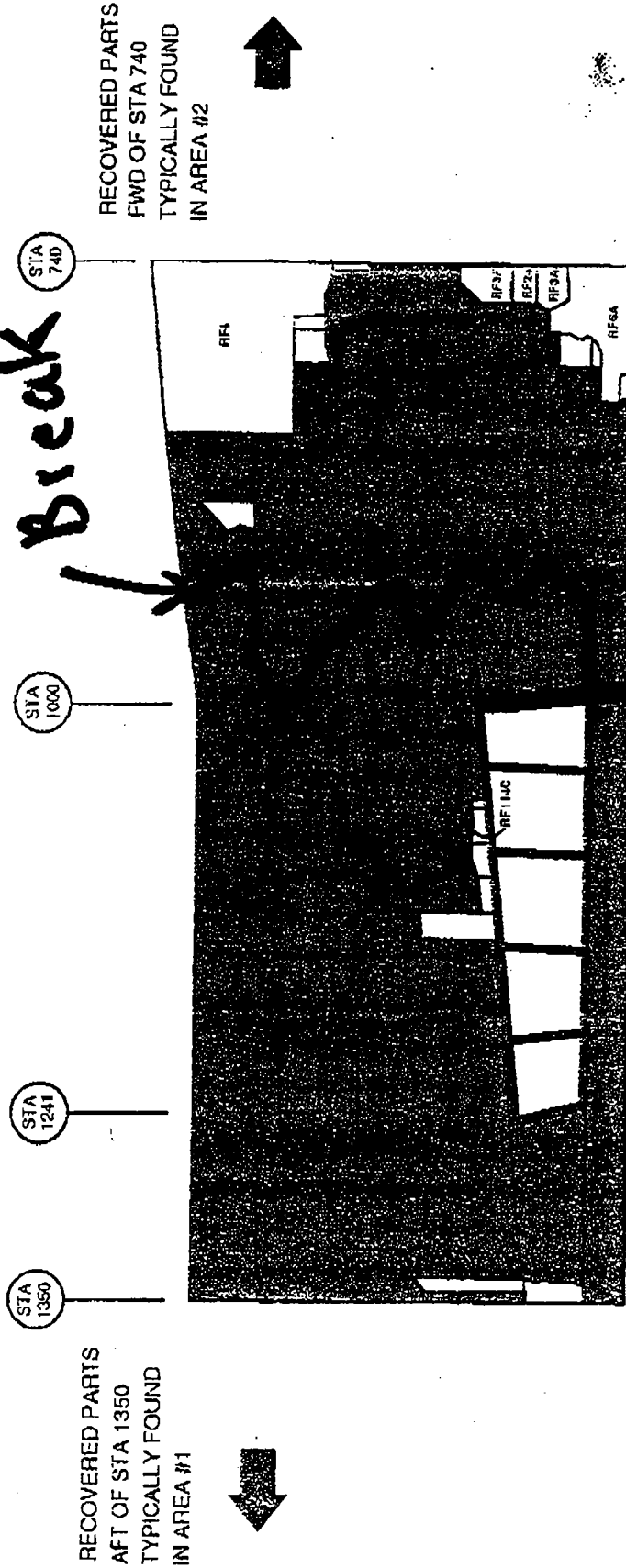
***What did the "sound propagation analysis" entail?***

The initial explosion on TWA Flight 800 produced a very loud sound which shook houses ten miles away. This sound took more than 40 seconds to reach the closest eyewitness. By correlating what eyewitnesses saw at about the time they heard this sound, CIA analysts were able to determine that almost all eyewitnesses saw only the burning aircraft near the end of its crippled flight.

~~FOR OFFICIAL USE ONLY~~



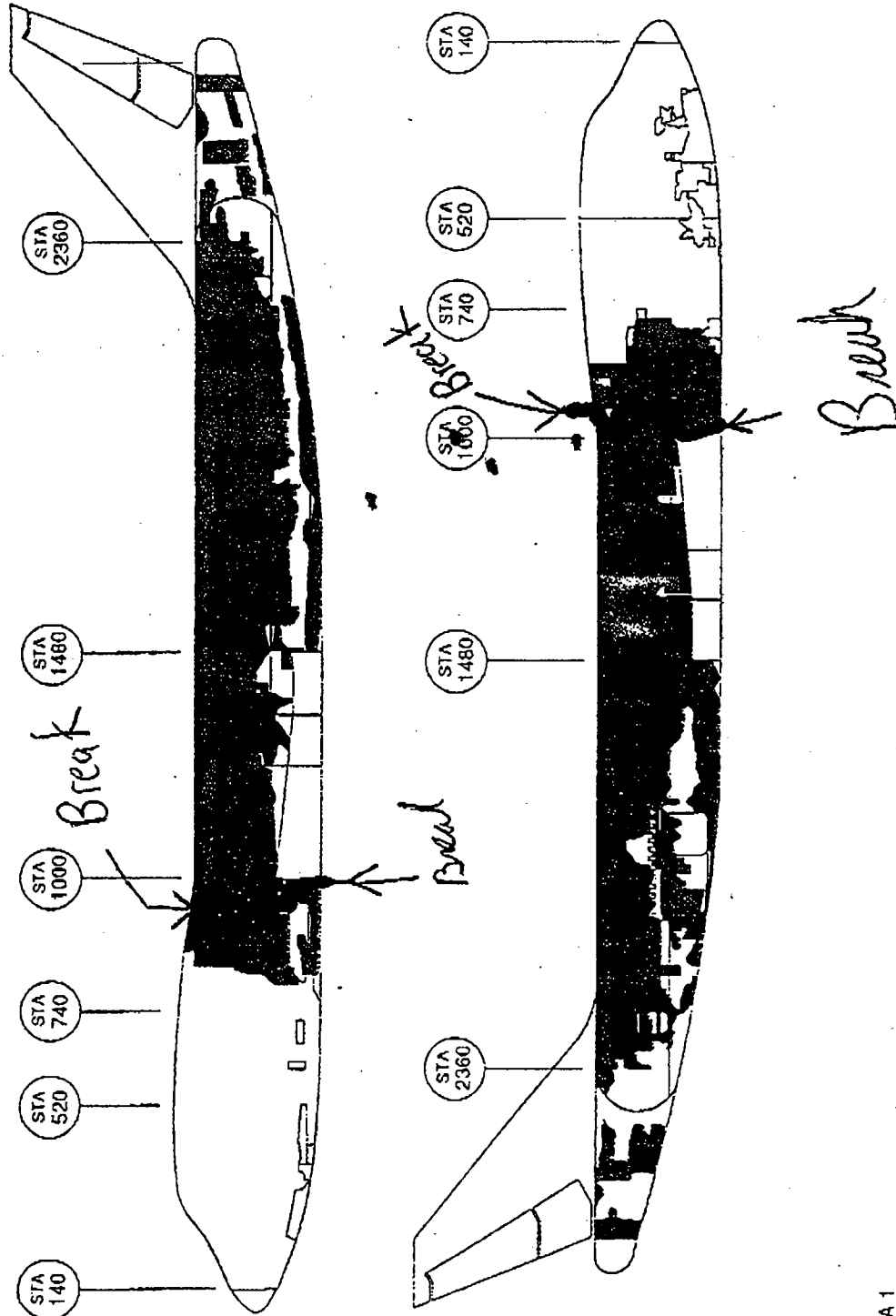
# TWA CRASH INVESTIGATION FUSELAGE RECOVERY - RIGHT HAND SIDE



- AREA #1
- AREA #2
- AREA #3

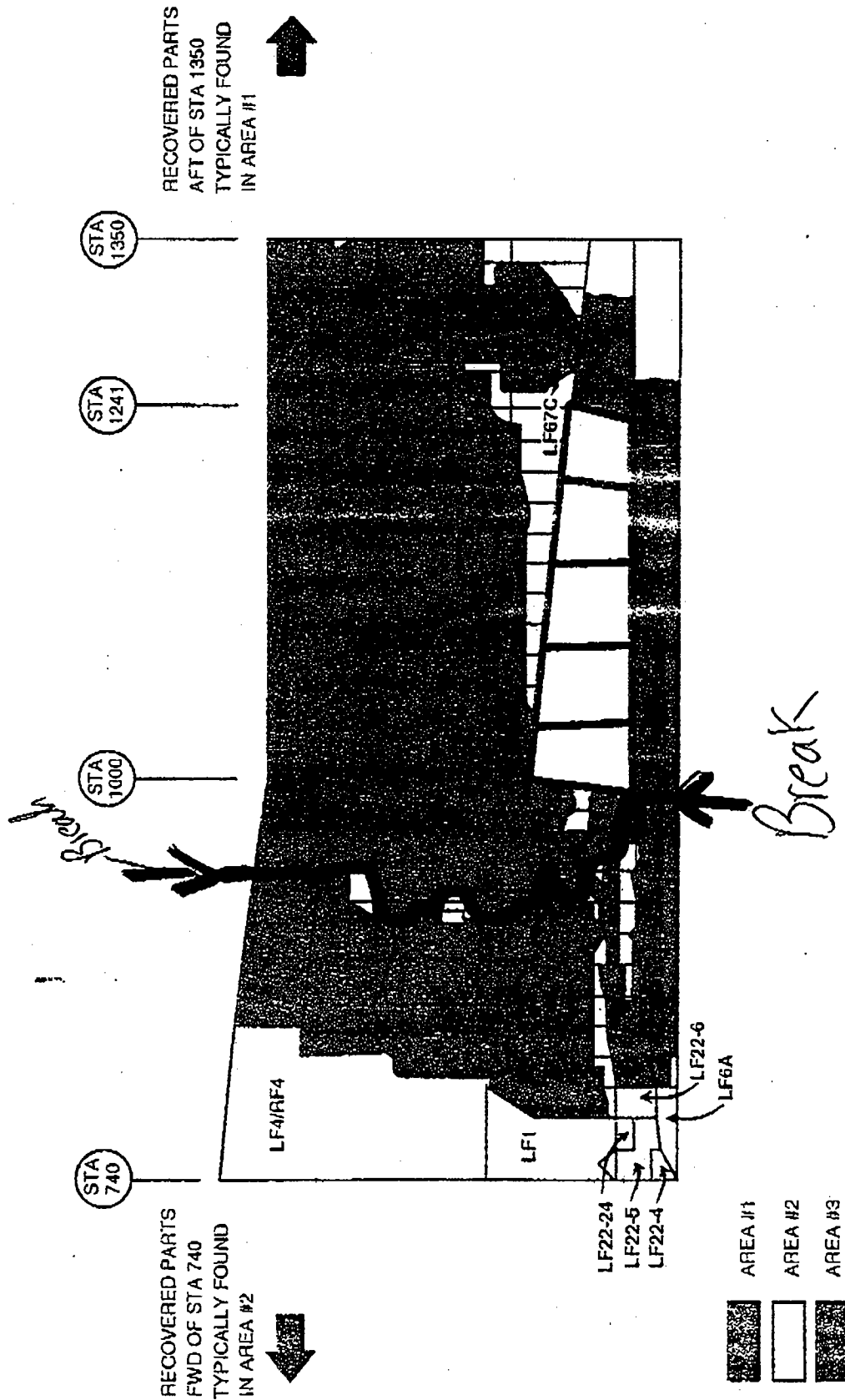
11/26/96 09:21 AM

# TWA FLIGHT 800 RECOVERED FUSELAGE SECTIONS



AREA 1  
AREA 2  
AREA 3

# TWA CRASH INVESTIGATION FUSELAGE RECOVERY - LEFT SIDE



11/26/96 09:18 AM

# SECTION B

3 MARCH 97

(b) (4)  
(b) (6)Boeing Aircraft Co.(b) (4)  
(b) (6)(b) (4)  
(b) (6)

This message hopefully fills your request for a problem statement and a definition of the information we would like to obtain. Any further ideas or thoughts you have on the subject would be welcome.

**Problem Statement**

Define probable motion of the aircraft from the point at which the aircraft lost its nose section. Include as many of the flight relative variables as is practical.

*Requested***Required Input Variables**

- 1) Aerodynamics of the complete aircraft (lift and drag). Any thoughts about the change in the aerodynamics (lift and drag) as a result of losing the nose would be welcome. (My thought is simply to assume that the lift component is unaffected and the axial component is indexed by a constant amount -- about 0.2 to 0.4 based on fuselage cross-section)
- 2) Weight, MOI and center of gravity of the aircraft with and without the nose section.
- 3) Initial conditions (altitude, velocity, position and direction).
- 4) Accuracy ranges associated with all of the above.

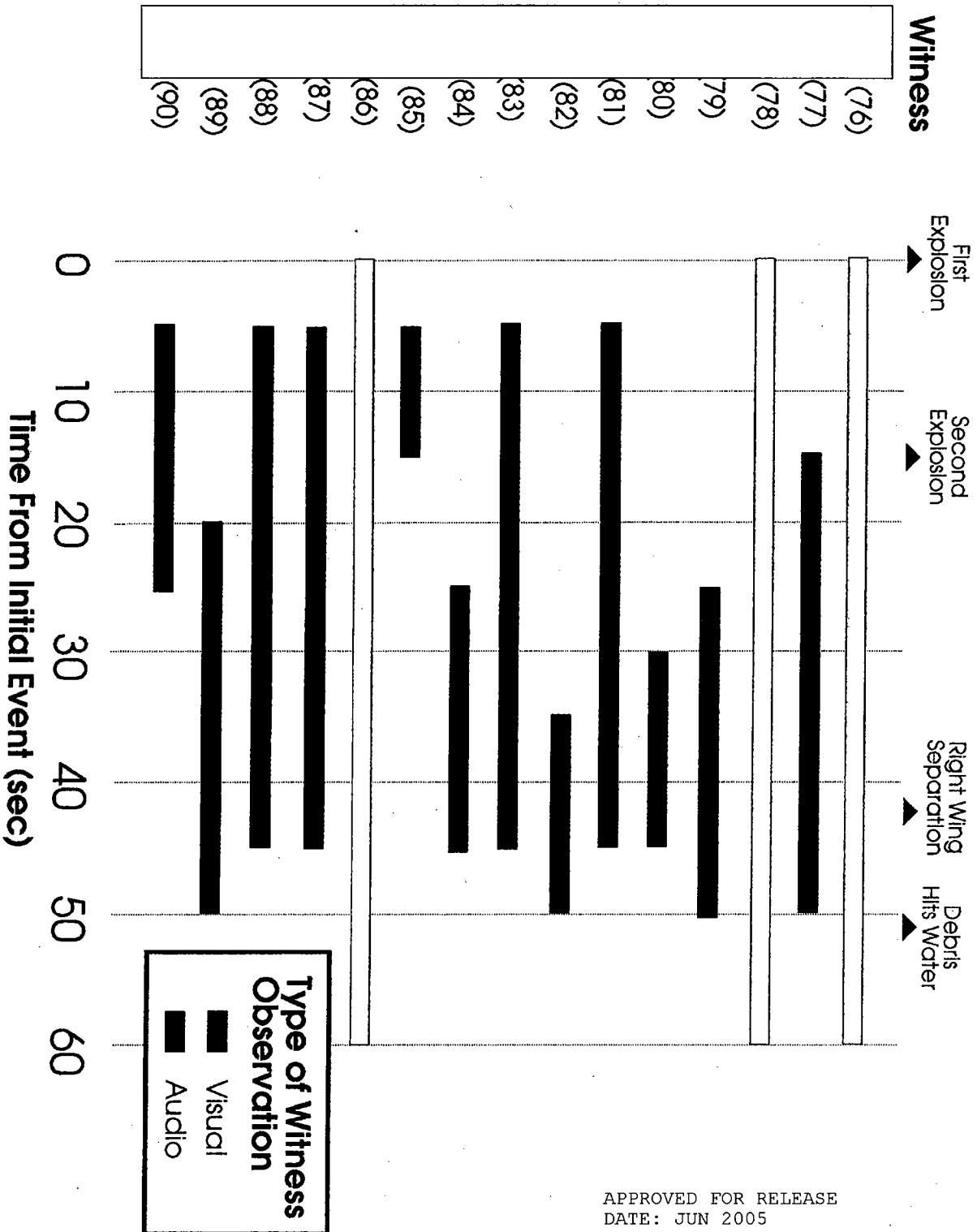
Thanks for your help,

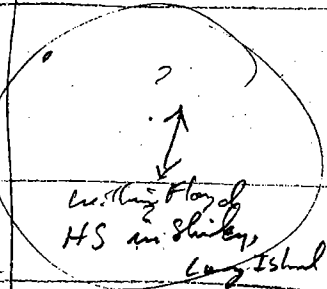
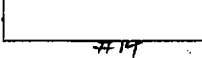
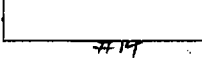
(b) (3)

APPROVED FOR RELEASE  
DATE: JUN 2005

(b) (6)  
(b) (7) (c)

# Timeline Of Witness Observations



| #     | Possibly<br>Mile? | water, land,<br>air | Country<br>Speed of flow first                                                                                                                  | Observer location                                                                                    | Where seen             |
|-------|-------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------|
| # 107 | ?                 | —                   |                                                                                                                                                 | Hampden Bay, HS, corner<br>of Argonne &<br>Wakenmann Rd                                              | SW to W                |
| 65    | No                | <del>land</del>     |                                                                                                                                                 | Westhampton Hk                                                                                       | Acres S                |
| 78    | ?                 |                     | object above turbine in sky<br>ascending at very high<br>rate of speed, bright<br>light w/ yellowish orange<br>tail                             |                    | ?                      |
| 108   | No                | —                   | large bright light - expl.<br>from a/c about<br>30 sec. before                                                                                  | Westhampton Hk<br>HS in Shick<br>Long Island                                                         | ?                      |
| 68    | ?                 | land                | relatively slow in flying up<br>& took 4-5 sec. before<br>hitting the airplane<br>(obj. took off from Duck Rd<br>on left side of inlet)         | Width              | (b) (6)<br>(b) (7) (c) |
| 109   | No                |                     | noticed expl. in sky<br>thru cloud 2 or 3 expl. &<br>sound of thunder,<br>noticed vapor line from<br>ocean up to the sky after<br>initial blast | Width              | (b) (6)<br>(b) (7) (c) |
| 52    | ?                 |                     | ascend almost vertically<br>at moderate speed                                                                                                   |                                                                                                      |                        |
| 110   | No                | water               | heard sounds like<br>rolling, thunder &<br>felt slight<br>vibration in the<br>ground                                                            | water hole of<br>Oak County Rd,<br>vic. Suffolk County<br>Police Dep.<br>fireman's range<br>in water |                        |

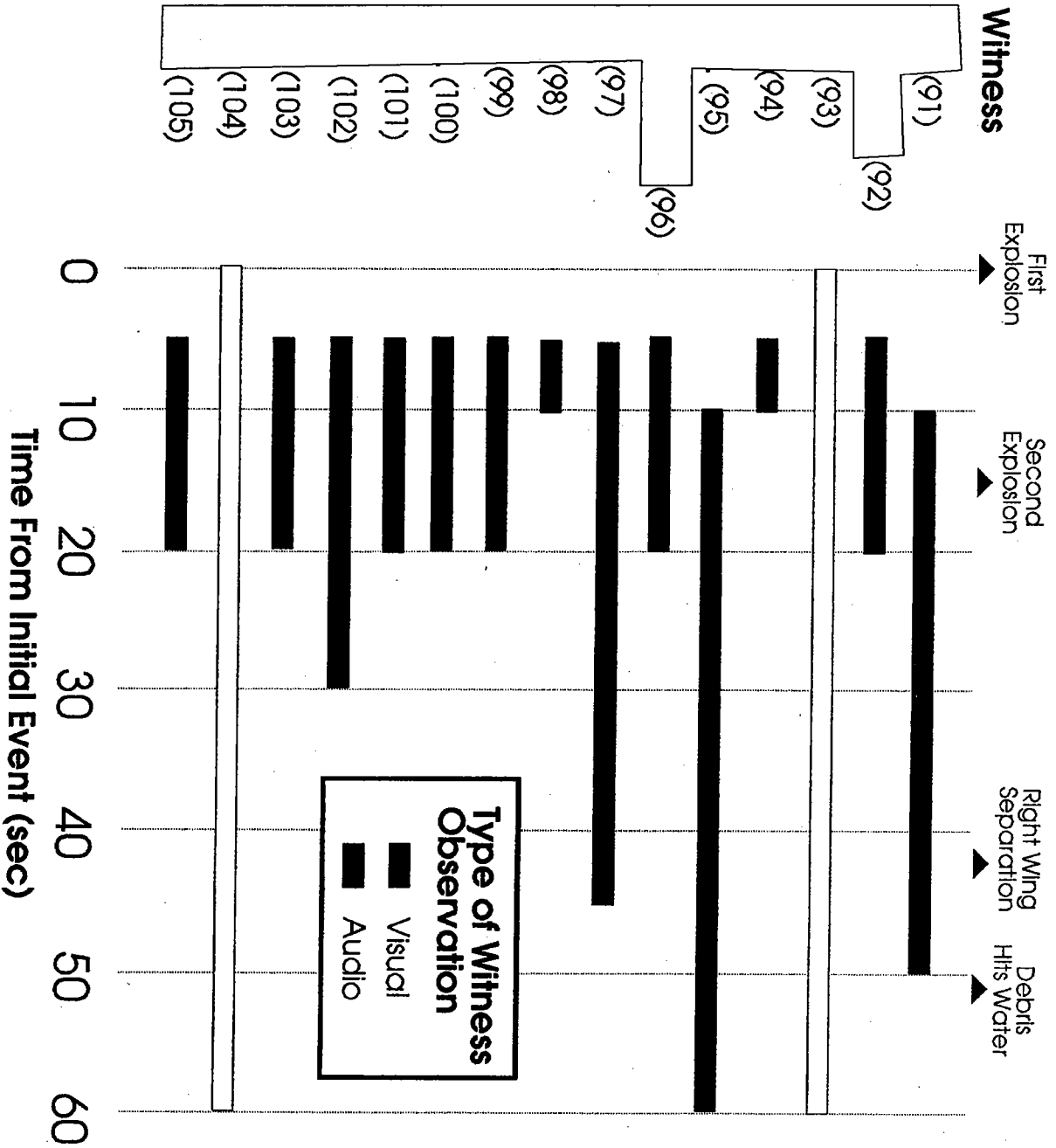
(b) (6)  
(b) (7) (c)

Name

| #        | Age | Obs. pos               | Time        | Color               | Sundstrial/<br>Color | Trigedley                                                       | Yth<br>Cont. St? | Descrip                                    | Flt.<br>time (S) | Appl.<br>over | Delay |
|----------|-----|------------------------|-------------|---------------------|----------------------|-----------------------------------------------------------------|------------------|--------------------------------------------|------------------|---------------|-------|
| 107      | 39  | land                   | 835         | white               | yes/grey             | SW to W diagonal<br>ascent                                      | No               | roman candle<br>flame                      | -                | -             | -     |
| 65       | 52  | land                   | 830-840     | white               |                      | W to E<br>not exactly<br>vertical,<br>>45°                      | yes              | firework                                   | 3-5              | yes           | yes   |
| 78       |     |                        |             |                     |                      | ascent.<br>L to R                                               | No               | firework                                   | 5                | -             | yes   |
| 108      | -   | land                   | -           | -                   | -                    | -                                                               | -                | -                                          | -                | -             | -     |
| 68       |     | (b) (6)<br>(b) (7) (c) |             |                     |                      | at an<br>angle                                                  |                  | flame<br>Roman candle                      | 4.5              |               |       |
| 109      |     |                        | 830         | -                   | -                    | -                                                               | -                | -                                          | -                | -             | -     |
| 44<br>52 | 43  |                        | 815-<br>825 | red & pink<br>white | yes/white            | normal<br>squiggly in<br>SW direction,<br>almost vertically     | No               | projectile ascent<br>into sky/<br>firework | 6-7              |               |       |
| 10       | -   | boat                   | 830         | white               | -                    | straight up                                                     | -                | flame                                      | 5                | -             | -     |
| 111      | 20  | land                   | 830         | reddish<br>orange   | yes/white            | ascent in the<br>sky<br>toward him w/<br>slight angle<br>R to L | yes              | flame                                      | -                | -             | -     |

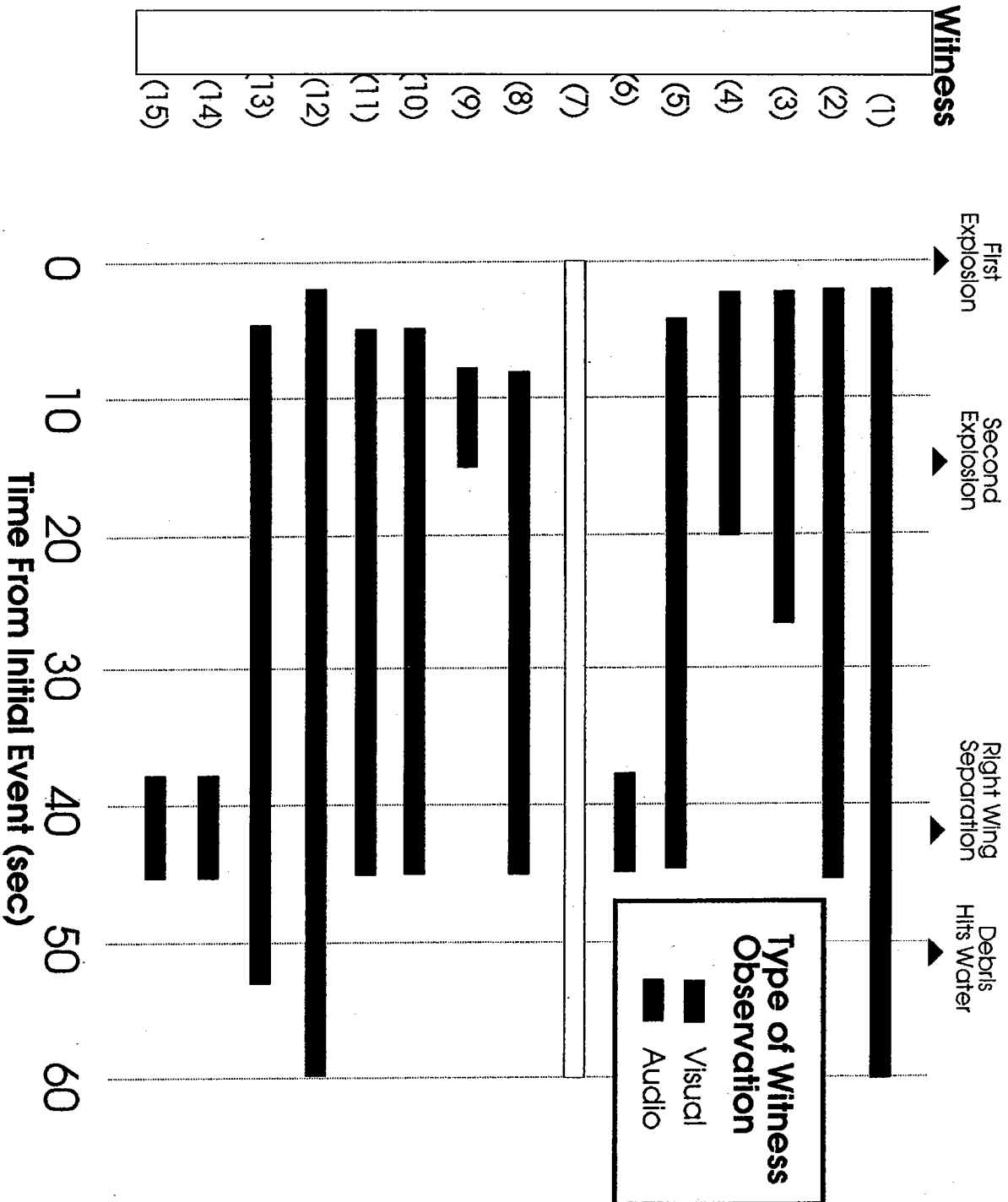
(b) (6)  
(b) (7) (c)

# Timeline Of Witness Observations



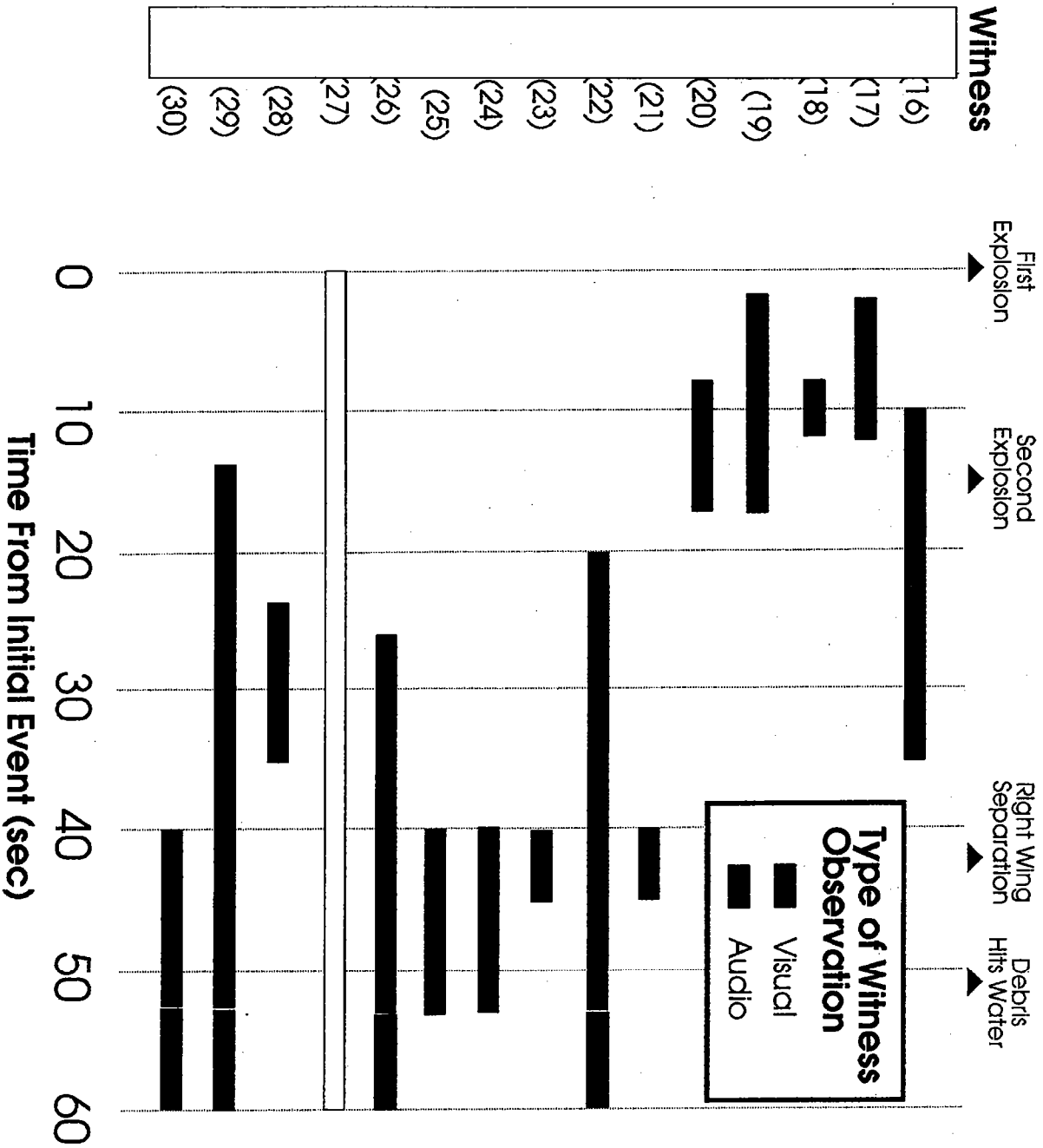
(b) (6)  
(b) (7) (c)

# Timeline Of Witness Observations



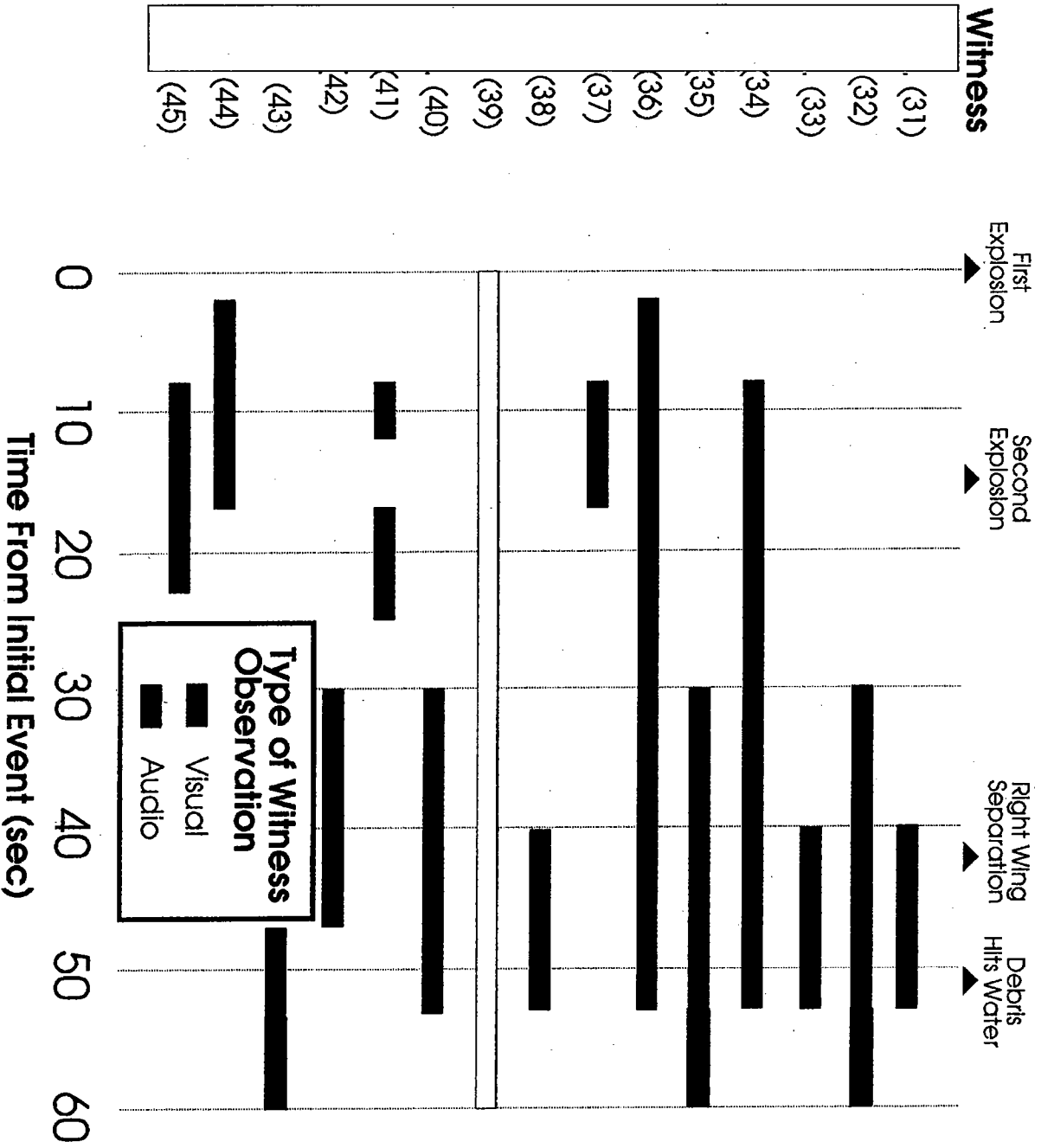
(b) (6)  
(b) (7) (c)

# Timeline Of Witness Observations



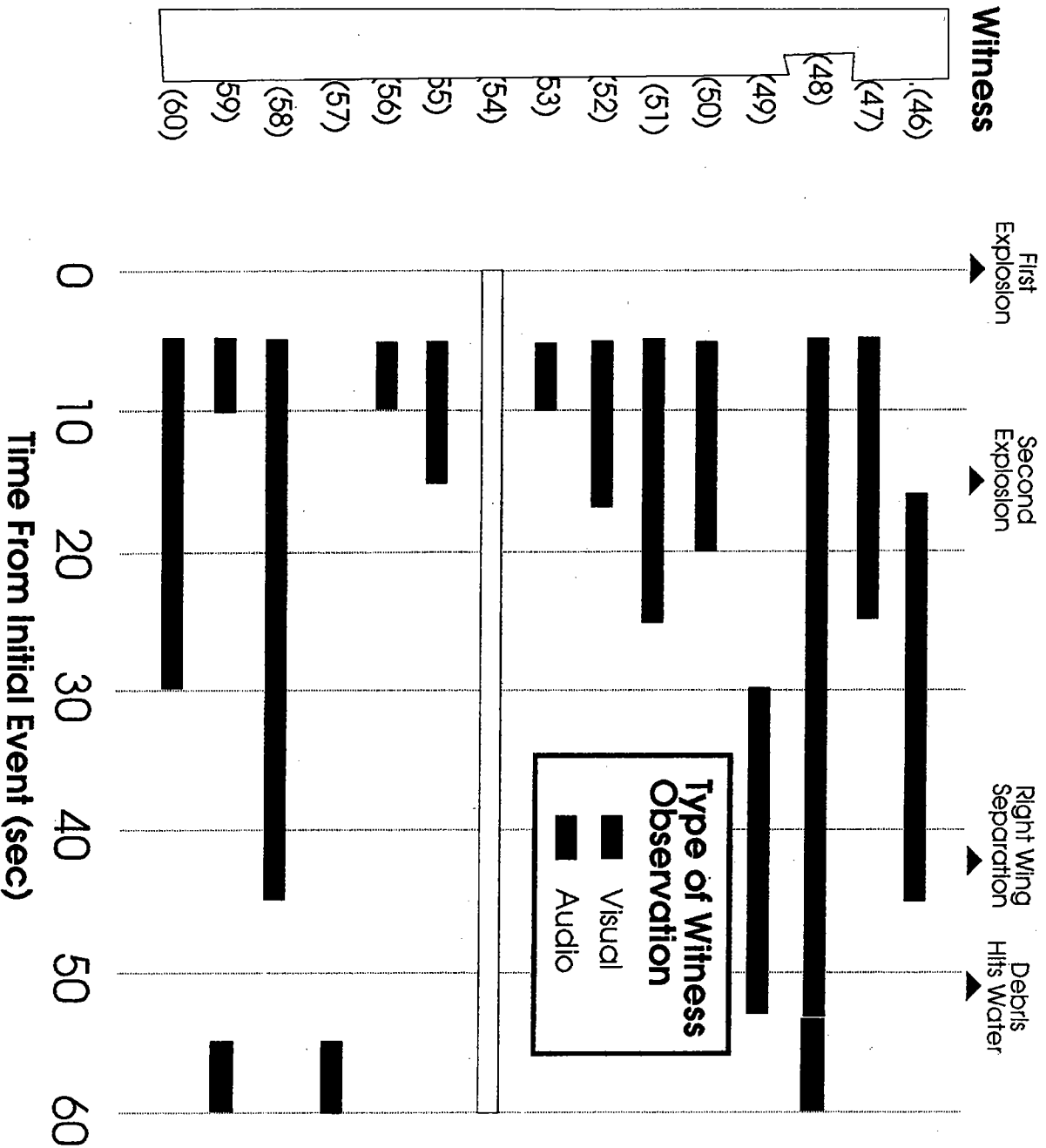
(b) (6)  
(b) (7) (c)

# Timeline Of Witness Observations



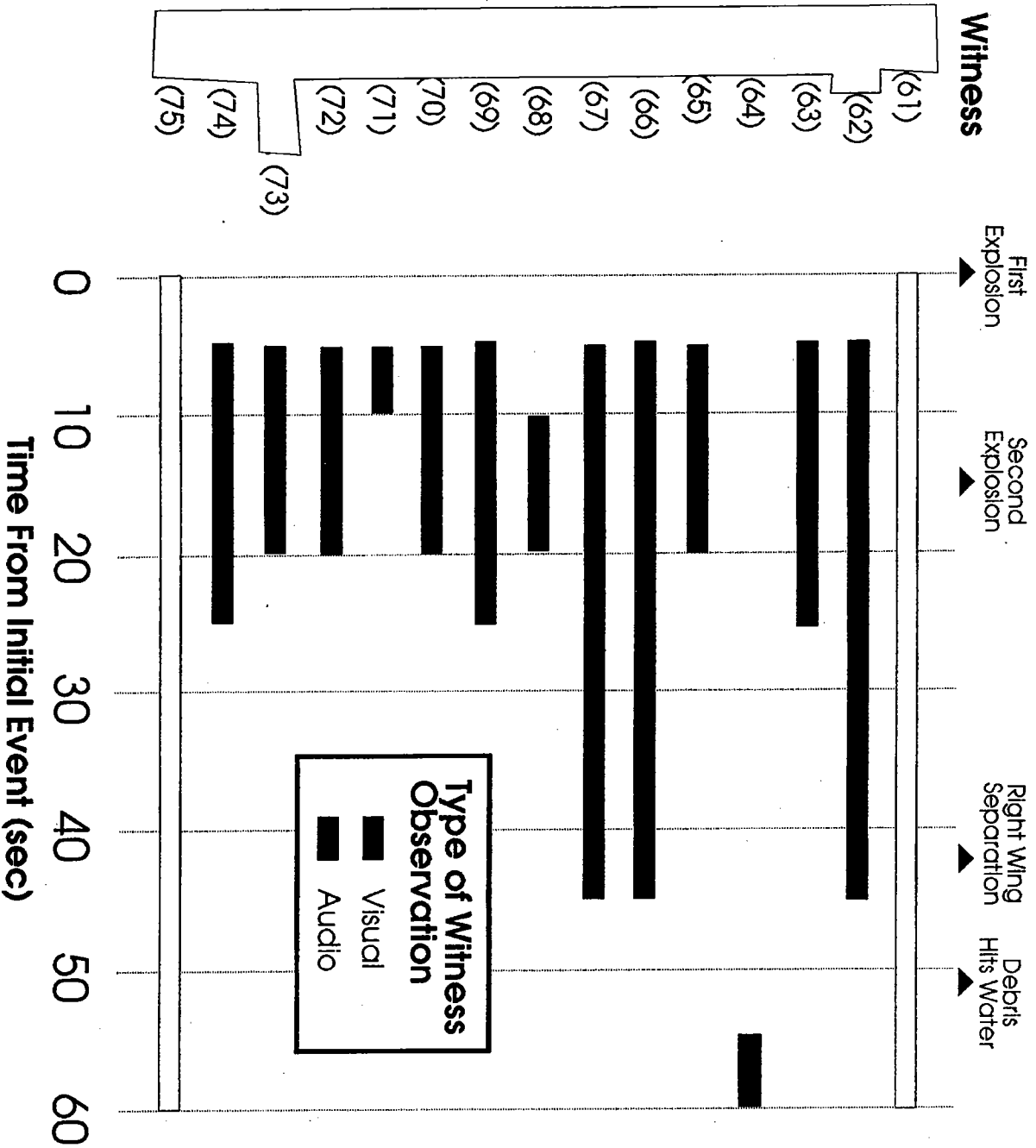
(b) (6)  
(b) (7) (c)

# Timeline Of Witness Observations



(b) (6)  
(b) (7) (c)

# Timeline Of Witness Observations



~~UNCLASSIFIED~~

## NOTE FOR:

(b) (3)

## FROM:

DATE: 04-15-97 10:19:02 PM

SUBJECT: TWA Flight 800: Revision of Time and Lat/Long for First Explosion

(b) (6)  
(b) (7) (c)

[redacted] at the FBI believes that the accuracy of the clock aboard TWA Flight 800 is suspect. He would like us to use 831:11.313 PM as the time of the first explosion (last transponded point), rather than 831:07.496 PM as we had been using. I have recalculated the "first explosion" position for TWA Flight 800 using this revised time, assuming the aircraft maintains its heading of 70.93 degrees, ground speed of 641 ft/sec, and altitude of 13,820 feet for the additional 3.817 seconds. The revised coordinates are:

N40 deg/38 min/52.2 sec  
W72 deg/40 min/50.5 sec.

All the JFK Airport radar coordinates (sampled every 12 seconds) remain valid and unchanged. The revision simply moves the explosion 3.817 seconds into the future, and therefore places it about 2,450 feet east-northeast of where we had it.

(b) (3)

[redacted] After our meeting with the FBI and Sandia Labs tomorrow, I'll adjust our VGs accordingly if the change seems warranted. My preliminary calculations indicate that it would strengthen our case a little that the eyewitnesses saw only the crippled aircraft, and not a missile. In particular, I think it would strengthen the case that the observer on US Air Flight 217 saw the aircraft explode, rather than a missile. Also, it would make the time between when the aircraft first exploded and when it hit the water match the "sound propagation analysis" a little better (it was already within about a second or so). And it would decrease by several seconds our estimate of the time between when the left wing separated and when the aircraft and wing hit the water --- strengthening our case that the many eyewitnesses whose observations were within about 10 seconds of this event could not have seen the initial explosion.

(b) (3)

[redacted] this revision clearly would require that the aircraft pitch up and ascend much more abruptly after the first explosion than we had previously thought. Because the aircraft would maintain its 641 ft/sec horizontal speed for an additional 3.817 seconds, its horizontal speed would need to slow down much more than before after the first explosion to match our calculated average horizontal speed of 457 ft/sec between the JFK radar hit at 831:10 PM and the next one at 831:22 PM. This would imply a much higher vertical speed. [The total horizontal distance between these two points is about 5,485 feet.]

Anyway, it's late and I'm outta here.

(b) (3)

CC:

(b) (3)

~~UNCLASSIFIED~~

APPROVED FOR RELEASE  
DATE: JUN 2005

~~FOR OFFICIAL USE ONLY~~

## NOTE FOR:



(b) (3)

## FROM:

## DATE:

04-16-97 11:03:16 PM

(b) (6)

## SUBJECT:

Location of Eyewitness

(b) (7) (c)

(b) (6)

(b) (7) (c)

(b) (6)

(b) (7) (c)

Interesting development...I used the mapping software to locate the house from which observed TWA Flight 800. According to the mapping software, she was in one of the houses over which observed the event. So her perspective was almost identical to his, but she saw the "orange ball" fall all the way to the water, followed one to two seconds later by the first boom. Depending on which "first explosion point" we use (831:11.313 PM or 831:07.496 PM), sound would take 54.30 seconds or 55.43 seconds (respectively) to reach her...corrected for "winds aloft." So the total duration from the first explosion to water impact based on her observations would be between 52.30 seconds and 54.43 seconds. These are the types of numbers we were trying to obtain for but couldn't get because he didn't actually see the aircraft hit the water. (By the way, kinda makes me favor the earlier time for the first explosion...but that's not too important here.)

(b) (6)

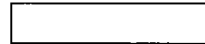
(b) (7) (c)

(b) (6)

(b) (7) (c)

Since was seated at a known location in the house and first saw the "bright white light" through a specified window, it should be possible to ascertain the approximate azimuth at which her observations began. More importantly, she estimated that her total observation lasted at most about 30 seconds, including five to ten seconds of "bright white light." So there's no time for a missile here unless her time estimate is off by about 100%.

See you when you return from your trip, and we can discuss this in detail. (...unless, of course, Chris Holmes and John Gannon and George Tenet think it's so important that I need to brief it to Kallstrom and Freeh and Clinton before you return.)



(b) (3)

(b) (6)

(b) (7) (c)

Interesting footnote: was interviewed two days after the disaster, and the report was transcribed a day after that interview.

CC:

APPROVED FOR RELEASE  
DATE: JUN 2005

~~FOR OFFICIAL USE ONLY~~

~~UNCLASSIFIED~~

TO: [REDACTED] (b) (3)  
 FROM: [REDACTED]  
 DATE: 05-12-97 11:41:55 AM  
 SUBJECT: Re: Description of TWA Flight 800 for Video

*Maximum climb angle?*

Requested info.

1) Time of nose section impact = 38.9 +/- about 2 seconds.

2) Pitch-up takes about 10 seconds (Boeing [REDACTED] -- it is not "abrupt".

(b) (4)

3) Maximum pitch angle is about 40 degrees (Boeing [REDACTED] I think the aircraft may possibly have gone all the way over (pitch angle > [REDACTED] degrees). Maximum altitude = 17400 feet (Boeing [REDACTED])

(b) (4)

(b) (4)

4) Boeing and I agree about the unlikelihood of the wing tips breaking off due to "aerodynamic overload" at a point in the flight where the dynamic pressure is almost nil. To have this occur symmetrically in a low load condition is VERY unlikely. I get an indicated airspeed of about 150 knots -- Boeing [REDACTED] -- at peak altitude. Based on trajectory simulation, I do not believe that loss of the wing tips would have any discernible effect on the trajectory provided their loss occurred symmetrically and at T0+10 or later.

(b) (4)

5) Bullet #7 -- altitude unknown.

6) It is my understanding that wing fuel is burnt first and is not "reserve" fuel. No specific fuel tank is the "reserve" tank.

7) Under the heading of pure speculation come,

- a) Wing tip loss is symmetric and causes specific motion (other than at final breakup).
- b) Engines stall just as the wing tips come off.
- c) Nose breaks downward (although this is what I would show).
- d) Stalling engines ignite fuel.
- e) Left wing spirals leading edge first.

I think stalling engines is the source of the sound people heard. It is not the only possible source of ignition for fuel in the air. Wing tanks could easily have been ruptured by the initial explosion and this fuel ignited by burning debris. I do not think it is a good idea to present speculation as fact. Some speculation is OK and surely expected.

CC:

[REDACTED]

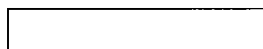
(b) (3)

APPROVED FOR RELEASE  
 DATE: JUN 2005

~~UNCLASSIFIED~~

~~UNCLASSIFIED~~**MEMORANDUM FOR:**

(b) (3) 14 November 1997

**FROM:**

(b) (3)

**OFFICE:**

OWTP

**SUBJECT:**

Final Reports to FBI

**REFERENCE:**

- FBIPB3\_A.DOC



- FBIPB4\_A.DOC



- TWAFINPT.DOC



TWAQ&amp;A.DOC



- TWAKEY\_A.DOC

**CC:**

(b) (3)

Sent on 14 November 1997 at 06:34:05 PM

APPROVED FOR RELEASE  
DATE: JUN 2005~~UNCLASSIFIED~~

### Key Points of Analysis

- No explosion or loud sound occurred on the aircraft before the one noted on the cockpit voice recorder.
- A loud sound created by this explosion took more than 40 seconds to reach the nearest eyewitnesses, who reported hearing sounds associated with the disaster.
- After the aircraft exploded, it took about 50 seconds for the burning aircraft to hit the water.
- Most eyewitnesses reported seeing a large, conspicuous "fireball". CIA analysis indicated this occurred about 10 seconds before the aircraft hit the water, and was detected by an infrared sensor on a U.S. satellite.
- A majority of eyewitnesses describe only things which occurred within 20 seconds of when the aircraft hit the water. Since the aircraft exploded 50 seconds before it hit the water, these eyewitnesses could not have seen a missile.
- The few eyewitnesses whose observations lasted considerably longer, and reported seeing an object ascend and culminate in an explosion, probably saw the aircraft shortly after it exploded.

## **TWA Flight 800 Questions and Answers**

***Why did the FBI request CIA's technical and analytical assistance in this "criminal investigation", and under what authority did the CIA respond?***

The possibility existed that the crash of TWA Flight 800 was *foreign* terrorism, potentially one of the most lethal acts of terrorism ever perpetrated against the U.S. In full accordance with its charter, the CIA responded to the FBI's request for assistance by applying the technical and analytical expertise normally used to monitor and assess foreign weapons threats to U.S. national security.

***Why did the CIA attention focus on the eyewitness accounts?***

Many people who saw something ascend and culminate in an explosion thought they had seen a missile destroy the aircraft. So the first step in CIA's analytical process focused on determining what the eyewitnesses had seen. This led to CIA's use of "sound propagation analysis" [explained in the video], and the subsequent conclusion that the eyewitnesses saw only events that took place after the aircraft exploded.

***What did the eyewitnesses see ascend that night?***

Some eyewitnesses saw the burning aircraft ascend, just *after* the aircraft exploded. This ascent was caused by the sudden loss of the front third of the aircraft, including the cockpit, just after the aircraft exploded. This may also have looked like a "flare or firework" ascending skyward. Most eyewitnesses saw only the most spectacular event, a large fireball which erupted shortly before the aircraft hit the water.

***Are there any eyewitness statements that disagree with the CIA analysis?***

Of the 244 eyewitness statements examined in detail, the vast majority are consistent with the analysis presented here. As with any event of this nature, there remain a few reports that cannot be fully explained.

***What did the "sound propagation analysis" entail?***

The explosion of Flight 800 produced a very loud sound which shook houses ten miles away. This sound took more than 40 seconds to reach the closest eyewitness. By correlating what eyewitnesses reporting seeing at about the time they reported hearing this sound, CIA analysts were able to determine that almost all eyewitnesses saw only the burning aircraft near the end of its crippled flight.

## **TWA Flight 800 Questions and Answers**

### ***What information was used in the analysis?***

CIA analysts primarily used the visual and audio observations of eyewitnesses, as reported by the FBI, to determine the timing and direction of key events. The National Transportation Safety Board provided the aircraft's location and flight conditions when it exploded, the air traffic control radar data, the location of the aircraft wreckage on the ocean floor, and the information from the Cockpit Voice Recorder and Flight Data Recorder. Infrared data collected by a U.S. satellite also was used.

**TWA Flight 800: What Did the Eyewitnesses See?**

Missile analysts at the Central Intelligence Agency have been working closely with special agents at the Federal Bureau of Investigation during the past 16 months to examine the hypothesis that a missile caused the TWA Flight 800 disaster on 17 July 1996.

Of particular concern to FBI investigators and CIA analysts are accounts from dozens of eyewitnesses who reported seeing an object—usually described as a "flare" or "firework"—ascend and culminate in an explosion. These eyewitness reports are the primary reason for speculation that a missile may have been used to shoot down TWA Flight 800.

CIA analysis demonstrates that the eyewitness sightings of greatest concern—the ones originally interpreted to be of a possible missile attack—took place after the aircraft exploded.

- Most eyewitnesses can be shown to have seen only events occurring 10 to 20 seconds before the crippled aircraft hit the water, ruling out the possibility that these people saw a missile initiate the destruction of the aircraft.
- CIA analysts believe that the ascending object seen by a few eyewitnesses was the burning aircraft itself, rising several thousand feet after the aircraft exploded.
- The aircraft climbed rapidly because the front third of the aircraft, including the cockpit, separated within four seconds after the aircraft exploded. This significant, sudden loss of mass from the front of the aircraft created an imbalance that caused the rapid pitch upward and ascent.

The CIA's analysis was based on:

- 244 eyewitness reports provided by the FBI
- radar data
- satellite infrared data
- information provided by the National Transportation Safety Board (NTSB) from Flight 800's "cockpit voice recorder" and "flight data recorder"
- sound propagation analysis

**Eyewitnesses With Extensive Past or Possible Future Media Coverage**

The eyewitnesses who have, or may in the future, talk with the media about their observations are:

(b) (6)  
(b) (7) (c)

(b) (6)  
(b) (7) (c)

- [redacted] reported seeing "a succession of multiple explosions which bled into a fiery monolith", which struck the water in about eight seconds. This is consistent with the aircraft's break-up during the latter part of its flight.

(b) (6)  
(b) (7) (c)

- [redacted] reported seeing an object which took 5 seconds to ascend followed by an "explosion" which grew and split into 2 pieces. The explosion and 2 fireballs are consistent with the aircraft's break-up during the latter part of its flight.

- In her second interview, [redacted] reported seeing a "missile" ascend from a location on Long Island. In the time specified, this is not plausible as the nearest point of land is about 10 miles from the aircraft explosion location.

(b) (6)  
(b) (7) (c)

- [redacted] reported seeing an object which took about 5 seconds to ascend, followed by a very bright flame. The very bright flame is consistent with the aircraft's break-up during the latter part of its flight.

(b) (6)  
(b) (7) (c)

(b) (6)  
(b) (7) (c)

- [redacted] reported seeing a streak moving from a higher elevation to a lower elevation, not an ascending object such as a missile.
- He observed this streak for only a few seconds before seeing a large explosion. This large explosion is consistent with the aircraft's break-up during the latter part of its flight.

(b) (6)  
(b) (7) (c)

(b) (6)  
(b) (7) (c)

- [redacted] reported seeing "an orange-colored arc ascend ... ending in a large explosion". The large explosion is consistent with the aircraft's break-up during the latter part of its flight.

**Eyewitnesses With Extensive Past or Possible Future Media Coverage**

(b) (6)

(b) (7) (c) [REDACTED]

(b) (6)

(b) (7) (c) • [REDACTED]

reported seeing an object which ascended for 10 seconds, followed by an explosion. He then reported that it descended for 2 minutes. This agrees with the CIA assessment of what happened to Flight 800 except for the extended time.

(b) (6)

(b) (7) (c) • [REDACTED]

was more than 40 miles away from where the aircraft exploded, and may have confused activity occurring after the aircraft hit the water with the object descending.

(b) (6)

(b) (7) (c) [REDACTED]

(b) (6)

(b) (7) (c) • [REDACTED]

reported seeing an object which ascended for 5 seconds followed by "a large explosion or fireball" which broke into 2 pieces. The fireball and 2 pieces are consistent with the aircraft's break-up during the latter part of its flight.

**TWA Flight 800: Eyewitnesses Whose Descriptions Conflict With CIA's Analysis**

The three eyewitnesses are:

(b) (6)  
(b) (7) (c)

(b) (6)  
(b) (7) (c)

[redacted] reported seeing two discrete objects airborne followed by an explosion. However, CIA believes his observations were limited to the final moments of the aircraft's trajectory because:

(b) (6)  
(b) (7) (c)

- [redacted] reported his total observation time as 20 seconds, much shorter than the 50 seconds it took the aircraft to hit the ocean after it exploded.
- [redacted] reported seeing "large rectangular balls of flame" which CIA believes was the fuel fire just before Flight 800 hit the water.

(b) (6)  
(b) (7) (c)

[redacted] gave a highly detailed description, with details such as "fissures developed all over the plane".

(b) (6)  
(b) (7) (c)

- From over 17.5 miles away, we believe such detailed descriptions are not possible.
- [redacted] also reported hearing a "boom" just as the aircraft broke up. CIA analysis indicates that the first sound would have arrived at her location more than 30 seconds after the aircraft hit the water.

294 B

62

(b) (4)  
(b) (6)

From: [REDACTED]  
Expert in aerodynamics and all things physical

(b) (3)

Tom,

I send this note along with a trajectory simulation program input in an effort to clarify what I have been up to.

- 1) The H (altitude) variable loaded into the ITVT table (when using a -15 value in the third column) causes event #20 (the last event) to occur at the input value (zero). The CRVT table (just below) associates an "observation" (time=50 sec) to be linked to this event. Thus the effect is an "observation" (data) point of "water impact at 50 seconds.
- 2) VRF means "variable to be replaced". Thus VRF2 causes ARG2 (pitching moment coefficient) to replace the variable CM1T. CM1T is a multiplier for the CM1T table (see above--the table with 1.0's). Thus the calculation of the multiplier (ARG2) is shifted into the pitching moment table (CM1T) multiplier (which only contains 1.0 values) and the output of the CM1T is the pitching moment used in the trajectory calculations.

----- Remaining comments refer to the plots -----

- 3) "AZMUTH" is the azimuth of the nose tip. I have tried trajectories that pitched through many hundreds of degrees. This plot helped determine when the vehicle passes through a pitch angle of +/- 90 degrees. Not of much use here.
- 4) I include plots of CL, CD vs both time and angle of attack plus CL vs CD. Note that these values are what was calculated by the program and are not (direct) inputs.
- 5) RDOT is range rate. The plotted values are the average range rate between the radar data points.

Ten seconds ago a fellow left my office after dropping a table on me.

| Time of first occurrence (sec) | Distance (Nm) |
|--------------------------------|---------------|
| 31:11.88                       | 0.0           |
| 31:16.65                       | 0.485         |
| 31:21.25                       | 0.96          |
| 31:30.48                       | 1.67          |
| 31:39.72                       | 1.93          |
| 31:48.96                       | 2.24          |
| 31:61.88 (Impact +/- 2s?)      | 2.52          |

Distance is measured along the (best estimate) flight path so that a plainer analysis applies.

This set is "a best estimate" -- not done by me--but is (apparently) a set that both CIA and the FBI will/can live with. Note that I have added these points to my curves and that these curves, while developed using the least squares process, did not use this data. I will be rerunning against this data set. These data suggest that my minimum velocity (at t=20s) may be a little high. The final conclusion -- a good trajectory -- probably will not change.

(b) (3)

# TRAJECTORY PROGRAM INPUT

0 BUCKET SIZE REQUESTED 152000001  
0 CPU TIME AT CALL TO INPIM = 0.0

```

1
*****H RUN SETUP FOR TWA FLIGHT 800 ANALYSIS *****
*****H (b) (4) *****
*****H AERO CENTER OF PRESSURE IS INPUT (SEE ARG2) *****
*****H EVENT 13 STARTS PROBLEM *****
*****H EVENTS 15/16 START POINT MASS (WING BREAK) *****
2L 0 0. 11.0 D 2 G1
D 3GMT 4 0.0 D 5FP1
6 0.0 7 0.0 8 0.0
3L 0 0. 11.0 D 2 G1
D 3TLP 4 0.0 D 5FP1
6 0.0 7 0.0 8 0.0
10L 0 0. 11.0 D 2 G1
D 3TLP 4 0.0 D 5FP1
6 0.0 7 0.0 8 0.0
11L 0 0. 11.0 D 2 G1
D 3TLP 4 0.0 D 5FP1
6 0.0 7 0.0 8 0.0
12L 0 0. 11.0 D 2 G1
D 3TLP 4 0.0 D 5FP1
6 0.0 7 0.0 8 0.0
13L 0 0. 11.0 D 2 G1
D 3TLP 4 0.0 D 5FP1
6 0.0 7 0.0 8 0.0
15L 0 0. 11.0 D 2 G7
D 3H 4 9350.0 D 5VDR
6 0.0 7 0.0 8 0.0
16L 0 0.0 11.0 D 2 G1
D 3TDURF 4 0.0 D 5FP1
6 0.0 7 0.0 8 0.0
20L 0 0. 11.0 D 2 G7
D 3H 4 60.0 D 5VDR
6 0.0 7 0.0 8 0.0
6 0.0 7 0.0 8 0.0
20L 0 0. 12.0 D 2 G1
D 3TC1 4 60. D 5FP1
6 0.0 7 0.0 8 0.0
  
```

\*ITRF=0 (NO  
ITERATION)

= 1 USE  
LEAST SQUARE  
ITERATION

TSPXM 2 FESN 20.

```

*****
ITIFM 2 TIVAL 1.0 T2VAL 1.0 T3VAL 1.0
PFRPM 0 RSEDIF 1.0 MAXKF 9.0 QIMPF 2.0
PFRPM 0 COVF 1.0 ITPRF -9.0 PINT 0.0
PFRPM 0 IIFL 2.0 T1MD -1.0 T2MD -1.0
PFRPM 0 TDT1CVT GMT D GMT
RANG D RANG
  
```

\* T1MD SECOND AND THIRD VALUES ARE THE NUMBER OF POINTS IN THE  
\* TIVAL TABLE FOLLOWED BY THE INVERSE OF THE SIGMA ACCURACY  
\* (IN THIS CASE IT IS 1/0.05 NAUTICAL MILES).

```

PFRPMOCOT T1MD 1. 3. 20.
PFRPM 0 BNDS 200. 1 100. 2 200.
PFRPM 0 3 200. 4 200. 5 200.
PFRPM 0 6 200. 7 200.
  
```

```

MPEXM000 ITRF 0.0 *
ITERM000T ITRF 1.0 20.
D ARG1T -4. 13.
0. 0. 0.001
0. 0. 0.
0. 0. 0.
2.0 20. 13.
D ARG1T -5. 0.01
0. 0. 0.
0. 0. 0.
3.0 20. 13.
D ARG1T -6. 0.001
0. 0. 0.
0. 0. 0.
  
```

APPROVED FOR RELEASE  
DATE: JUN 2005

ITVT CONTAIN!  
THE VARIABLE  
TO BE INCLUDE  
IN THE LEAST  
SQUARES SEARCH  
SEE ARGIT  
BELOW (X =  
CENTER OF PRESS

|   |              |            |       |
|---|--------------|------------|-------|
|   | 4.0          | 20.        | 13.   |
| D | ARGLT        | -7.        | 0.01  |
|   | 0.           | 0.         | 0.    |
|   | 0.           | 0.         | 0.    |
|   | 5.0          | 20.        | 13.   |
| D | ARGLT        | -8.        | 0.001 |
|   | 0.           | 0.         | 0.    |
|   | 0.           | 0.         | 0.    |
|   | 6.0          | 20.        | 13.   |
| D | ARGLT        | -10.       | 0.001 |
|   | 0.           | 0.         | 0.    |
|   | 0.           | 0.         | 0.    |
|   | 7.0          | 20.        | 13.   |
| D | ARGLT        | -12.       | 0.001 |
|   | 0.           | 0.         | 0.    |
|   | 0.           | 0.         | 0.    |
|   | 8.0          | 20.        | -15.  |
| D | H (ALTITUDE) | 0.         | 100.  |
|   | 0.           | 0. (VALUE) | 0.    |
|   | 0.           | 0.         | 0.    |

(1) SEE NOTE

|           |      |       |      |     |     |
|-----------|------|-------|------|-----|-----|
| ITIFM     | 0    | TIVAL | 1.0  |     |     |
| ITIFM     | 0T   | TIVAL | 22.7 |     |     |
|           |      |       | 34.7 |     |     |
|           |      |       | 46.7 |     |     |
| ITIFM000T | CVRT | 1.    | 0.   | 20. |     |
|           |      |       | 50.0 | 0.  |     |
|           |      |       | 0.   | 0.  |     |
| PFRPM000  | MD1T | 1.    | MD2T | 1.  | 0.5 |
| PFRPM000T | MD1T | 1.    |      |     |     |

TC1 IS TIME FROM  
FIRST EVENT (1/2  
IN THE WATER AT  
50 SEC "OBSERVATO  
DATA"

|       |    |        |                |                |               |
|-------|----|--------|----------------|----------------|---------------|
| ENVRM | 2T | GRAVTT | 2.00000000     | 0.0            | 0.00108271604 |
|       |    |        | 0.0            | 3.00000000     | 0.0           |
|       |    |        | -0.2630140E-05 | 0.0            | 4.00000000    |
|       |    |        | 0.0            | -0.2349500E-05 | 0.0           |

SERV 2 IITPR2T 6.  
INFXM 2ICTPRI2T 0.3  
INFXM 2 TPRV2T -10.  
INFXM 2TDTPRV2T TC1

FT65

|   |       |   |       |   |       |
|---|-------|---|-------|---|-------|
| D | Q     | D | H     | D | MACH  |
| D | CZ    | D | RANG  | D | VAMI  |
| D | FAZB  | D | CX    | D | CM    |
| D | ASZB  | D | FAXB  | D | OMYB  |
| D | ALFA  | D | FTXB  | D | DOMYB |
| D | GAMA  | D | MAYB  | D | IYY   |
| D | ELRLH | D | LATV  | D | LONV  |
| D | CXB   | D | AZRLN | D | GMT   |
| D | ARG1  | D | VDR   | D | RB1   |
| D | ARG3  | D | ARG2  | D | CM1T  |
| D | WT    | D | ARG4  | D | ARG5  |
| D | ARG6  | D | ASXB  | D | DVDR  |
| D | ARG8  | D | VCAL  | D | ARG7  |
|   |       | D | ARG9  |   |       |

|       |    |       |        |      |      |     |     |
|-------|----|-------|--------|------|------|-----|-----|
| CYCKM | 2  | DTEA  | 0.10   | QOP1 | 1.0  | TC1 | 0.0 |
| CYCKM | 2  | LFDT1 | 0.10   | TC4  | 0.0  |     |     |
| CYCKM | 2  | NOISB | 0.0    |      |      |     |     |
| DPGXM | 12 | IGCF  | 0.0    | TRKF | 0.0  |     |     |
| ENVRM | 2  | ATCF  | 4.0    | ATUF | 0.0  | AWT | 1.0 |
| ENVRM | 2  | GRVDF | 1.0    | VWF  | -1.0 |     |     |
| ENVRM | 2I | VWT   | TC1 6  |      |      |     |     |
|       |    |       | -100.0 |      | 4.8  |     |     |

20000.0 APPROVED FOR RELEASE

ENVRM 2I AWT TC1 6 DATE: JUN 2005

|       |   |      |      |       |     |       |     |
|-------|---|------|------|-------|-----|-------|-----|
| INTXM | 2 | INIV | 50.0 | DTMAX | 2.0 | INTGF | 2.0 |
| PROPM | 2 | DLO  | 0    |       |     |       |     |

297 B

RMOTM 2 ETA2 0.0  
 RMOTM 2 DIN C  
 SERV 2 ITPRNT 6.0  
 \*\*\*\*\* BEFORE BOOM CRUISE VELOCITY=667.5 FT/SEC (330 KNOTS IAS)  
 TMOTM 2 AEL 70.93 VAMIO 667.5 DIN C  
 TMOTM 2 LATI 40.6448 DLO 1 LONL -72.6806  
 TMOTM 2 AZVAO 70.93 GAMAO 0.6 HSL 13820.0  
 TMOTM 2 ALFAO 2.942 OMYBO -0.  
 TMOTM 10 DLO 1 TMTF 1.00000000 HSL 0.0  
 INEXM 2 EVPE 0.00000000 PLOTT -1.00000000  
 PROPM 11 DLO 1  
 TMOTM 12 DLO 1  
 AERMM 2 DIN C DLO 2  
 AERMM 10 DIN C DLO 2  
 AERMM 2 CLDF 0.0 CNSF 6.0 CMSF 0.0  
 AERMM 2 CXSF 0.0 CMOMT 0.0  
 AERMM 2 S 5500.0 RB1 27.31

} INITIAL  
 CONDITIONS

(b) (4)

$M = C_w \cdot S \cdot (RB1)$

(b) (4)

AERMM 2I CMIT ALFA 6 MOMENT COEFFICIENT  
 -181.0 1.0  
 181.0 1.0

AERMM 13ICCMOMT 1.0

SERV 13 ARG1T 1.0

SERV 13I ARG1T TC1 6 CENTER OF PRESSURE (FT) (CG AT 120.67)

|           |            |
|-----------|------------|
| -100.     | 120.3      |
| 0.0       | 119.675430 |
| 10.291653 | 121.806901 |
| 24.401291 | 120.571152 |
| 40.0      | 120.412872 |
| 50.00     | 121.388077 |

SERV 13I ARG2T ALFA 6 NORMAL FORCE MULTIPLIER  
 -181.0 -1.0  
 181.0 -1.0

SERV 13I ARG3T ALFA 6 AXIAL FORCE MULTIPLIER  
 -181.0 -1.0  
 181.0 -1.0

\* BOTH TIME  
 CP VALUES  
 FROM ITERATION  
 RUNS -- NOTE  
 LARGEST CP-CG =  
 ONLY 1.14 FT

\*\*\*\*\*H NOTE: CX BIAS IS CALCULATED AS ARG1 AND SHIFTED INTO CXB.  
 \*\*\*\*\*H USING CXB=-K1\*COS(ALFA)-K2\*COS(ALFA)\*\*2  
 \*\*\*\*\*H ARG2 CALCULATES CM--A2C1=1/RB1, A2C2=CGREF/RB1 AND  
 \*\*\*\*\*H ARG1T = CENTER OF PRESSURE (FT)  
 \*\*\*\*\*H ARG3 CALCULATES THRUST MULTIPLIER, F(ALFA)  
 \*\*\*\*\*H ARG6 CALCULATES RANGE RATE  
 \*\*\*\*\*H ARG7 CALCULATES LIFT COEFFICIENT  
 \*\*\*\*\*H ARG8 CALCULATES DRAG COEFFICIENT  
 \*\*\*\*\*H ARG9 CALCULATES MOMENT COEFF ABOUT 1/4C OF MAC

{ ΔCX BUSTED NOSE

CXB = CX BIAS  
 (1/2 SHIFT)

ARG2 = C<sub>m</sub> =  
 (CG - CP) / C<sub>N</sub>

CG = 120.67  
 b = RB1 = 27.31

CP = ARG1T

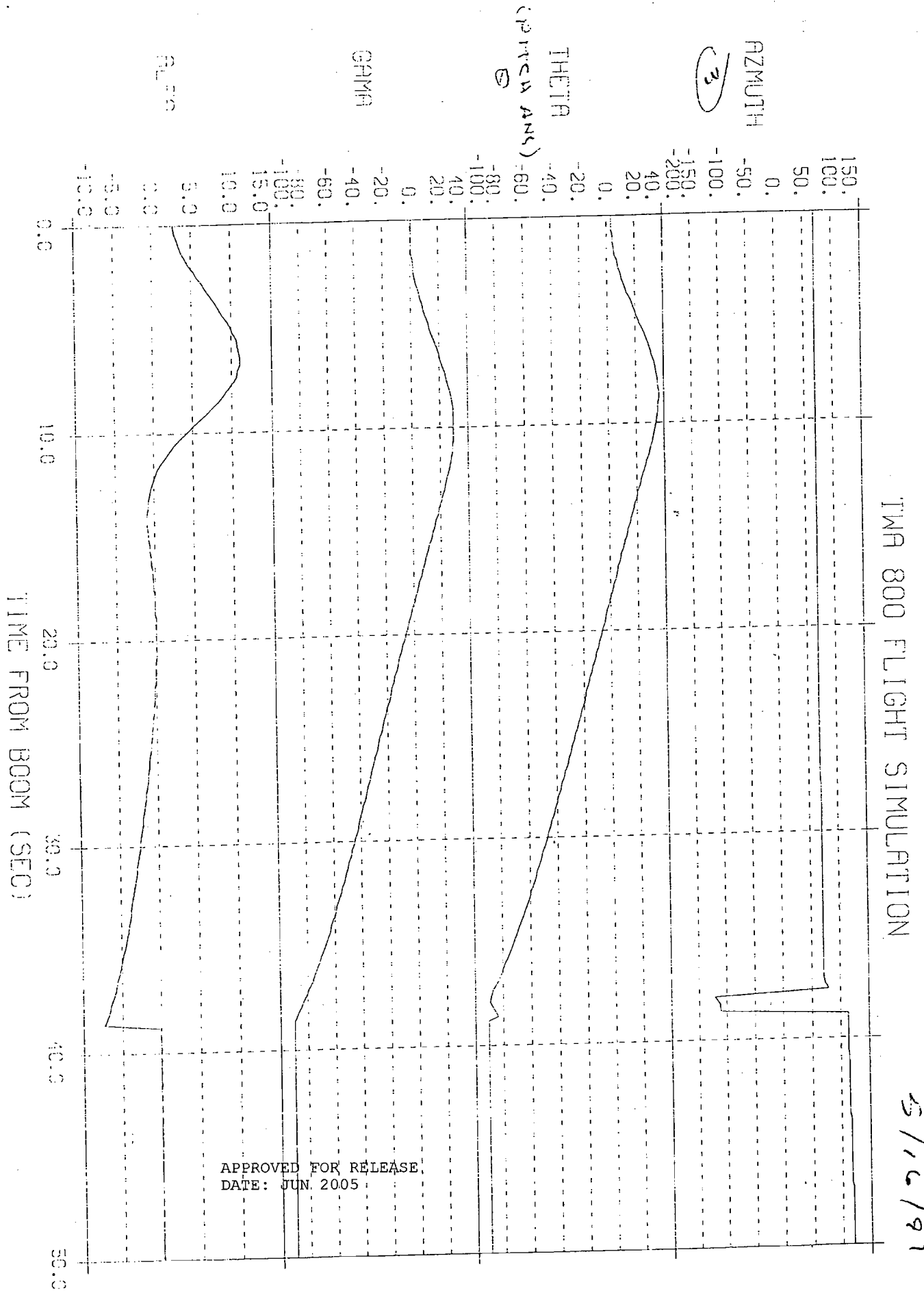
|               |         |             |             |
|---------------|---------|-------------|-------------|
| JUNKM 10 DIN  | U       | DLO 1       |             |
| JUNKM 13 VRF1 | 3.0     | DVTBR1 CXB  | DRVAR1 ARG1 |
| JUNKM 13 VRF2 | 3.0     | DVTBR2 CM1T | DRVAR2 ARG2 |
| JUNKM 13 VRF3 | 3.0     | DVTBR3 FTT  | DRVAR3 ARG3 |
| JUNKM 13 VRF4 | 3.0     | DVTBR4 CZ1T | DRVAR4 ARG4 |
| JUNKM 13 VRF5 | 3.0     | DVTBR5 CX1T | DRVAR5 ARG5 |
| SERV 13 A1C1  | -0.041  | DA1V1 ALFA  | A1FV1 4.0   |
| SERV 13 A1C2  | -0.025  | DA1V3 ALFA  | A1FV3 1504. |
| SERV 13 A2C1  | 0.03662 | DA2V1 ARG1T | A2FV1 9.0   |
| SERV 13 A2C2  | -4.4185 | DA2V2 CZ    | DA2V3 CZ    |
| SERV 13 A3C1  | 0.45    | DA3V1 ALFA  | A3FV1 4.0   |
| SERV 13 A3C2  | 0.05    | DA3V3 ALFA  | A3FV3 1504. |
| SERV 13 A3B   | 0.5     |             |             |
| SERV 13 A4C1  | 1.0     | DA4V1 ARG2T | A4FV1 9.0   |
| SERV 13 A5C1  | 1.0     | DA5V1 ARG3T | A5FV1 9.0   |
| SERV 13 A6C1  | 1.0     | DA6V1 VAMI  | DA6V2 GAMA  |
| SERV 13 A6FV2 | 4.      |             |             |
| SERV 13 A7C1  | -1.0    | DA7V1 ALFA  | DA7V2 ALFA  |
| SERV 13 A7C2  | 1.0     | DA7V3 ALFA  | DA7V4 ALFA  |
| SERV 13 A7FV2 | 4.0     | A7FV4 3.    |             |
| SERV 13 A8C1  | -1.0    | DA8V1 CZ    | DA8V2 ALFA  |
| SERV 13 A8C2  | -1.0    | DA8V3 CX    | DA8V4 ALFA  |
| SERV 13 A8FV2 | 3.0     | A8FV4 4.    |             |

APPROVED FOR RELEASE  
 DATE: 01/17/2005

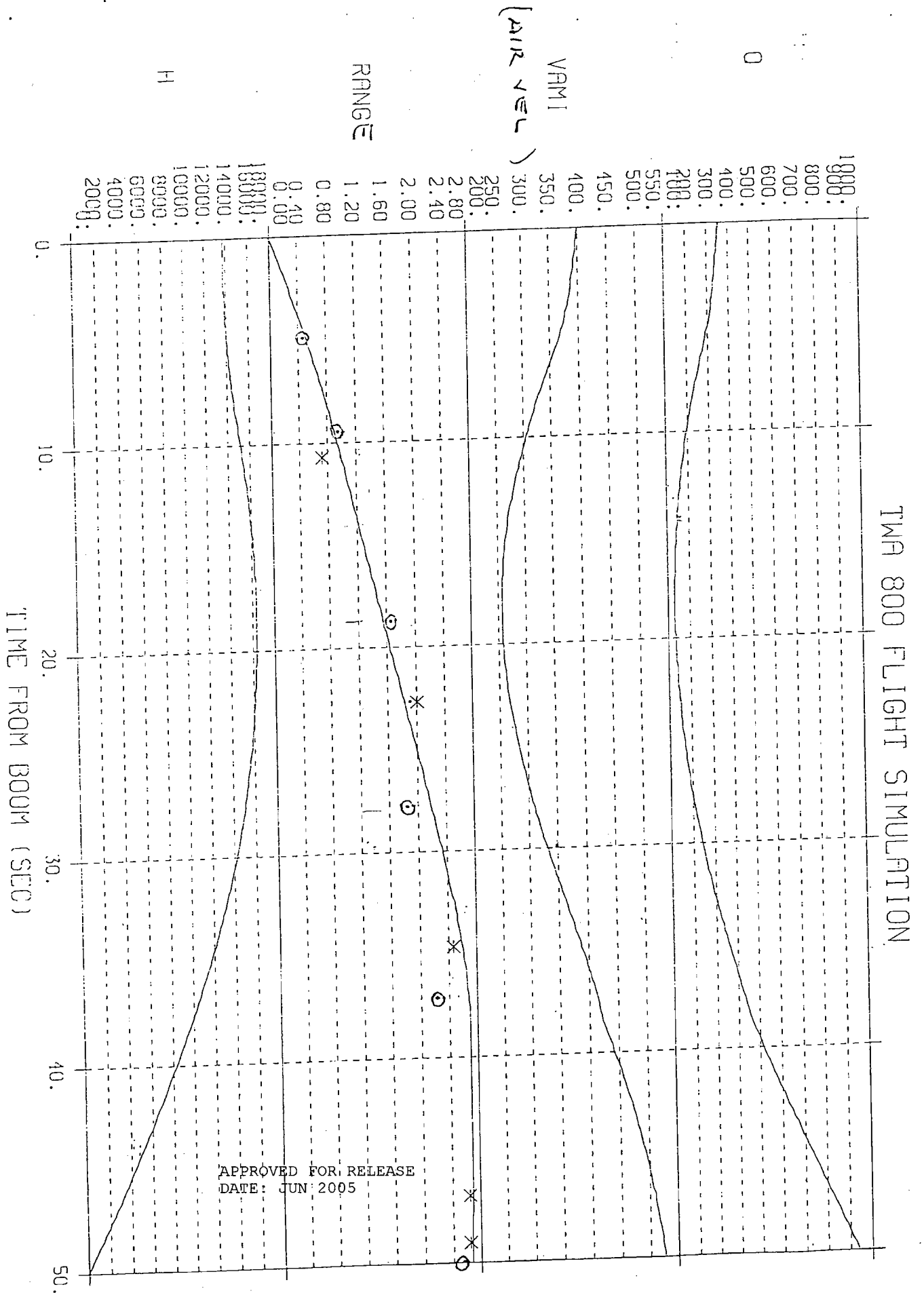
299 B

|          |                                                 |          |       |              |       |     |
|----------|-------------------------------------------------|----------|-------|--------------|-------|-----|
| SERVM 13 | A9C1                                            | 1.0      | DA9V1 | CM           | DA9V3 | CZ  |
| SERVM 13 | A9C2                                            | -0.32955 |       |              |       |     |
| PROPM 2  | DIN                                             | C        | DLD   | U            |       |     |
| PROPM 2  | WPI                                             | 200000.0 |       |              |       |     |
| STRTM 13 | IDW                                             | 294606.0 |       |              |       |     |
| PROPM 2  | DWT                                             | 1.0      |       |              |       |     |
| PROPM 21 | FTT                                             | TC1 6    |       |              |       |     |
|          |                                                 | -100.0   |       | 70620.0      |       |     |
|          |                                                 | 20000.0  |       | 70620.0      |       |     |
| PROPM 21 | DWT                                             | TC1 6    |       |              |       |     |
|          |                                                 | -100.0   |       | 10.0         |       |     |
|          |                                                 | 20000.0  |       | 10.0         |       |     |
| STRTM 21 | IXT                                             | TC1 6    |       |              |       |     |
|          |                                                 | -100.0   |       | 1000000000.0 |       |     |
|          |                                                 | 20000.0  |       | 1000000000.0 |       |     |
| STRTM 21 | IYT                                             | TC1 6    |       |              |       |     |
|          |                                                 | -100.0   |       | 15780000.0   |       |     |
|          |                                                 | 20000.0  |       | 15780000.0   |       |     |
| STRTM 21 | IZT                                             | TC1 6    |       |              |       |     |
|          |                                                 | -100.0   |       | 1000000000.0 |       |     |
|          |                                                 | 20000.0  |       | 1000000000.0 |       |     |
| *****H   | FOLLOWING INPUTS CAUSE SWITCH TO BALLISTIC TRAJ |          |       |              | ***** |     |
| *****H   | ARGST IS BALLISTIC DRAG COEFFICIENT             |          |       |              | ***** |     |
| AERMM 15 | CZ1T                                            | 0.0      | CM1T  | 0.0          |       |     |
| AERMM 15 | ICCX1T                                          | 1.0      |       |              |       |     |
| SERVM 15 | ARG2T                                           | 0.0      | ARG3T | 0.086        | A2C1  | 0.0 |
| SERVM 15 | A1C1                                            | 0.0      | A1C2  | 0.0          | CMCMT | 0.0 |
| RMOTM 15 | DHI                                             | 5        | DIN   | E            | RMTE  | 1.  |
| RMOTM 15 | OMYB                                            | 0.       |       |              |       |     |
| DPGXM 15 | IGCF                                            | 1.       |       |              |       |     |
|          | C                                               | 0.0      |       |              |       |     |

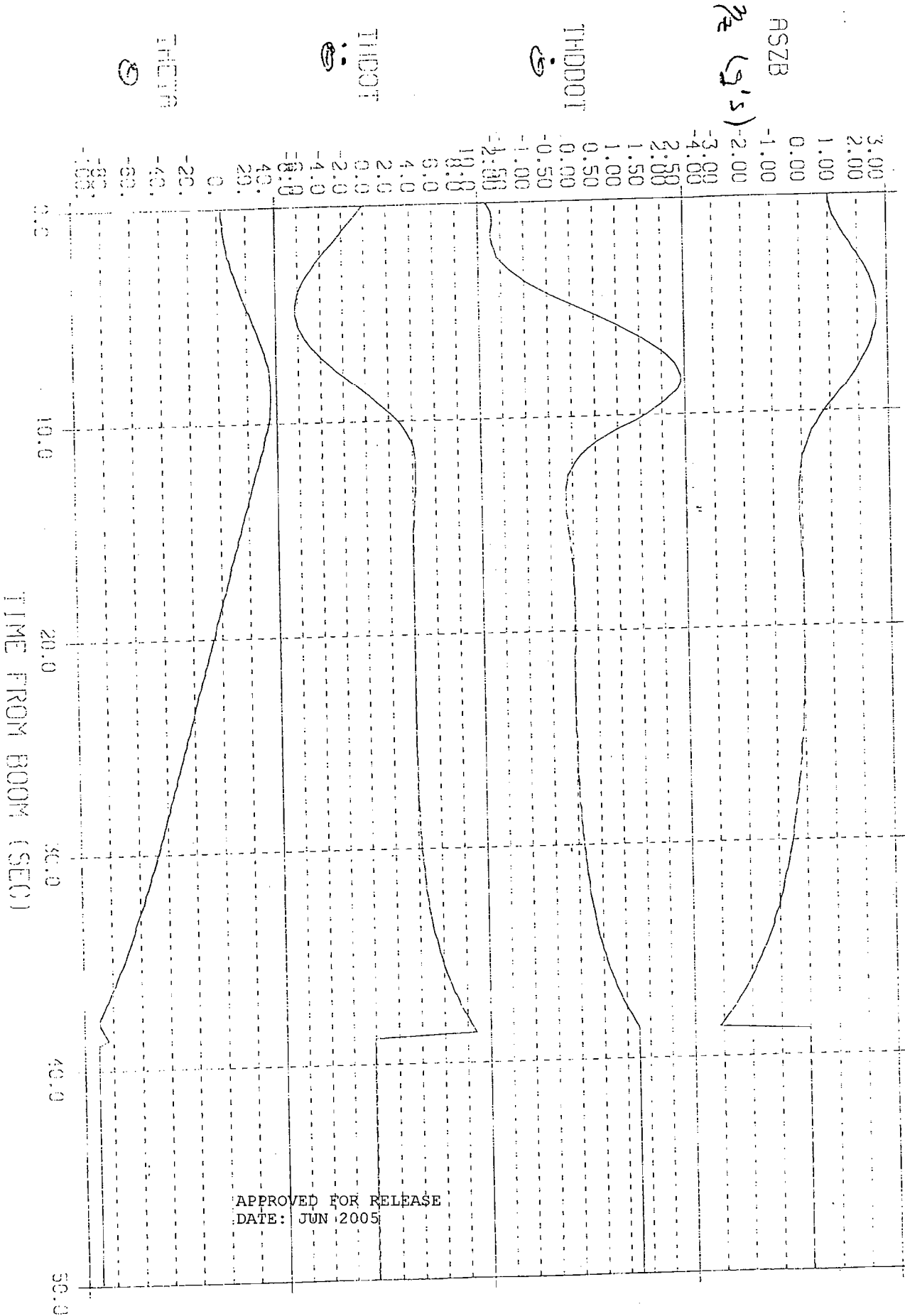
300 B



301 B



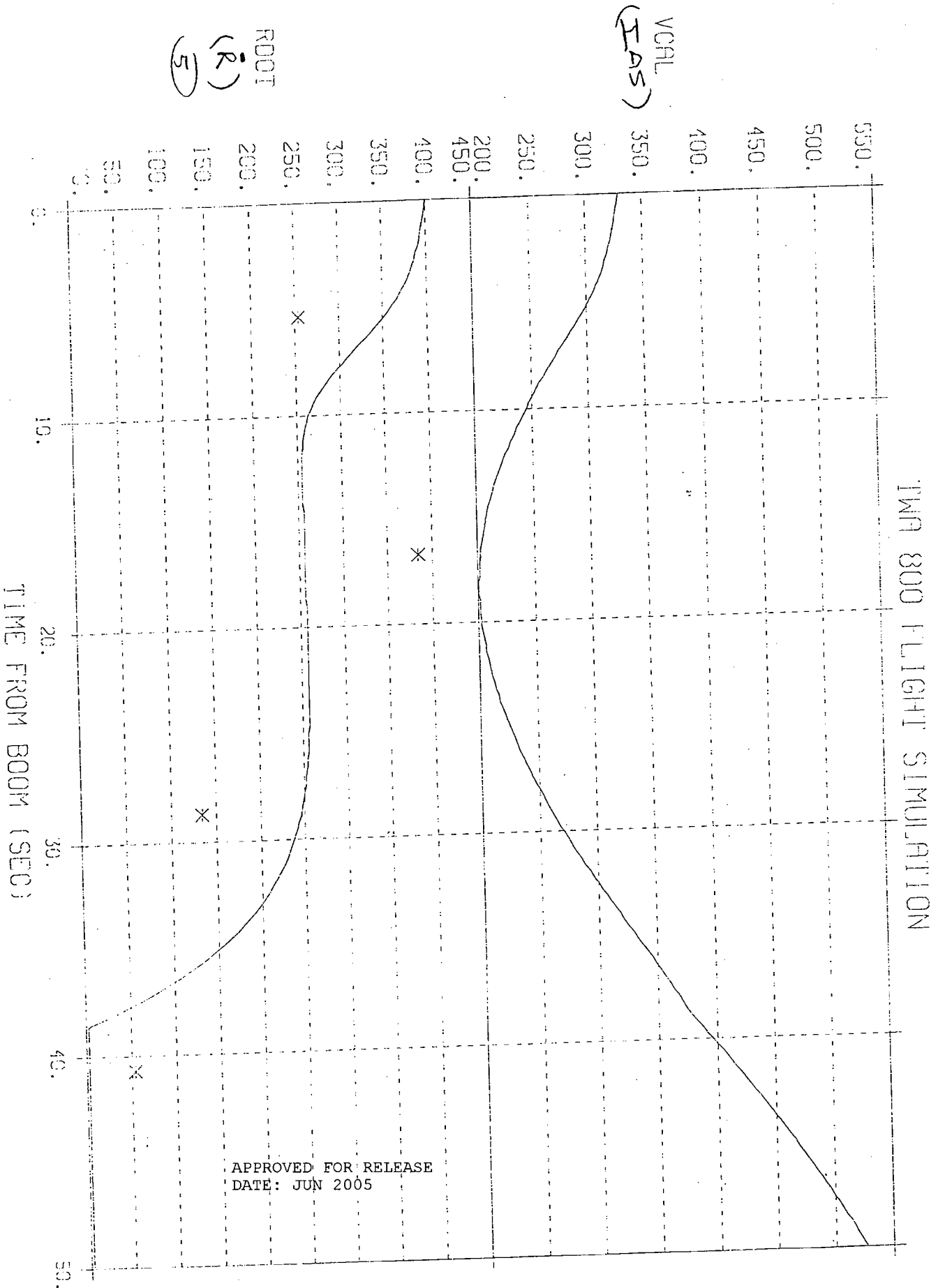
TWA 800 FLIGHT SIMULATION



APPROVED FOR RELEASE  
DATE: JUN 2005

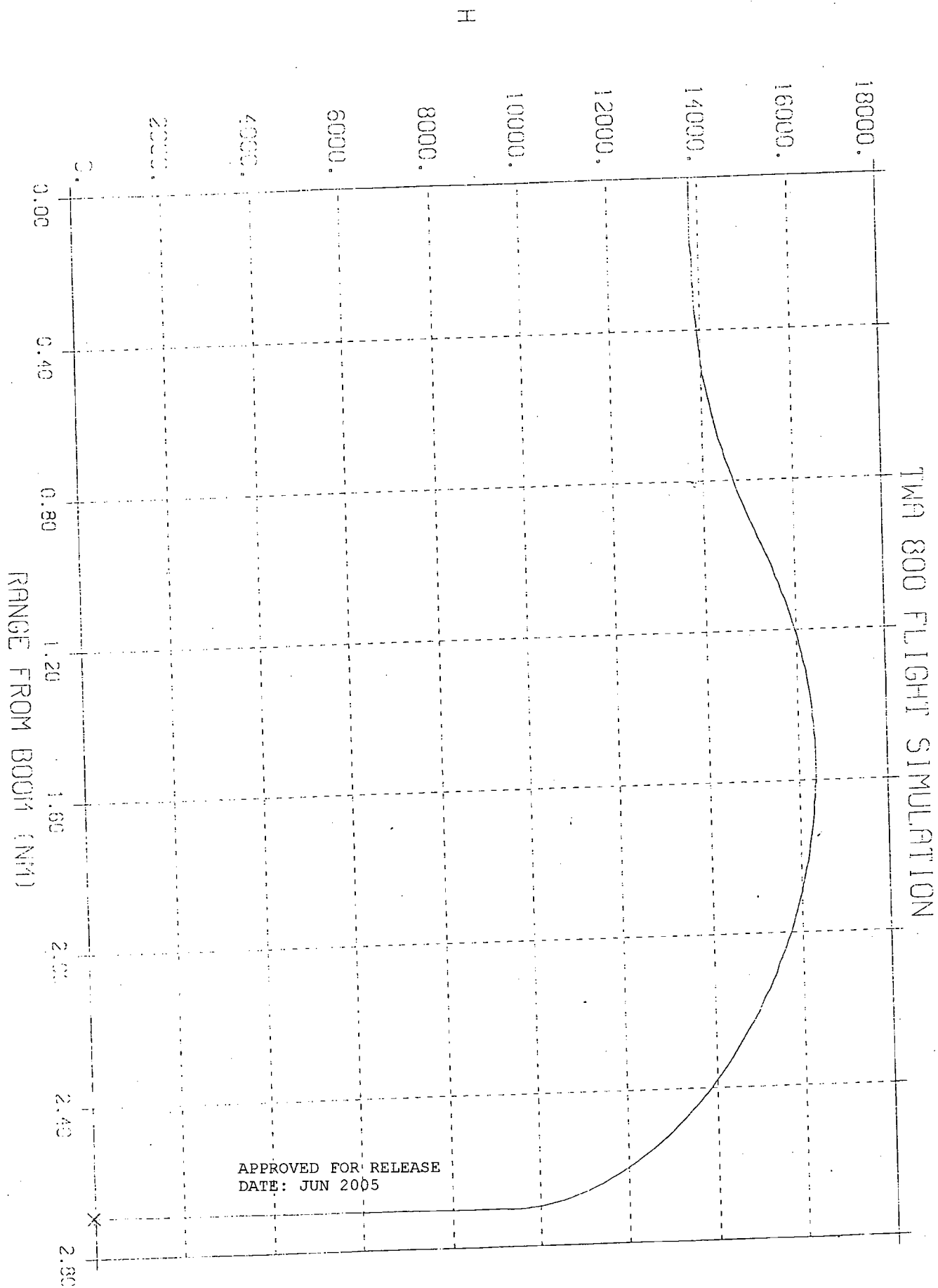
(b) (4)

APPROVED FOR RELEASE  
DATE: JUN 2005



APPROVED FOR RELEASE  
DATE: JUN 2005

305 B



(b) (4)

APPROVED FOR RELEASE  
DATE: JUN 2005

(b) (4)

APPROVED FOR RELEASE  
DATE: JUN 2005

| FILL    |                |                   |            |
|---------|----------------|-------------------|------------|
| TWA 801 |                |                   |            |
| At      | RADAR<br>RANGE | R <sub>calc</sub> | $\Delta R$ |
| 10.7    | 0.76           | 1.0               | -0.24      |
| 22.7    | 2.05           | 1.84              | -0.21      |
| 34.7    | 2.50           | 2.60              | +0.10      |
| 46.7    | 2.69           | 2.69              | 0          |

At = 49.9 @ R = 2.69

$\Delta R_{\text{AVG}} = 0.137$

309 B

65

UNCLASSIFIED

NOTE FOR:

FROM:

OFFICE:

OTI

DATE:

03-27-98 01:46:30 PM

SUBJECT:

TWA Flight 800 Exhibit: Excerpts from Air Traffic Controller Conversations (Revised 27 March 98)

(b) (3)

[redacted] here's the FINAL version of the transcript I gave you yesterday for the TWA exhibit. Please use this version instead of any of the earlier ones.

(b) (3)

When you've got some time, perhaps we can get together and select an appropriate air traffic controller "still" from the NBC footage to accompany this.

(b) (3)

**Excerpts From Conversations Between an Air Traffic Controller and  
Pilots in the Area of the TWA Flight 800 Explosion --- July 17, 1996**  
(All times approximate)

**8:30:14 p.m., Boston Air Traffic Center:** TWA eight hundred, climb and maintain one five thousand [15,000 feet].

**8:30:17, TWA Flight 800:** TWA's eight hundred heavy, climb and maintain one five thousand, leaving one three thousand.

**8:31:12:** [TWA Flight 800 explodes at an altitude of 13,760 feet, based on post-crash analysis.]

**8:31:50, Eastwind Flight 507:** We just saw an explosion out here on Stinger Bee five oh seven.

**8:31:51:** [Infrared sensor aboard US satellite detects large heat source in the vicinity of Flight 800 crash.]

**8:31:57, Boston:** Stinger Bee five oh seven, I'm sorry. I missed it. Ah, you're on eighteen. Did you say something else?

**8:32:00:** [TWA Flight 800 hits water, based on post-crash analysis.]

**8:32:01, Eastwind 507:** We just saw an explosion up ahead of us here something [like] about sixteen thousand feet or something like that. It just went down --- to the water.

**8:32:09, Alitalia Flight 609:** Alitalia six oh nine [unintelligible].

**8:32:25, Virgin Atlantic Flight 009:** Boston, Virgin zero zero nine, I can confirm that; out of my [unintelligible], my nine o'clock position, we just had an ex..., it looked like an explosion out there about five miles away, six miles away.

**8:32:36, Boston:** Virgin zero zero nine, I'm sorry, your transmission broke up. What did you say?

**8:32:40, Virgin 009:** Ah, ah, the nine o'clock position, sir. It looked like an explosion of some sort about

UNCLASSIFIED

APPROVED FOR RELEASE  
DATE: JUN 2005

## UNCLASSIFIED

maybe six to five, six mi..., miles out on my nine o'clock position.

**8:32:48, Boston:** An explosion six miles out at your nine o'clock position. Thank you very much, sir. Contact New York approach one two five point seven.

**8:32:54, Virgin 009:** Two five seven.

**8:32:56, Boston:** TWA eight hundred, [call] center.

**8:33:00, Unknown:** ....investigate that explosion....

**8:33:04, Boston:** TWA eight hundred, center.

**8:33:09, Boston:** TWA eight hundred, if you hear center ident[ify].

**8:33:17, Boston:** Stinger Bee, ah, five zero seven, you reported an explosion, is that correct, sir?

**8:33:21, Eastwind 507:** Yes sir, about, ah, five miles at my eleven o'clock here.

**8:33:27, Alitalia 609:** Boston Center, six zero nine.

**8:33:31, Boston:** Alitalia six oh nine, contact Boston now on, ah, one two four point five two [124.52 MHz].

**8:33:36, Alitalia 609:** One two four point five two, and just for your information, sir, we are just overhead the explosion, right overhead at this time. They're a hundred and three miles from JFK. About forty-eight miles from JFK on the one zero two radial.

**8:33:48, Eastwind 507:** [unintelligible] Stinger Bee, ah [unintelligible] Boston, we are directly over the site where that airplane or whatever it was just exploded and went into the water. [Then, from a second operator...] [unintelligible] eighteen, ah, nineteen miles on the two thirty-six radial [unintelligible] Hampton.

**8:34:01, Boston:** Roger that. Thank you very much, sir, we're investigating that right now. TWA eight hundred, center. TWA eight zero zero, if you hear center, ident.

**8:35:36, Boston:** TWA eight hundred, center.

**8:35:43, Unknown:** I think that was him.

**8:35:45, Boston:** I think so.

**8:35:48, Unknown:** God bless him.

**8:36:57, Boston:** Stinger Bee five oh seven, thanks for that report, ah, New York on one three three point zero five [133.05 MHz]. Good day, sir.

**8:37:05, Eastwind 507:** Thirty-three oh five, so long Stinger five oh seven. Anything we can do for you before we go?

**8:37:11, Boston:** Well, I just want to confirm that, ah, that you saw the, ah, splash in the water approximately, ah, twenty [20 miles] southwest of Hampton, is that right?

**8:37:20, Eastwind 507:** Ah, yes sir. It, it blew up in the air, and then we saw two fireballs go down to the, to the water and there was a big [unintelligible] smoke form, ah, coming up from that. Also, ah, there seemed to be a light. I, I thought it was a landing light [unintelligible] it was coming right at us at,

UNCLASSIFIED

APPROVED FOR RELEASE  
DATE: JUN 2005

## UNCLASSIFIED

about, I don't know, about fifteen thousand feet or something like that, and I pushed my landing lights, ah, you know, so I saw him, and then it blew.

**8:37:40, Boston:** Roger that, sir, ah, that was a seven forty-seven out there you had a visual on that. Anything else in the area when it happened?

**8:37:47, Eastwind 507:** I didn't see anything. He seemed to be alone. I thought he had a landing light on. Maybe it was a fire, I don't know.

**8:37:52, Boston:** Stinger Bee five oh seven, ah, roger that. Anything else comes to your mind, ah, you can use your other radio, come back to this frequency and tell me about it.

**8:37:59, Eastwind 507:** That's all I can think of at this time.

**8:38:01, Boston:** United two, Boston one two four point five two.

**8:38:06, Boston:** United two, Boston on one two four point five two.

**8:38:08, United Airlines Flight 2:** One two four five two, is that airplane right in front of us now?

**8:38:12, Boston:** Ah, he should be right undernea...neath you. They reported a splashdown right underneath you, about, ah, twelve and, ah, four miles.

**8:38:18, United 2:** It's still burning down there.

**8:38:20, Boston:** In the water?

**8:38:21, United 2:** Well, there's, ah, bright red, and there's, ah, smoke coming up.

**8:38:25, Boston:** I'm sorry, say that again. Give me that report again.

**8:38:27, United 2:** There's fire with smoke.

**8:38:30, Boston:** Fire with smoke coming out of the water?

**8:38:33, United 2:** [unintelligible] our position right now. I can give you a lat long if you want.

**8:38:35, Boston:** Absolutely, thank you.

**8:38:40, Boston:** Air France zero zero seven, stand by one. United two go.

**8:38:44, United 2:** It's, ah, north forty thirty-nine point one, west zero seven two three eight point zero [40 degrees, 39.1 minutes north latitude; 72 degrees, 38.0 minutes west longitude].

**8:38:51, Boston:** All right, we got forty thirty-nine point one, west zero seven two three eight point zero.

**8:38:56, United 2:** That's correct.

**8:38:58, Boston:** All right, thanks for the report. Boston one two four point five two.

---

**CIA Analyst Comment**

The Eastwind pilot first reported an "explosion" about 40 seconds after Flight 800 is known

UNCLASSIFIED

to have exploded. He most likely was reporting the conflagration produced when Flight 800's left wing detached --- producing two "fireballs" --- about 10 seconds before the burning debris hit the water. This large heat source was detected by an infrared sensor aboard a US satellite almost exactly when the Eastwind pilot made his first report.

The "landing light" he reported seeing earlier was probably a fire produced after the initial explosion and described by some eyewitnesses on the ground as a "streak of light in the sky" that preceded Flight 800's "explosion." It was this "streak of light" that led some people to think that a missile was used to shoot down Flight 800.

Based on sound propagation analysis --- juxtaposing what eyewitnesses saw with what they heard --- CIA analysts concluded that this "streak of light" was, in fact, the burning Boeing 747 after the first explosion had already occurred...not a missile.

CC:

Sent on 27 March 1998 at 01:46:30 PM

UNCLASSIFIED

APPROVED FOR RELEASE  
DATE: JUN 2005

313 B

73

MVS TRAJECTORY PROGRAM  
2D STUDY  
DATED ~ 3/98

(b) (3)

3/15/04

(b) (4)

```

*****
*****H  RUN SETUP FOR TWA FLIGHT 800 ANALYSIS
*****H  USES BOEING'S SECOND ESTIMATE CL-CD DATA
*****H  AERO CENTER OF PRESSURE IS INPUT (SEE ARG2)
*****H  EVENT 13 STARTS PROBLEM
*****H  EVENT 30 STARTS POINT MASS (WING BREAK)
*****H  EVENTS 21 MARKS MAXIMUM ALTITUDE
*****H  Forces altitude up using CRVT table
*****H  Uses Rich's 15 Jan 98 radar data
*****H  2L  0 0.0
*****H  D  3GMT  11.0
*****H  3L  4 0.0
*****H  D  7 0.0
*****H  3L  0 0.0
*****H  D  11.0
*****H  3TLP  4 0.0
*****H  6 0.0
*****H  D  7 0.0
*****H  10L  0 0.0
*****H  D  11.0
*****H  3TLP  4 0.0
*****H  6 0.0
*****H  D  7 0.0
*****H  11L  0 0.0
*****H  D  11.0
*****H  3TLP  4 0.0
*****H  6 0.0
*****H  D  7 0.0
*****H  12L  0 0.0
*****H  D  11.0
*****H  3TLP  4 0.0
*****H  6 0.0
*****H  D  7 0.0
*****H  13L  0 0.0
*****H  D  11.0
*****H  3TLP  4 0.0
*****H  6 0.0
*****H  D  7 0.0
*****H  20L  0 0.0
*****H  D  11.0
*****H  3VDR  4 0.0
*****H  6 0.0
*****H  D  7 0.0
*****H  30L  0 0.0
*****H  D  11.0
*****H  3H  4 1100.
*****H  6 0.0
*****H  D  7 0.0
*****H  40L  0 0.0
*****H  D  11.0
*****H  3TDURP  4 0.0
*****H  6 0.0
*****H  D  7 0.0
*****H  50L  0 0.0
*****H  D  11.0
*****H  3H  4 60.0
*****H  6 0.0
*****H  D  7 0.0
*****H  50L  0 0.0
*****H  D  12.0
*****H  3TCL  4 80.
*****H  6 0.0
*****H  MPExM000 ITRF 0.0
*****H  TSPXM 2 FESN 50.
*****H  *****
*****H  TRAKM 2 DIN B DGEN 1
*****H  TRAKM 2 CTSID 2.0 HSLR 30.0
*****H  TRAKM 2 LONR -72.6276 ELRK -1.0
*****H  ITIFM 2 TIVAL 1.0 T2VAL 1.0
*****H  PFRPM 0 RSED1F 1.0 MAXKF 9.0
*****H  PFRPM 0 COVF 1.0 ITRPF -9.0
*****H  PFRPM 0 IIFL 2.0 T1MD -1.0
*****H  PFRPM 0DTICVT GMT D GMT
*****H  LATR 40.8008
*****H  ELRCC 90.0
*****H  T3VAL 1.0
*****H  QIMPF 2.0
*****H  PINF 0.0
*****H  T2MD -1.0
*****H  *****

```

ACT MAX = 16602 FT  
Xh = 2842 FT

314 B

RANG D RANG  
 \* T1MD SECOND AND THIRD VALUES ARE THE NUMBER OF POINTS IN THE  
 \* TIVAL TABLE FOLLOWED BY THE INVERSE OF THE SIGMA ACCURACY  
 \* (IN THIS CASE IT IS 1/0.05 NAUTICAL MILES).

|           |       |         |         |         |
|-----------|-------|---------|---------|---------|
| PFRPM000T | T1MD  | 1.      | 7.0     | 20.     |
| PFRPM 0   | BND   | 200.    | 1 200.  | 2 200.  |
| PFRPM 0   |       | 3 200.  | 4 200.  | 5 200.  |
| PFRPM 0   |       | 6 200.  | 7 200.  | 8 200.  |
| PFRPM 0   |       | 9 200.  | 10 200. | 11 200. |
| PFRPM 0   |       | 12 200. | 13 200. | 14 200. |
| ITERM000T | ITVT  | 1.0     | 50.     | 13.     |
| D         | ARGIT | -4.     | 0.001   | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 2.0     | 50.     | 13.     |
| D         | ARGIT | -6.     | 0.001   | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 3.0     | 50.     | 13.     |
| D         | ARGIT | -8.     | 0.001   | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 4.0     | 50.     | 13.     |
| D         | ARGIT | -10.    | 0.001   | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 5.0     | 50.     | 13.     |
| D         | ARGIT | -12.    | 0.001   | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 6.0     | 50.     | 13.     |
| D         | ARGIT | -14.    | 0.001   | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 7.0     | 50.     | 13.     |
| D         | ARGIT | -16.    | 0.001   | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 8.0     | 50.     | 13.     |
| D         | ARGIT | -18.    | 0.001   | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 9.0     | 50.     | 13.     |
| D         | ARGIT | -20.    | 0.001   | 0.      |
|           |       | 0.      | 0.      | 0.      |
|           |       | 0.      | 0.      | 0.      |
| ITIFM 0   | TIVAL | 1.0     | 1.90    |         |
| ITIFM 0T  | TIVAL | 22.8    | 2.02    |         |
|           |       | 27.5    | 2.21    |         |
|           |       | 32.2    | 2.39    |         |
|           |       | 36.9    | 2.48    |         |
|           |       | 41.6    | 2.56    |         |
|           |       | 46.3    | 2.51    |         |
|           |       | 51.0    |         |         |

315 B

|                  |                |                |       |               |
|------------------|----------------|----------------|-------|---------------|
| ITIFM000T CVRT   | 1.             | 0.             | TC1   | 50.           |
|                  | 0.             | 0.             |       | 0.            |
|                  | 49.0           | 0.             |       | 0.            |
|                  | 0.             | 0.             |       | 0.            |
|                  | 2.             | 0.             | RANG  | 50.           |
|                  | 0.             | 0.             |       | 0.            |
|                  | 2.51           | 0.             |       | 0.            |
|                  | 0.             | 0.             |       | 0.            |
|                  | 3.             | 0.             | H     | 20.           |
|                  | 0.             | 0.             |       | 0.            |
|                  | 17000.         | 0.             |       | 0.            |
|                  | 0.             | 0.             |       | 0.            |
| PFRPM000 MD1T    | 1.             | MD2T           |       | 1.0           |
| PFRPM000T MD1T   | 1.             |                |       | 32.           |
| PFRPM000T MD2T   | 1.             |                |       | 0.005         |
| PFRPM000T MD3T   | 1.             |                |       | 0.005         |
| *****            |                |                |       | 0.00108271604 |
| ENVRM 2T GRAVTT  | 2.00000000     | 0.0            |       | 0.0           |
|                  | 0.0            | 3.00000000     |       | 0.0           |
|                  | -0.2630140E-05 | 0.0            |       | 4.00000000    |
|                  | 0.0            | -0.2349500E-05 |       | 0.0           |
| SERV 2 IITPR2T   | 6              |                | H     | MACH          |
| INF 2ICTPRI2T    | 0.3            |                | MAYB  | VAMI          |
| INF 2TPRV2T      | 1.             |                | LATV  | LONV          |
| INF 2TPRV2T TC1  |                |                | AZRLH | GMT           |
|                  | Q              |                | RB1   |               |
| ALFA             |                |                | VCAL  |               |
| GAMA             |                |                |       |               |
| ELRLH            |                |                | DOMXB |               |
| VDR              |                |                | BETA  |               |
| BANK             |                |                | MAXB  |               |
| OMXB             |                |                | RGR   |               |
| ELR              |                |                |       |               |
| MAZB             |                |                |       |               |
| AZR              |                |                |       |               |
| INF 2PLOT2T      | -1             |                | H     | MACH          |
| INF 2ICPLIN2T    | 0.3            |                | RANG  | VAMI          |
| INF 2TPLOT2T TC1 |                |                | CX    | CM            |
|                  | Q              |                | FAZB  | OMYB          |
| CZ               |                |                | FTXB  | DOMYB         |
| FAZB             |                |                | MAYB  | IYY           |
| ASZB             |                |                | LATV  | LONV          |
| ALFA             |                |                | AZRLH | GMT           |
| GAMA             |                |                | VDR   | RB1           |
| ELRLH            |                |                | CL    | CD            |
| CXB              |                |                | DVDR  | VCAL          |
| CMIT             |                |                | ARGB  | BANK          |
| ASXB             |                |                | OMXB  | DOMXB         |
| ARGA             |                |                | BETA  | CN            |
| ARGF             |                |                | MAXB  | ARGC          |
| ELR              |                |                |       |               |
| MAZB             |                |                |       |               |

APPROVED FOR RELEASE  
DATE: JUN 2005

\*\*\*\*\* BEFORE BOOM CRUISE VELOCITY=619.05 FT/SEC (366.8 KNOTS).  
 \*\*\*\*\* THIS IS BASED ON IAS=292 KNOTS AND THE ATMOSPHERE AND  
 \*\*\*\*\* AND WINDS USED HERE.

|                         |                   |      |         |
|-------------------------|-------------------|------|---------|
| TMOTM 2 AZL 70.93       | VAMIO 644.0       | DIN  | C       |
| TMOTM 2 LATL 40.65      | DL0 1             | LONL | -72.67  |
| TMOTM 2 AZVA0 70.93     | GAMA0 2.1         | HSLL | 13760.0 |
| TMOTM 2 ALFA0 4.02559   | OMYB0 -0.         |      |         |
| TMOTM 10 DL0 1          | TMTF 1.00000000   | HSLL | 0.0     |
| INFPM 2 EVPF 0.00000000 | PLOTT -1.00000000 |      |         |

|                  |           |      |     |
|------------------|-----------|------|-----|
| TMOTM 11 DL0 1   | DL0 2     |      |     |
| TMOTM 12 DL0 1   | DL0 2     |      |     |
| AERMM 2-DIN C    | CNSF 6.0  | CMSF | 0.0 |
| AERMM 10 DIN C   | CMOMT 0.0 |      |     |
| AERMM 2 CLDF 0.0 | RB1 27.31 |      |     |
| AERMM 2 CXSF 0.0 |           |      |     |
| AERMM 2 S 5500.0 |           |      |     |

\*\*\*\*\* 2I CZ1T ALFA 6 NORMAL FORCE COEFFICIENT \*\*\*\*\*

Boeing proprietary information removed

|                      |           |                         |     |
|----------------------|-----------|-------------------------|-----|
| AERMM 2 CX1T -1.0    | CZ1T -1.0 | CM1T                    | 0.0 |
| AERMM 2I CX1T ALFA 6 |           | AXIAL FORCE COEFFICIENT |     |

Boeing proprietary information removed

|                      |        |                    |  |
|----------------------|--------|--------------------|--|
| AERMM 2I CM1T ALFA 6 |        | MOMENT COEFFICIENT |  |
|                      | -181.0 | 1.0                |  |
|                      | 181.0  | 1.0                |  |

AERMM 13ICCMOMT 1.0

SERV 13 ARG1T 1.0

SERV 13I ARG1T TC1

CENTER OF PRESSURE (FT) (CG AT 120.67)

|            |             |
|------------|-------------|
| -100.      | 120.3       |
| 0.         | 119.0253480 |
| 2.5        | 120.4804453 |
| 5.0        | 120.9063451 |
| 7.0        | 121.1161539 |
| 21.9593068 | 122.6962042 |
| 23.7958938 | 119.7737504 |
| 27.9065998 | 119.9909770 |
| 34.6842718 | 121.6788974 |
| 40.        | 122.2024562 |
| 50.        | 122.        |

SERV 13I ARG2T ALFA 6 NORMAL FORCE MULTIPLIER

|        |      |
|--------|------|
| -181.0 | -1.0 |
| 181.0  | -1.0 |

SERV 13I ARG3T ALFA 6 AXIAL FORCE MULTIPLIER

|        |      |
|--------|------|
| -181.0 | -1.0 |
| 181.0  | -1.0 |

SERV 13I ARG4T TC1 6 AXIAL FORCE BIAS MULTIPLIER

|     |        |
|-----|--------|
| 0.0 | 0.0    |
| 0.5 | 0.0381 |
| 1.0 | 0.1464 |
| 1.5 | 0.3087 |
| 2.0 | 0.5    |

2.5 0.6913  
 3.0 0.8535  
 3.5 0.9619  
 4.0 1.0  
 100.0 1.0

\*\*\*\*\*H NOTE: CX BIAS IS CALCULATED AS ARG1 AND SHIFTED INTO CXB.  
 \*\*\*\*\*H USING CXB=-K1\*COS(ALFA)-K2\*COS(ALFA)\*\*2  
 \*\*\*\*\*H ARG2 CALCULATES CM--A2C1=1/RB1, A2C2=CGREF/RB1 AND  
 \*\*\*\*\*H ARG1T = CENTER OF PRESSURE (FT)  
 \*\*\*\*\*H ARG3 CALCULATES THRUST MULTIPLIER, F(ALFA)  
 \*\*\*\*\*H ARG6 CALCULATES RANGE RATE  
 \*\*\*\*\*H ARG7 CALCULATES LIFT COEFFICIENT  
 \*\*\*\*\*H ARG8 CALCULATES DRAG COEFFICIENT  
 \*\*\*\*\*H ARG9 CALCULATES MOMENT COEFF ABOUT 1/4C OF MAC

| Variable       | Value    | Variable    | Value       |
|----------------|----------|-------------|-------------|
| JUNKM 10 DIN   | U        | DL0         | 1           |
| JUNKM 13 VRF1  | 3.0      | DVTR1 CXB   | DRVAR1 ARG1 |
| JUNKM 13 VRF2  | 3.0      | DVTR2 CM1T  | DRVAR2 ARG2 |
| JUNKM 13 VRF3  | 3.0      | DVTR3 FTT   | DRVAR3 ARG3 |
| JUNKM 13 VRF4  | 3.0      | DVTR4 CZ1T  | DRVAR4 ARG4 |
| JUNKM 13 VRF5  | 3.0      | DVTR5 CX1T  | DRVAR5 ARG5 |
| SERVM 13 A1C1  | -0.041   | A1FV1 ALFA  | A1FV1 4.0   |
| SERVM 13 A1C2  | -0.025   | DA1V3 ALFA  | A1FV3 1504. |
| SERVM 13 DA1V2 | ARG4T    | DA1V4 ARG4T | A1FV2 9.0   |
| SERVM 13 A1FV4 | 9.0      | DA2V1 ARG1T | A2FV1 9.0   |
| SERVM 13 A2C1  | 0.03662  | DA2V2 CZ    | DA2V3 CZ    |
| SERVM 13 A2C2  | -4.4185  | DA3V1 ALFA  | A3FV1 4.0   |
| SERVM 13 A3C1  | 0.45     | DA3V3 ALFA  | A3FV3 1504. |
| SERVM 13 A3C2  | 0.05     | DA4V1 ARG2T | A4FV1 9.0   |
| SERVM 13 A3B   | 0.5      | DA5V1 ARG3T | A5FV1 9.0   |
| SERVM 13 A4C1  | 1.0      | DA6V1 VAMI  | DA6V2 GAMA  |
| SERVM 13 A5C1  | 1.0      | DA7V1 CZ    | DA7V2 ALFA  |
| SERVM 13 A6C1  | 1.0      | DA7V3 CX    | DA7V4 ALFA  |
| SERVM 13 A6FV2 | 4.       | A7FV4 3.    | DA8V1 CZ    |
| SERVM 13 A7C1  | -1.0     | DA8V1 CZ    | DA8V2 ALFA  |
| SERVM 13 A7C2  | 1.0      | DA8V3 CX    | DA8V4 ALFA  |
| SERVM 13 A7FV2 | 4.0      | A8FV4 4.    | DA9V1 CM    |
| SERVM 13 A8C1  | -1.0     | DA9V1 CM    | DL0         |
| SERVM 13 A8C2  | -1.0     | DL0         | U           |
| SERVM 13 A8FV2 | 3.0      | PROP 2 DIN  | C           |
| SERVM 13 A9C1  | 1.0      | PROP 2 WPI  | 20000.0     |
| SERVM 13 A9C2  | -0.32955 | STRM 13 IDW | 294606.0    |
| PROP 2 DIN     | C        | PROP 2 DWT  | 1.0         |
| PROP 2 WPI     | 20000.0  | PROP 2I FTT | TC1 6       |
| STRM 13 IDW    | 294606.0 | TC1         | -100.0      |
| PROP 2 DWT     | 1.0      | TC1         | 20000.0     |
| PROP 2I FTT    | TC1 6    | TC1         | -100.0      |
| TC1            | -100.0   | TC1         | 20000.0     |
| TC1            | 20000.0  | TC1         | -100.0      |
| STRM 2I DWT    | TC1 6    | STRM 2I IXT | 20000.0     |
| STRM 2I IXT    | 20000.0  |             |             |

Boeing proprietary information removed  
 Boeing proprietary information removed  
 Boeing proprietary information removed  
 Boeing proprietary information removed

319 B

STRM 2I IYT TC1 6  
 -100.0 Boeing proprietary information removed  
 20000.0 Boeing proprietary information removed

STRM 2I IZT TC1 6  
 -100.0 Boeing proprietary information removed  
 20000.0 Boeing proprietary information removed

\*\*\*\*\*H FOLLOWING INPUTS CAUSE SWITCH TO BALLISTIC TRAJ \*\*\*\*\*  
 \*\*\*\*\*H ARG3T IS BALLISTIC DRAG COEFFICIENT \*\*\*\*\*

AERMM 30 CZ1T 0.0 CMT 0.0  
 AERMM 30 ICCX1T 1.0  
 SERV 30 ARG2T 0.0 ARG3T 0.066 A2C1 0.0  
 SERV 30 A1C1 0.0 A1C2 0.0 CMOMT 0.0  
 RMOTM 30 DHI 5 DIN E RMTF 1.  
 RMOTM 30 OMYB 0.  
 DPGXM 30 IGCF 1.  
 C 0.0

-----  
 MODULARIZED VEHICLE SIMULATION  
 -----

VERSION: 02.01 NEW REALTIME/PC MVS BASELINE: 2002/11/10

13:36:12 CASE 1 15-03-04

\*\* TYPE OF DATA \*\*

EVENT CRITERIA  
 TABULAR INPUT  
 GENERAL INPUT  
 TOTAL

SIZE

143  
 1117  
 700  
 1960

RUN DESCRIPTION -  
 RUN SETUP FOR TWA FLIGHT 800 ANALYSIS \*\*\*\*\*  
 USES BOEING'S SECOND ESTIMATE CL-CD DATA  
 AERO CENTER OF PRESSURE IS INPUT (SEE ARG2) \*\*\*\*\*  
 EVENT 13 STARTS PROBLEM \*\*\*\*\*  
 EVENT 30 STARTS POINT MASS (WING BREAK) \*\*\*\*\*  
 EVENTS 21 MARKS MAXIMUM ALTITUDE \*\*\*\*\*  
 Forces altitude up using CRVT table \*\*\*\*\*  
 Uses Rich's 15 Jan 98 radar data \*\*\*\*\*  
 NOTE: CX BIAS IS CALCULATED AS ARG1 AND SHIFTED INTO CXB.  
 USING CXB=-K1\*COS(ALFA)-K2\*COS(ALFA)\*\*2  
 ARG2 CALCULATES CM--A2C1=1/RB1, A2C2=CGREF/RB1 AND  
 ARG1T = CENTER OF PRESSURE (FT)  
 ARG3 CALCULATES THRUST MULTIPLIER, F(ALFA)  
 ARG6 CALCULATES RANGE RATE  
 ARG7 CALCULATES LIFT COEFFICIENT  
 ARG8 CALCULATES DRAG COEFFICIENT  
 ARG9 CALCULATES MOMENT COEFF ABOUT 1/4C OF MAC \*\*\*\*\*  
 FOLLOWING INPUTS CAUSE SWITCH TO BALLISTIC TRAJ \*\*\*\*\*  
 ARG3T IS BALLISTIC DRAG COEFFICIENT \*\*\*\*\*

%BTO - BEGIN TRAJECTORY OUTPUT

## 1 START CASE 1.

EVENT ESN 2 0.000 DATE / TIME 15-03-04 13:36:12  
 TIME = TYPE = PRIMARY-ORDERED CASE = 1. CP = 0.000 CYCLES = 0.

|      |                 |                 |                 |                   |                  |                  |            |
|------|-----------------|-----------------|-----------------|-------------------|------------------|------------------|------------|
| TC1  | 0.0000E+00 H    | 13760.0000 MACH | 0.588258172 Q   | 304.150923 RANG   | 0.1654E-10 VAMI  | 624.941295 ALFA  | 3.892323   |
| MAYB | 0.0000E+00 GAMA | 2.16407328 LATV | 40.6500000 LONV | -72.6700000 ELRLH | 6.06344569 AZRLN | 70.9108163 GMT   | 0.0000E+00 |
| VDR  | 23.5985484 RB1  | 27.3100000 DVDR | 60.2876608 VCAL | 514.300460 BANK   | -180690086 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 13.6404341 BETA | 1.87996988 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -167.921938 RGR  | 57898.8039       |            |
| TC1  | 0.0000E+00 H    | 13760.0000 MACH | 0.588258172 Q   | 304.150923 RANG   | 0.1654E-10 VAMI  | 624.941295 ALFA  | 3.892323   |
| MAYB | 0.0000E+00 GAMA | 2.16407328 LATV | 40.6500000 LONV | -72.6700000 ELRLH | 6.06344569 AZRLN | 70.9108163 GMT   | 0.0000E+00 |
| VDR  | 23.5985484 RB1  | 27.3100000 DVDR | 60.2876608 VCAL | 514.300460 BANK   | -180690086 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 13.6404341 BETA | 1.87996988 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -167.921938 RGR  | 57898.8039       |            |

EVENT ESN 3 0.000 DATE / TIME 15-03-04 13:36:12  
 TIME = TYPE = PRIMARY-ORDERED CASE = 1. CP = 0.016 CYCLES = 0.  
 TG MODEL - G1

|      |                 |                 |                 |                   |                  |                  |            |
|------|-----------------|-----------------|-----------------|-------------------|------------------|------------------|------------|
| TC1  | 0.0000E+00 H    | 13760.0000 MACH | 0.588258172 Q   | 304.150923 RANG   | 0.1654E-10 VAMI  | 624.941295 ALFA  | 3.892323   |
| MAYB | 0.0000E+00 GAMA | 2.16407328 LATV | 40.6500000 LONV | -72.6700000 ELRLH | 6.06344569 AZRLN | 70.9108163 GMT   | 0.0000E+00 |
| VDR  | 23.5985484 RB1  | 27.3100000 DVDR | 60.2876608 VCAL | 514.300460 BANK   | -180690086 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 13.6404341 BETA | 1.87996988 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -167.921938 RGR  | 57898.8039       |            |
| TC1  | 0.0000E+00 H    | 13760.0000 MACH | 0.588258172 Q   | 304.150923 RANG   | 0.1654E-10 VAMI  | 624.941295 ALFA  | 3.892323   |
| MAYB | 0.0000E+00 GAMA | 2.16407328 LATV | 40.6500000 LONV | -72.6700000 ELRLH | 6.06344569 AZRLN | 70.9108163 GMT   | 0.0000E+00 |
| VDR  | 23.5985484 RB1  | 27.3100000 DVDR | 60.2876608 VCAL | 514.300460 BANK   | -180690086 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 13.6404341 BETA | 1.87996988 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -167.921938 RGR  | 57898.8039       |            |

EVENT ESN 10 0.000 DATE / TIME 15-03-04 13:36:12  
 TIME = TYPE = PRIMARY-ORDERED CASE = 1. CP = 0.016 CYCLES = 0.  
 TG MODEL - G1

|      |                 |                 |                 |                   |                  |                  |            |
|------|-----------------|-----------------|-----------------|-------------------|------------------|------------------|------------|
| TC1  | 0.0000E+00 H    | 13760.0000 MACH | 0.588258172 Q   | 304.150923 RANG   | 0.1654E-10 VAMI  | 624.941295 ALFA  | 3.892323   |
| MAYB | 0.0000E+00 GAMA | 2.16407328 LATV | 40.6500000 LONV | -72.6700000 ELRLH | 6.06344569 AZRLN | 70.9108163 GMT   | 0.0000E+00 |
| VDR  | 23.5985484 RB1  | 27.3100000 DVDR | 60.2876608 VCAL | 514.300460 BANK   | -180690086 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 13.6404341 BETA | 1.87996988 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -167.921938 RGR  | 57898.8039       |            |

TC1 0.0000E+00 H 13760.0000 MACH 0.588258172 Q 304.150923 RANG 0.1654E-10 VAMI 624.941295 ALFA 3.892323;  
MAYB 0.0000E+00 GAMA 2.16407328 LATV 40.6500000 LONV -72.6700000 ELRLH 6.06344569 AZRLN 70.9108163 GMT 0.0000E+0  
VDR 23.5985484 RB1 27.3100000 DVDR 60.2876608 VCAL 514.300460 BANK -180690086 OMXB 0.0000E+00 DOMXB 0.0000E+0  
ELR 13.6404341 BETA 1.87996988 MAZB 0.0000E+00 MAXB 0.0000E+00 AZR -167.921938 RGR 57898.8039

EVENT ESN 11  
TIME = 0.000  
EVENT CAUSED BY

TYPE = PRIMARY-ORDERED CASE = 1. DATE / TIME 15-03-04 13:36:12  
CP = 0.016 CYCLES = 0.

TLP = 0.00000000E+00 TG MODEL - G1

TC1 0.0000E+00 H 13760.0000 MACH 0.588258172 Q 304.150923 RANG 0.1654E-10 VAMI 624.941295 ALFA 3.892323;  
MAYB 0.0000E+00 GAMA 2.16407328 LATV 40.6500000 LONV -72.6700000 ELRLH 6.06344569 AZRLN 70.9108163 GMT 0.0000E+0  
VDR 23.5985484 RB1 27.3100000 DVDR 61.4876814 VCAL 514.300460 BANK -180690086 OMXB 0.0000E+00 DOMXB 0.0000E+0  
ELR 13.6404341 BETA 1.87996988 MAZB 0.0000E+00 MAXB 0.0000E+00 AZR -167.921938 RGR 57898.8039

TC1 0.0000E+00 H 13760.0000 MACH 0.588258172 Q 304.150923 RANG 0.1654E-10 VAMI 624.941295 ALFA 3.892323;  
MAYB 0.0000E+00 GAMA 2.16407328 LATV 40.6500000 LONV -72.6700000 ELRLH 6.06344569 AZRLN 70.9108163 GMT 0.0000E+0  
VDR 23.5985484 RB1 27.3100000 DVDR 61.4876814 VCAL 514.300460 BANK -180690086 OMXB 0.0000E+00 DOMXB 0.0000E+0  
ELR 13.6404341 BETA 1.87996988 MAZB 0.0000E+00 MAXB 0.0000E+00 AZR -167.921938 RGR 57898.8039

EVENT ESN 12  
TIME = 0.000  
EVENT CAUSED BY

TYPE = PRIMARY-ORDERED CASE = 1. DATE / TIME 15-03-04 13:36:12  
CP = 0.031 CYCLES = 0.

TLP = 0.00000000E+00 TG MODEL - G1

TC1 0.0000E+00 H 13760.0000 MACH 0.588258172 Q 304.150923 RANG 0.1654E-10 VAMI 624.941295 ALFA 3.892323;  
MAYB 0.0000E+00 GAMA 2.16407328 LATV 40.6500000 LONV -72.6700000 ELRLH 6.06344569 AZRLN 70.9108163 GMT 0.0000E+0  
VDR 23.5985484 RB1 27.3100000 DVDR 61.4876814 VCAL 514.300460 BANK -180690086 OMXB 0.0000E+00 DOMXB 0.0000E+0  
ELR 13.6404341 BETA 1.87996988 MAZB 0.0000E+00 MAXB 0.0000E+00 AZR -167.921938 RGR 57898.8039

TC1 0.0000E+00 H 13760.0000 MACH 0.588258172 Q 304.150923 RANG 0.1654E-10 VAMI 624.941295 ALFA 3.892323;  
MAYB 0.0000E+00 GAMA 2.16407328 LATV 40.6500000 LONV -72.6700000 ELRLH 6.06344569 AZRLN 70.9108163 GMT 0.0000E+0  
VDR 23.5985484 RB1 27.3100000 DVDR 61.4876814 VCAL 514.300460 BANK -180690086 OMXB 0.0000E+00 DOMXB 0.0000E+0  
ELR 13.6404341 BETA 1.87996988 MAZB 0.0000E+00 MAXB 0.0000E+00 AZR -167.921938 RGR 57898.8039

EVENT ESN 13  
TIME = 0.000  
EVENT CAUSED BY

TYPE = PRIMARY-ORDERED CASE = 1. DATE / TIME 15-03-04 13:36:12  
CP = 0.031 CYCLES = 0.

TLP = 0.00000000E+00 TG MODEL - G1

|      |                  |                 |                 |                   |                  |                  |            |
|------|------------------|-----------------|-----------------|-------------------|------------------|------------------|------------|
| TC1  | 0.0000E+00 H     | 13760.0000 MACH | 0.588258172 Q   | 304.150923 RANG   | 0.1654E-10 VAMI  | 624.941295 ALFA  | 3.892323E+ |
| MAYB | -942571.002 GAMA | 2.16407328 LATV | 40.6500000 LONV | -72.6700000 ELRLH | 6.06344569 AZRLN | 70.9108163 GMT   | 0.0000E+   |
| VDR  | 23.5985484 RB1   | 27.3100000 DVDR | 5.78457828 VCAL | 514.300460 BANK   | -180690086 OMXB  | 0.0000E+00 DOMXB | 0.0000E+   |
| ELR  | 13.6404341 BETA  | 1.87996988 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -167.921938 RGR  | 57898.8039       |            |
| TC1  | 0.300000000 H    | 13767.5385 MACH | 0.588457222 Q   | 304.265351 RANG   | 0.031745471 VAMI | 625.134888 ALFA  | 3.889433E+ |
| MAYB | -841418.479 GAMA | 2.31605065 LATV | 40.6501730 LONV | -72.6693428 ELRLH | 6.21263293 AZRLN | 70.9115535 GMT   | 0.300000E+ |
| VDR  | 25.2627648 RB1   | 27.3100000 DVDR | 5.75561857 VCAL | 514.406426 BANK   | -181054113 OMXB  | 0.0000E+00 DOMXB | 0.0000E+   |
| ELR  | 13.6712131 BETA  | 1.88171437 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -168.090568 RGR  | 57803.9537       |            |
| TC1  | 0.600000000 H    | 13775.6115 MACH | 0.588563057 Q   | 304.276873 RANG   | 0.063493798 VAMI | 625.228179 ALFA  | 4.130056E+ |
| MAYB | -783980.799 GAMA | 2.50004841 LATV | 40.6503461 LONV | -72.6686855 ELRLH | 6.63737332 AZRLN | 70.9114104 GMT   | 0.600000E+ |
| VDR  | 27.2725979 RB1   | 27.3100000 DVDR | 7.93136262 VCAL | 514.423154 BANK   | -181518987 OMXB  | 0.0000E+00 DOMXB | 0.0000E+   |
| ELR  | 13.7024930 BETA  | 1.88399061 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -168.259813 RGR  | 57709.7185       |            |
| TC1  | 0.900000000 H    | 13784.4095 MACH | 0.588494628 Q   | 304.099449 RANG   | 0.095236241 VAMI | 625.134628 ALFA  | 4.543471E+ |
| MAYB | -740430.911 GAMA | 2.76623554 LATV | 40.6505191 LONV | -72.6680283 ELRLH | 7.31714418 AZRLN | 70.9104435 GMT   | 0.900000E+ |
| VDR  | 30.1697248 RB1   | 27.3100000 DVDR | 11.5932708 VCAL | 514.275800 BANK   | -182096845 OMXB  | 0.0000E+00 DOMXB | 0.0000E+   |
| ELR  | 13.7344517 BETA  | 1.88714148 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -168.429626 RGR  | 57616.1738       |            |
| TC1  | 1.200000000 H    | 13794.2583 MACH | 0.588180408 Q   | 303.655544 RANG   | 0.126958420 VAMI | 624.777508 ALFA  | 5.079298E+ |
| MAYB | -692170.301 GAMA | 3.14981702 LATV | 40.6506920 LONV | -72.6673715 ELRLH | 8.23679304 AZRLN | 70.9086893 GMT   | 1.200000E+ |
| VDR  | 34.3296441 RB1   | 27.3100000 DVDR | 16.2686386 VCAL | 513.896845 BANK   | -182811243 OMXB  | 0.0000E+00 DOMXB | 0.0000E+   |
| ELR  | 13.7673954 BETA  | 1.89154089 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -168.599929 RGR  | 57523.4443       |            |
| TC1  | 1.500000000 H    | 13805.5756 MACH | 0.587518352 Q   | 302.835562 RANG   | 0.158639331 VAMI | 624.047470 ALFA  | 5.697861E+ |
| MAYB | -626108.841 GAMA | 3.67426402 LATV | 40.6508646 LONV | -72.6667156 ELRLH | 9.38013285 AZRLN | 70.9061842 GMT   | 1.500000E+ |
| VDR  | 39.9914958 RB1   | 27.3100000 DVDR | 21.5471312 VCAL | 513.190497 BANK   | -183693151 OMXB  | 0.0000E+00 DOMXB | 0.0000E+   |
| ELR  | 13.8017159 BETA  | 1.89770640 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -168.770607 RGR  | 57431.6968       |            |
| TC1  | 1.800000000 H    | 13818.8325 MACH | 0.586428829 Q   | 301.554073 RANG   | 0.190250934 VAMI | 622.858884 ALFA  | 6.364757E+ |
| MAYB | -532639.321 GAMA | 4.35231745 LATV | 40.6510369 LONV | -72.6660612 ELRLH | 10.7255162 AZRLN | 70.9029781 GMT   | 1.800000E+ |
| VDR  | 47.2682854 RB1   | 27.3100000 DVDR | 26.9214556 VCAL | 512.080822 BANK   | -184776453 OMXB  | 0.0000E+00 DOMXB | 0.0000E+   |
| ELR  | 13.8378539 BETA  | 1.90611750 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -168.941505 RGR  | 57341.1313       |            |
| TC1  | 2.100000000 H    | 13834.5105 MACH | 0.584851465 Q   | 299.746563 RANG   | 0.221758527 VAMI | 621.146586 ALFA  | 7.049438E+ |
| MAYB | -408351.308 GAMA | 5.18427553 LATV | 40.6512086 LONV | -72.6654088 ELRLH | 12.2427019 AZRLN | 70.8991456 GMT   | 2.100000E+ |
| VDR  | 56.1263474 RB1   | 27.3100000 DVDR | 32.0824406 VCAL | 510.509388 BANK   | -186091926 OMXB  | 0.0000E+00 DOMXB | 0.0000E+   |
| ELR  | 13.8762581 BETA  | 1.91721129 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -169.112430 RGR  | 57251.9695       |            |
| TC1  | 2.400000000 H    | 13853.0713 MACH | 0.582738376 Q   | 297.364277 RANG   | 0.253121632 VAMI | 618.858779 ALFA  | 7.716066E+ |
| MAYB | -253266.238 GAMA | 6.16576231 LATV | 40.6513795 LONV | -72.6647595 ELRLH | 13.8914858 AZRLN | 70.8947921 GMT   | 2.400000E+ |
| VDR  | 66.4686950 RB1   | 27.3100000 DVDR | 36.7544645 VCAL | 508.429518 BANK   | -187659890 OMXB  | 0.0000E+00 DOMXB | 0.0000E+   |
| ELR  | 13.9173557 BETA  | 1.93139578 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -169.283156 RGR  | 57164.4445       |            |
| TC1  | 2.700000000 H    | 13874.9285 MACH | 0.580055018 Q   | 294.375243 RANG   | 0.284294533 VAMI | 615.958005 ALFA  | 8.336018E+ |
| MAYB | -162227.512 GAMA | 7.27743759 LATV | 40.6515494 LONV | -72.6641141 ELRLH | 15.6239079 AZRLN | 70.8900508 GMT   | 2.700000E+ |
| VDR  | 78.0258657 RB1   | 27.3100000 DVDR | 39.7766586 VCAL | 505.807394 BANK   | -189483983 OMXB  | 0.0000E+00 DOMXB | 0.0000E+   |
| ELR  | 13.9615259 BETA  | 1.94903873 MAZB | 0.0000E+00 MAXB | 0.0000E+00 AZR    | -169.453423 RGR  | 57078.7918       |            |
| TC1  | 3.000000000 H    | 13900.3579 MACH | 0.576766115 Q   | 290.751372 RANG   | 0.315228578 VAMI | 612.406423 ALFA  | 8.925200E+ |
| MAYB | -108033.094 GAMA | 8.47265388 LATV | 40.6517180 LONV | -72.6634737 ELRLH | 17.4092150 AZRLN | 70.8850000 GMT   | 3.000000E+ |

|                           |                                                                       |                                                                          |                                                                        |                                                                           |                                                                            |                                                                     |                                      |
|---------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------------------|
| VDR<br>ELR                | 90.2303439 RB1<br>14.0090126 BETA                                     | 27.3100000 DVDR<br>1.97047913 MAZB                                       | 41.4940571 VCAL<br>0.0000E+00 MAXB                                     | 502.610303 BANK<br>0.0000E+00 AZR                                         | -191569277 OMXB<br>-169.622954 RGR                                         | 0.0000E+00 DOMXB<br>56995.2204                                      | 0.0000E+00                           |
| TC1<br>MAYB<br>VDR<br>ELR | 3.30000000 H<br>-49637.0723 GAMA<br>102.874914 RB1<br>14.0599447 BETA | 13929.5165 MACH<br>9.73760341 LATV<br>27.3100000 DVDR<br>1.99580731 MAZB | 0.572902643 Q<br>40.6518850 LONV<br>42.7068425 VCAL<br>0.0000E+00 MAXB | 286.535621 RANG<br>-72.6628393 ELRLH<br>498.866571 BANK<br>0.0000E+00 AZR | 0.345874368 VAMI<br>19.2295763 AZRLN<br>-193924935 OMXB<br>-169.791462 RGR | 608.236884 ALFA<br>70.8796761 GMT<br>0.0000E+00 DOMXB<br>56913.9106 | 9.4795822<br>3.3000000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 3.60000000 H<br>11907.3093 GAMA<br>115.796448 RB1<br>14.1144039 BETA  | 13962.5122 MACH<br>11.0621668 LATV<br>27.3100000 DVDR<br>2.02504290 MAZB | 0.568514666 Q<br>40.6520503 LONV<br>43.3588537 VCAL<br>0.0000E+00 MAXB | 281.791802 RANG<br>-72.6622118 ELRLH<br>494.622335 BANK<br>0.0000E+00 AZR | 0.376184242 VAMI<br>21.0660124 AZRLN<br>-196552618 OMXB<br>-169.958669 RGR | 603.502660 ALFA<br>70.8741216 GMT<br>0.0000E+00 DOMXB<br>56835.0235 | 9.990292<br>3.6000000<br>0.0000E+00  |
| TC1<br>MAYB<br>VDR<br>ELR | 3.90000000 H<br>75355.2935 GAMA<br>128.822570 RB1<br>14.1724244 BETA  | 13999.4021 MACH<br>12.4343656 LATV<br>27.3100000 DVDR<br>2.05811107 MAZB | 0.563674934 Q<br>40.6522134 LONV<br>43.3865178 VCAL<br>0.0000E+00 MAXB | 276.606782 RANG<br>-72.6615922 ELRLH<br>489.944622 BANK<br>0.0000E+00 AZR | 0.406113147 VAMI<br>22.8985087 AZRLN<br>-199444707 OMXB<br>-170.124306 RGR | 598.281247 ALFA<br>70.8683871 GMT<br>0.0000E+00 DOMXB<br>56758.6983 | 10.449286<br>3.9000000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 4.20000000 H<br>139351.550 GAMA<br>141.768824 RB1<br>14.2339893 BETA  | 14040.1893 MACH<br>13.8440348 LATV<br>27.3100000 DVDR<br>2.09156606 MAZB | 0.558297151 Q<br>40.6523743 LONV<br>42.8439453 VCAL<br>0.0000E+00 MAXB | 270.912341 RANG<br>-72.6609813 ELRLH<br>484.758833 BANK<br>0.0000E+00 AZR | 0.435619913 VAMI<br>24.7064164 AZRLN<br>-202582854 OMXB<br>-170.288123 RGR | 592.481483 ALFA<br>70.8625320 GMT<br>0.0000E+00 DOMXB<br>56685.0479 | 10.846108<br>4.2000000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 4.50000000 H<br>202668.624 GAMA<br>154.476945 RB1<br>14.2990341 BETA  | 14084.8256 MACH<br>15.2761183 LATV<br>27.3100000 DVDR<br>2.12834255 MAZB | 0.552580020 Q<br>40.6525328 LONV<br>41.7920599 VCAL<br>0.0000E+00 MAXB | 264.919485 RANG<br>-72.6603800 ELRLH<br>479.245728 BANK<br>0.0000E+00 AZR | 0.464667895 VAMI<br>26.4688855 AZRLN<br>-205936782 OMXB<br>-170.449894 RGR | 586.314827 ALFA<br>70.8566249 GMT<br>0.0000E+00 DOMXB<br>56614.1576 | 11.174928<br>4.5000000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 4.80000000 H<br>264073.401 GAMA<br>166.794854 RB1<br>14.3674509 BETA  | 14133.2162 MACH<br>16.7177012 LATV<br>27.3100000 DVDR<br>2.16843123 MAZB | 0.546578786 Q<br>40.6526885 LONV<br>40.2498801 VCAL<br>0.0000E+00 MAXB | 258.695720 RANG<br>-72.6597888 ELRLH<br>473.457842 BANK<br>0.0000E+00 AZR | 0.493225412 VAMI<br>28.1652714 AZRLN<br>-209463430 OMXB<br>-170.609417 RGR | 579.840539 ALFA<br>70.8507447 GMT<br>0.0000E+00 DOMXB<br>56546.0855 | 11.428006<br>4.8000000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 5.10000000 H<br>314427.943 GAMA<br>178.582825 RB1<br>14.4390916 BETA  | 14185.2227 MACH<br>18.1555409 LATV<br>27.3100000 DVDR<br>2.21173272 MAZB | 0.540350502 Q<br>40.6528415 LONV<br>38.2686643 VCAL<br>0.0000E+00 MAXB | 252.308497 RANG<br>-72.6592083 ELRLH<br>467.449491 BANK<br>0.0000E+00 AZR | 0.521265957 VAMI<br>29.7755826 AZRLN<br>-213106747 OMXB<br>-170.766519 RGR | 573.119870 ALFA<br>70.8449797 GMT<br>0.0000E+00 DOMXB<br>56480.8627 | 11.598587<br>5.1000000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 5.40000000 H<br>345404.800 GAMA<br>189.719088 RB1<br>14.5137721 BETA  | 14240.6670 MACH<br>19.5764240 LATV<br>27.3100000 DVDR<br>2.25810476 MAZB | 0.533955532 Q<br>40.6529915 LONV<br>35.9189841 VCAL<br>0.0000E+00 MAXB | 245.826059 RANG<br>-72.6586390 ELRLH<br>461.277965 BANK<br>0.0000E+00 AZR | 0.548769002 VAMI<br>31.2836820 AZRLN<br>-216804662 OMXB<br>-170.921058 RGR | 566.217624 ALFA<br>70.8394152 GMT<br>0.0000E+00 DOMXB<br>56418.4920 | 11.683742<br>5.4000000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 5.70000000 H<br>372755.773 GAMA<br>200.105863 RB1<br>14.5912792 BETA  | 14299.3383 MACH<br>20.9679054 LATV<br>27.3100000 DVDR<br>2.30737692 MAZB | 0.527452828 Q<br>40.6531386 LONV<br>33.2857154 VCAL<br>0.0000E+00 MAXB | 239.312554 RANG<br>-72.6580811 ELRLH<br>454.999200 BANK<br>0.0000E+00 AZR | 0.575720431 VAMI<br>32.6790269 AZRLN<br>-220496322 OMXB<br>-171.072928 RGR | 559.197127 ALFA<br>70.8341234 GMT<br>0.0000E+00 DOMXB<br>56358.9491 | 11.685373<br>5.7000000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 6.00000000 H<br>396205.805 GAMA<br>209.670037 RB1<br>14.6713778 BETA  | 14361.0001 MACH<br>22.3185857 LATV<br>27.3100000 DVDR<br>2.35936020 MAZB | 0.520897290 Q<br>40.6532826 LONV<br>30.4471403 VCAL<br>0.0000E+00 MAXB | 232.825461 RANG<br>-72.6575348 ELRLH<br>448.665323 BANK<br>0.0000E+00 AZR | 0.602112571 VAMI<br>33.9526381 AZRLN<br>-224116435 OMXB<br>-171.222059 RGR | 552.117393 ALFA<br>70.8291780 GMT<br>0.0000E+00 DOMXB<br>56302.1837 | 11.605893<br>6.0000000<br>0.0000E+00 |
| TC1                       | 6.30000000 H                                                          | 14425.3974 MACH                                                          | 0.514338770 Q                                                          | 226.414772 RANG                                                           | 0.627944012 VAMI                                                           | 545.032051 ALFA                                                     | 11.447987                            |

|      |            |      |            |      |             |      |             |       |             |       |            |       |            |
|------|------------|------|------------|------|-------------|------|-------------|-------|-------------|-------|------------|-------|------------|
| MAYB | 415579.563 | GAMA | 23.6180747 | LATV | 40.6534236  | LONV | -72.6570000 | ELRLH | 35.0968033  | AZRLN | 70.8246547 | GMT   | 6.3000000  |
| VDR  | 218.360600 | RB1  | 27.3100000 | DVDR | 27.4721963  | VCAL | 442.323707  | BANK  | -227596472  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 14.7538178 | BETA | 2.41385162 | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -171.368417 | RGR   | 56248.1232 |       |            |
| TC1  | 6.60000000 | H    | 14492.2630 | MACH | 0.507821390 | Q    | 220.122616  | RANG  | 0.653219274 | VAMI  | 537.988608 | ALFA  | 11.214697  |
| MAYB | 430791.257 | GAMA | 24.8569474 | LATV | 40.6535616  | LONV | -72.6564769 | ELRLH | 36.1051357  | AZRLN | 70.8206279 | GMT   | 6.6000000  |
| VDR  | 226.145735 | RB1  | 27.3100000 | DVDR | 24.4198210  | VCAL | 436.016321  | BANK  | -230867072  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 14.8383403 | BETA | 2.47063874 | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -171.512001 | RGR   | 56196.6743 |       |            |
| TC1  | 6.90000000 | H    | 14561.3227 | MACH | 0.501383112 | Q    | 213.983234  | RANG  | 0.677948355 | VAMI  | 531.027989 | ALFA  | 10.909500  |
| MAYB | 441833.878 | GAMA | 26.0267052 | LATV | 40.6536966  | LONV | -72.6559650 | ELRLH | 36.9726038  | AZRLN | 70.8171689 | GMT   | 6.9000000  |
| VDR  | 233.009782 | RB1  | 27.3100000 | DVDR | 21.3388252  | VCAL | 429.779346  | BANK  | -233860787  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 14.9246821 | BETA | 2.52950418 | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -171.652844 | RGR   | 56147.7267 |       |            |
| TC1  | 7.20000000 | H    | 14632.2994 | MACH | 0.495055554 | Q    | 208.023236  | RANG  | 0.702146197 | VAMI  | 524.184326 | ALFA  | 10.536340  |
| MAYB | 448902.981 | GAMA | 27.1197385 | LATV | 40.6538287  | LONV | -72.6554641 | ELRLH | 37.6955314  | AZRLN | 70.8143425 | GMT   | 7.2000000  |
| VDR  | 238.950243 | RB1  | 27.3100000 | DVDR | 18.2682260  | VCAL | 423.643013  | BANK  | -236514992  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 15.0125806 | BETA | 2.59023011 | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -171.791007 | RGR   | 56101.1555 |       |            |
| TC1  | 7.50000000 | H    | 14704.9173 | MACH | 0.488864022 | Q    | 202.262087  | RANG  | 0.725832092 | VAMI  | 517.485003 | ALFA  | 10.099610  |
| MAYB | 452029.991 | GAMA | 28.1292923 | LATV | 40.6539580  | LONV | -72.6549739 | ELRLH | 38.2715459  | AZRLN | 70.8122046 | GMT   | 7.5000000  |
| VDR  | 243.974931 | RB1  | 27.3100000 | DVDR | 15.2378941  | VCAL | 417.631659  | BANK  | -238774657  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 15.1017759 | BETA | 2.65260227 | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -171.926578 | RGR   | 56056.8241 |       |            |
| TC1  | 7.80000000 | H    | 14778.9032 | MACH | 0.482823950 | Q    | 196.709684  | RANG  | 0.749029054 | VAMI  | 510.946888 | ALFA  | 9.6049540  |
| MAYB | 450895.885 | GAMA | 29.0486893 | LATV | 40.6540847  | LONV | -72.6544937 | ELRLH | 38.6995694  | AZRLN | 70.8107994 | GMT   | 7.8000000  |
| VDR  | 248.091634 | RB1  | 27.3100000 | DVDR | 12.2041744  | VCAL | 411.760670  | BANK  | -240595045  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 15.1920139 | BETA | 2.71643470 | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -172.059669 | RGR   | 56014.5864 |       |            |
| TC1  | 8.10000000 | H    | 14853.9851 | MACH | 0.476939947 | Q    | 191.366310  | RANG  | 0.771763150 | VAMI  | 504.575346 | ALFA  | 9.0593612  |
| MAYB | 445980.605 | GAMA | 29.8712262 | LATV | 40.6542089  | LONV | -72.6540232 | ELRLH | 38.9798842  | AZRLN | 70.8101569 | GMT   | 8.1000000  |
| VDR  | 251.304923 | RB1  | 27.3100000 | DVDR | 9.23125592  | VCAL | 406.035762  | BANK  | -241944238  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 15.2830425 | BETA | 2.78158275 | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -172.190408 | RGR   | 55974.2885 |       |            |
| TC1  | 8.40000000 | H    | 14929.8956 | MACH | 0.471218776 | Q    | 186.233582  | RANG  | 0.794062855 | VAMI  | 498.377974 | ALFA  | 8.4687324  |
| MAYB | 437640.827 | GAMA | 30.5925781 | LATV | 40.6543306  | LONV | -72.6535616 | ELRLH | 39.1140314  | AZRLN | 70.8102914 | GMT   | 8.4000000  |
| VDR  | 253.639460 | RB1  | 27.3100000 | DVDR | 6.34719573  | VCAL | 400.464334  | BANK  | -242804457  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 15.3746165 | BETA | 2.84787655 | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -172.318941 | RGR   | 55935.7714 |       |            |
| TC1  | 8.70000000 | H    | 15006.3752 | MACH | 0.465659286 | Q    | 181.306508  | RANG  | 0.815958457 | VAMI  | 492.353954 | ALFA  | 7.8402303  |
| MAYB | 423715.461 | GAMA | 31.2082937 | LATV | 40.6544502  | LONV | -72.6531084 | ELRLH | 39.1046807  | AZRLN | 70.8112018 | GMT   | 8.7000000  |
| VDR  | 255.113605 | RB1  | 27.3100000 | DVDR | 3.31952457  | VCAL | 395.046708  | BANK  | -243172458  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 15.4664990 | BETA | 2.91492687 | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -172.445428 | RGR   | 55898.8735 |       |            |
| TC1  | 9.00000000 | H    | 15083.1465 | MACH | 0.460204148 | Q    | 176.537137  | RANG  | 0.837483233 | VAMI  | 486.443092 | ALFA  | 7.2028430  |
| MAYB | 400086.357 | GAMA | 31.6940827 | LATV | 40.6545678  | LONV | -72.6526629 | ELRLH | 38.9563676  | AZRLN | 70.8128669 | GMT   | 9.0000000  |
| VDR  | 255.569310 | RB1  | 27.3100000 | DVDR | -240859640  | VCAL | 389.734657  | BANK  | -243062054  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 15.5584380 | BETA | 2.98032425 | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -172.570045 | RGR   | 55863.4207 |       |            |
| TC1  | 9.30000000 | H    | 15159.8957 | MACH | 0.454857203 | Q    | 171.926549  | RANG  | 0.858673943 | VAMI  | 480.649950 | ALFA  | 6.5734101  |
| MAYB | 374850.303 | GAMA | 32.0404383 | LATV | 40.6546835  | LONV | -72.6522243 | ELRLH | 38.6764585  | AZRLN | 70.8152416 | GMT   | 9.3000000  |
| VDR  | 254.993291 | RB1  | 27.3100000 | DVDR | -3.56037081 | VCAL | 384.533348  | BANK  | -242506396  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 15.6501481 | BETA | 3.04667573 | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -172.692991 | RGR   | 55829.2202 |       |            |

|      |                 |                 |                  |                   |                  |                  |            |
|------|-----------------|-----------------|------------------|-------------------|------------------|------------------|------------|
| TC1  | 9.60000000 H    | 15236.3242 MACH | 0.449608953 Q    | 167.465479 RANG   | 0.879566562 VAMI | 474.964934 ALFA  | 5.9564139  |
| MAYB | 348368.737 GAMA | 32.2511405 LATV | 40.6547976 LONV  | -72.6517918 ELRLH | 38.2731849 AZRLN | 70.8182690 GMT   | 9.6000000  |
| VDR  | 253.456179 RB1  | 27.3100000 DVDR | -6.65414710 VCAL | 379.436207 BANK   | -241549211 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 15.7413582 BETA | 3.11390561 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -172.814465 RGR  | 55796.0852       |            |
| TC1  | 9.90000000 H    | 15312.1530 MACH | 0.444457827 Q    | 163.150663 RANG   | 0.900195677 VAMI | 469.386779 ALFA  | 5.3583039  |
| MAYB | 320102.046 GAMA | 32.3284613 LATV | 40.6549103 LONV  | -72.6513649 ELRLH | 37.7552303 AZRLN | 70.8218850 GMT   | 9.9000000  |
| VDR  | 251.014982 RB1  | 27.3100000 DVDR | -9.58095303 VCAL | 374.443299 BANK   | -240241033 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 15.8318158 BETA | 3.18188911 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -172.934656 RGR  | 55763.8380       |            |
| TC1  | 10.20000000 H   | 15387.1198 MACH | 0.439401853 Q    | 158.978417 RANG   | 0.920594660 VAMI | 463.913745 ALFA  | 4.7844404  |
| MAYB | 291768.953 GAMA | 32.2762748 LATV | 40.6550217 LONV  | -72.6509426 ELRLH | 37.1317616 AZRLN | 70.8260205 GMT   | 10.2000000 |
| VDR  | 247.731005 RB1  | 27.3100000 DVDR | -12.2743370 VCAL | 369.554145 BANK   | -238636910 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 15.9212840 BETA | 3.25050437 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -173.053750 RGR  | 55732.3089       |            |
| TC1  | 10.50000000 H   | 15460.9822 MACH | 0.434436337 Q    | 154.943007 RANG   | 0.940794588 VAMI | 458.541168 ALFA  | 4.2379069  |
| MAYB | 263761.106 GAMA | 32.1006914 LATV | 40.6551320 LONV  | -72.6505245 ELRLH | 36.4120540 AZRLN | 70.8306051 GMT   | 10.5000000 |
| VDR  | 243.672812 RB1  | 27.3100000 DVDR | -14.7438173 VCAL | 364.765724 BANK   | -236792957 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.0095442 BETA | 3.31965264 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -173.171922 RGR  | 55701.3394       |            |
| TC1  | 10.80000000 H   | 15533.5182 MACH | 0.429563552 Q    | 151.043618 RANG   | 0.960823958 VAMI | 453.271687 ALFA  | 3.7218754  |
| MAYB | 236051.267 GAMA | 31.8078499 LATV | 40.6552413 LONV  | -72.6501099 ELRLH | 35.6052886 AZRLN | 70.8355701 GMT   | 10.8000000 |
| VDR  | 238.906920 RB1  | 27.3100000 DVDR | -16.9899658 VCAL | 360.080789 BANK   | -234763898 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.0963960 BETA | 3.38918581 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -173.289331 RGR  | 55670.7838       |            |
| TC1  | 11.10000000 H   | 15604.5257 MACH | 0.424804496 Q    | 147.292184 RANG   | 0.980709397 VAMI | 448.127643 ALFA  | 3.2399290  |
| MAYB | 209153.009 GAMA | 31.4032272 LATV | 40.6553499 LONV  | -72.6496983 ELRLH | 34.7205317 AZRLN | 70.8408501 GMT   | 11.1000000 |
| VDR  | 233.500362 RB1  | 27.3100000 DVDR | -19.0193896 VCAL | 355.517844 BANK   | -232601602 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.1816573 BETA | 3.45880239 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -173.406128 RGR  | 55640.5067       |            |
| TC1  | 11.40000000 H   | 15673.8222 MACH | 0.420161593 Q    | 143.687020 RANG   | 1.00047541 VAMI  | 443.111723 ALFA  | 2.7938579  |
| MAYB | 183684.923 GAMA | 30.8938738 LATV | 40.6554577 LONV  | -72.6492891 ELRLH | 33.7666083 AZRLN | 70.8463838 GMT   | 11.4000000 |
| VDR  | 227.515494 RB1  | 27.3100000 DVDR | -20.8468574 VCAL | 351.079268 BANK   | -230353736 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.2651640 BETA | 3.52833730 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -173.522453 RGR  | 55610.3839       |            |
| TC1  | 11.70000000 H   | 15741.2433 MACH | 0.415636460 Q    | 140.225747 RANG   | 1.02014365 VAMI  | 438.225715 ALFA  | 2.3847679  |
| MAYB | 159861.499 GAMA | 30.2870652 LATV | 40.6555651 LONV  | -72.6488820 ELRLH | 32.7518887 AZRLN | 70.8521165 GMT   | 11.7000000 |
| VDR  | 221.011556 RB1  | 27.3100000 DVDR | -22.4813095 VCAL | 346.766577 BANK   | -228062622 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.3467677 BETA | 3.59763135 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -173.638428 RGR  | 55580.3035       |            |
| TC1  | 12.00000000 H   | 15806.6418 MACH | 0.411232711 Q    | 136.907234 RANG   | 1.03973308 VAMI  | 433.473478 ALFA  | 2.0132737  |
| MAYB | 137851.230 GAMA | 29.5900314 LATV | 40.6556719 LONV  | -72.6484765 ELRLH | 31.6842103 AZRLN | 70.8579995 GMT   | 12.0000000 |
| VDR  | 214.045120 RB1  | 27.3100000 DVDR | -23.9316678 VCAL | 342.582830 BANK   | -225764895 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.4263352 BETA | 3.66650746 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -173.754163 RGR  | 55550.1661       |            |
| TC1  | 12.30000000 H   | 15869.8878 MACH | 0.406961745 Q    | 133.735331 RANG   | 1.05926015 VAMI  | 428.867038 ALFA  | 1.6794919  |
| MAYB | 117767.029 GAMA | 28.8099136 LATV | 40.6557784 LONV  | -72.6480722 ELRLH | 30.5708217 AZRLN | 70.8639911 GMT   | 12.3000000 |
| VDR  | 206.673295 RB1  | 27.3100000 DVDR | -25.1854739 VCAL | 338.537529 BANK   | -223491503 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.5037482 BETA | 3.73471521 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -173.869753 RGR  | 55519.8830       |            |
| TC1  | 12.60000000 H   | 15930.8678 MACH | 0.402835805 Q    | 130.714071 RANG   | 1.07873935 VAMI  | 424.419269 ALFA  | 1.3830594  |
| MAYB | 99698.8804 GAMA | 27.9536985 LATV | 40.6558846 LONV  | -72.6476690 ELRLH | 29.4183432 AZRLN | 70.8700559 GMT   | 12.6000000 |
| VDR  | 198.949880 RB1  | 27.3100000 DVDR | -26.2780338 VCAL | 334.640704 BANK   | -221267963 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.5789033 BETA | 3.80198694 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -173.985280 RGR  | 55489.3762       |            |

|      |                 |                 |                  |                   |                  |                  |            |
|------|-----------------|-----------------|------------------|-------------------|------------------|------------------|------------|
| TC1  | 12.9000000 H    | 15989.4837 MACH | 0.398860414 Q    | 127.842846 RANG   | 1.09818306 VAMI  | 420.135928 ALFA  | 1.1231925  |
| MAYB | 83678.4814 GAMA | 27.0281353 LATV | 40.6559906 LONV  | -72.6472664 ELRLH | 28.2327388 AZRLN | 70.8761646 GMT   | 12.900000  |
| VDR  | 190.921519 RB1  | 27.3100000 DVDR | -27.2201145 VCAL | 330.896556 BANK   | -219114767 OMXB  | 0.0000E+00 DOMXB | 0.0000E+0  |
| ELR  | 16.6517105 BETA | 3.86810986 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -174.100817 RGR  | 55458.5771       |            |
| TC1  | 13.2000000 H    | 16045.6505 MACH | 0.395004253 Q    | 125.097642 RANG   | 1.11760167 VAMI  | 415.983950 ALFA  | 0.89371608 |
| MAYB | 69361.8866 GAMA | 26.0420276 LATV | 40.6560965 LONV  | -72.6468644 ELRLH | 27.0193137 AZRLN | 70.8822934 GMT   | 13.200000  |
| VDR  | 182.629563 RB1  | 27.3100000 DVDR | -28.0396001 VCAL | 327.278144 BANK   | -217047932 OMXB  | 0.0000E+00 DOMXB | 0.0000E+0  |
| ELR  | 16.7220912 BETA | 4.00346629 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -174.216425 RGR  | 55427.4263       |            |
| TC1  | 13.5000000 H    | 16099.2946 MACH | 0.391315726 Q    | 122.505398 RANG   | 1.13700389 VAMI  | 412.014224 ALFA  | 0.69889978 |
| MAYB | 57108.3627 GAMA | 24.9979634 LATV | 40.6562022 LONV  | -72.6464627 ELRLH | 25.7827829 AZRLN | 70.8884234 GMT   | 13.500000  |
| VDR  | 174.111462 RB1  | 27.3100000 DVDR | -28.7257702 VCAL | 323.825706 BANK   | -215079682 OMXB  | 0.0000E+00 DOMXB | 0.0000E+0  |
| ELR  | 16.7899768 BETA | 4.15163045 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -174.332154 RGR  | 55395.8724       |            |
| TC1  | 13.8000000 H    | 16150.3542 MACH | 0.387810297 Q    | 120.071382 RANG   | 1.15639687 VAMI  | 408.242907 ALFA  | 0.53810456 |
| MAYB | 46911.4348 GAMA | 23.9016030 LATV | 40.6563078 LONV  | -72.6460612 ELRLH | 24.5272128 AZRLN | 70.8945402 GMT   | 13.800000  |
| VDR  | 165.406621 RB1  | 27.3100000 DVDR | -29.2866944 VCAL | 320.551519 BANK   | -213218876 OMXB  | 0.0000E+00 DOMXB | 0.0000E+0  |
| ELR  | 16.8553087 BETA | 4.29593795 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -174.448047 RGR  | 55363.8712       |            |
| TC1  | 14.1000000 H    | 16198.7788 MACH | 0.384493527 Q    | 117.794558 RANG   | 1.17578641 VAMI  | 404.675706 ALFA  | 0.40848508 |
| MAYB | 38648.6851 GAMA | 22.7589256 LATV | 40.6564134 LONV  | -72.6456597 ELRLH | 23.2559953 AZRLN | 70.9006336 GMT   | 14.100000  |
| VDR  | 156.550666 RB1  | 27.3100000 DVDR | -29.7353652 VCAL | 317.459448 BANK   | -211471498 OMXB  | 0.0000E+00 DOMXB | 0.0000E+0  |
| ELR  | 16.9180386 BETA | 4.43577654 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -174.564137 RGR  | 55331.3859       |            |
| TC1  | 14.4000000 H    | 16244.5279 MACH | 0.381370699 Q    | 115.673800 RANG   | 1.19517710 VAMI  | 401.318029 ALFA  | 0.30737310 |
| MAYB | 32177.6637 GAMA | 21.5754813 LATV | 40.6565189 LONV  | -72.6452582 ELRLH | 21.9718870 AZRLN | 70.9066968 GMT   | 14.400000  |
| VDR  | 147.575330 RB1  | 27.3100000 DVDR | -30.0847145 VCAL | 314.553088 BANK   | -209841225 OMXB  | 0.0000E+00 DOMXB | 0.0000E+0  |
| ELR  | 16.9781270 BETA | 4.57055076 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -174.680451 RGR  | 55298.3856       |            |
| TC1  | 14.7000000 H    | 16287.5701 MACH | 0.3784446678 Q   | 113.707847 RANG   | 1.21457262 VAMI  | 398.174837 ALFA  | 0.23183887 |
| MAYB | 27340.2033 GAMA | 20.3563856 LATV | 40.6566245 LONV  | -72.6448566 ELRLH | 20.6770550 AZRLN | 70.9127262 GMT   | 14.700000  |
| VDR  | 138.508491 RB1  | 27.3100000 DVDR | -30.3474838 VCAL | 311.835662 BANK   | -208329944 OMXB  | 0.0000E+00 DOMXB | 0.0000E+0  |
| ELR  | 17.0355422 BETA | 4.69968649 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -174.797013 RGR  | 55264.8448       |            |
| TC1  | 15.0000000 H    | 16327.8815 MACH | 0.375725822 Q    | 111.895277 RANG   | 1.23397583 VAMI  | 395.250551 ALFA  | 0.17883942 |
| MAYB | 23966.4230 GAMA | 19.1063199 LATV | 40.6567300 LONV  | -72.6444548 ELRLH | 19.3731280 AZRLN | 70.9187207 GMT   | 15.000000  |
| VDR  | 129.374251 RB1  | 27.3100000 DVDR | -30.5360969 VCAL | 309.309961 BANK   | -206938206 OMXB  | 0.0000E+00 DOMXB | 0.0000E+0  |
| ELR  | 17.0902595 BETA | 4.82263501 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -174.913837 RGR  | 55230.7426       |            |
| TC1  | 15.3000000 H    | 16365.4452 MACH | 0.373211922 Q    | 110.234518 RANG   | 1.25338901 VAMI  | 392.548995 ALFA  | 0.14526854 |
| MAYB | 21878.3656 GAMA | 17.8295369 LATV | 40.6568356 LONV  | -72.6440528 ELRLH | 18.0612516 AZRLN | 70.9246813 GMT   | 15.300000  |
| VDR  | 120.193047 RB1  | 27.3100000 DVDR | -30.6625414 VCAL | 306.978311 BANK   | -2056565621 OMXB | 0.0000E+00 DOMXB | 0.0000E+0  |
| ELR  | 17.1422603 BETA | 4.93887678 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -175.030939 RGR  | 55196.0620       |            |
| TC1  | 15.6000000 H    | 16400.2497 MACH | 0.370908184 Q    | 108.723863 RANG   | 1.27281394 VAMI  | 390.073381 ALFA  | 0.12800488 |
| MAYB | 20893.2459 GAMA | 16.5298704 LATV | 40.6569412 LONV  | -72.6436505 ELRLH | 16.7421464 AZRLN | 70.9306108 GMT   | 15.600000  |
| VDR  | 110.981796 RB1  | 27.3100000 DVDR | -30.7382657 VCAL | 304.842569 BANK   | -204511194 OMXB  | 0.0000E+00 DOMXB | 0.0000E+0  |
| ELR  | 17.1915307 BETA | 5.04792464 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -175.148329 RGR  | 55160.7890       |            |
| TC1  | 15.9000000 H    | 16432.2880 MACH | 0.368817232 Q    | 107.361508 RANG   | 1.29225205 VAMI  | 387.826314 ALFA  | 0.12395803 |
| MAYB | 20826.3135 GAMA | 15.2107491 LATV | 40.6570469 LONV  | -72.6432479 ELRLH | 15.4161670 AZRLN | 70.9365133 GMT   | 15.900000  |
| VDR  | 101.754074 RB1  | 27.3100000 DVDR | -30.7740913 VCAL | 302.904140 BANK   | -203473606 OMXB  | 0.0000E+00 DOMXB | 0.0000E+0  |

|      |            |      |             |      |             |      |            |       |             |       |            |       |            |
|------|------------|------|-------------|------|-------------|------|------------|-------|-------------|-------|------------|-------|------------|
| ELR  | 17.2380611 | BETA | 5.14932653  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00 | AZR   | -175.266016 | RGR   | 55124.9125 |       |            |
| TC1  | 16.2000000 | H    | 16461.5570  | MACH | 0.366941136 | Q    |            | RANG  | 1.31170449  | VAMI  | 385.809824 | ALFA  | 0.13011216 |
| MAYB | 21493.3507 | GAMA | 13.8752138  | LATV | 40.5571526  | LONV |            | ELRLH | 14.0833630  | AZRLN | 70.9423939 | GMT   | 16.200000  |
| VDR  | 92.5203158 | RB1  | 27.3100000  | DVDR | -30.7801426 | VCAL |            | BANK  | -202551445  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 17.2818450 | BETA | 5.24266760  | MAZB | 0.0000E+00  | MAXB |            | AZR   | -175.384006 | RGR   | 55088.4233 |       |            |
| TC1  | 16.5000000 | H    | 16488.0560  | MACH | 0.365281450 | Q    |            | RANG  | 1.33117224  | VAMI  | 384.025405 | ALFA  | 0.14356666 |
| MAYB | 22712.8438 | GAMA | 12.5259374  | LATV | 40.6572584  | LONV |            | ELRLH | 12.7435386  | AZRLN | 70.9482588 | GMT   | 16.500000  |
| VDR  | 83.2880267 | RB1  | 27.3100000  | DVDR | -30.7657924 | VCAL |            | BANK  | -201743398  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 17.3228782 | BETA | 5.32757192  | MAZB | 0.0000E+00  | MAXB |            | AZR   | -175.502306 | RGR   | 55051.3140 |       |            |
| TC1  | 16.8000000 | H    | 16511.7863  | MACH | 0.363839263 | Q    |            | RANG  | 1.35065616  | VAMI  | 382.474077 | ALFA  | 0.16157326 |
| MAYB | 24307.8706 | GAMA | 11.1652474  | LATV | 40.6573642  | LONV |            | ELRLH | 11.3963123  | AZRLN | 70.9541145 | GMT   | 16.800000  |
| VDR  | 74.0620203 | RB1  | 27.3100000  | DVDR | -30.7396214 | VCAL |            | BANK  | -201048391  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 17.3611579 | BETA | 5.40370357  | MAZB | 0.0000E+00  | MAXB |            | AZR   | -175.620920 | RGR   | 55013.5784 |       |            |
| TC1  | 17.1000000 | H    | 16532.7500  | MACH | 0.362615248 | Q    |            | RANG  | 1.37015701  | VAMI  | 381.156433 | ALFA  | 0.18157047 |
| MAYB | 26107.7528 | GAMA | 9.79515093  | LATV | 40.6574700  | LONV |            | ELRLH | 10.0411747  | AZRLN | 70.9599680 | GMT   | 17.100000  |
| VDR  | 64.8446578 | RB1  | 27.3100000  | DVDR | -30.7093898 | VCAL |            | BANK  | -200465708  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 17.3966825 | BETA | 5.47076738  | MAZB | 0.0000E+00  | MAXB |            | AZR   | -175.739855 | RGR   | 54975.2112 |       |            |
| TC1  | 17.4000000 | H    | 16550.9500  | MACH | 0.361609721 | Q    |            | RANG  | 1.38967551  | VAMI  | 380.072703 | ALFA  | 0.20121305 |
| MAYB | 27949.5217 | GAMA | 8.41736103  | LATV | 40.6575760  | LONV |            | ELRLH | 8.67754465  | AZRLN | 70.9658266 | GMT   | 17.400000  |
| VDR  | 55.6360983 | RB1  | 27.3100000  | DVDR | -30.6820183 | VCAL |            | BANK  | -199995068  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 17.4294500 | BETA | 5.52850924  | MAZB | 0.0000E+00  | MAXB |            | AZR   | -175.859114 | RGR   | 54936.2080 |       |            |
| TC1  | 17.7000000 | H    | 16566.3886  | MACH | 0.360822688 | Q    |            | RANG  | 1.40921236  | VAMI  | 379.222810 | ALFA  | 0.21839826 |
| MAYB | 29679.2446 | GAMA | 7.03332518  | LATV | 40.6576820  | LONV |            | ELRLH | 7.30482240  | AZRLN | 70.9716975 | GMT   | 17.700000  |
| VDR  | 46.4345519 | RB1  | 27.3100000  | DVDR | -30.6635760 | VCAL |            | BANK  | -199636684  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 17.4594584 | BETA | 5.57671615  | MAZB | 0.0000E+00  | MAXB |            | AZR   | -175.978701 | RGR   | 54896.5644 |       |            |
| TC1  | 18.0000000 | H    | 16579.0675  | MACH | 0.360253891 | Q    |            | RANG  | 1.42876824  | VAMI  | 378.606414 | ALFA  | 0.23128791 |
| MAYB | 31153.2521 | GAMA | 5.6425462   | LATV | 40.6577880  | LONV |            | ELRLH | 5.92244052  | AZRLN | 70.9775880 | GMT   | 18.000000  |
| VDR  | 37.2365364 | RB1  | 27.3100000  | DVDR | -30.6592746 | VCAL |            | BANK  | -199391285  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 17.4867044 | BETA | 5.61521596  | MAZB | 0.0000E+00  | MAXB |            | AZR   | -176.098621 | RGR   | 54856.2766 |       |            |
| TC1  | 18.3000000 | H    | 16588.9869  | MACH | 0.359902852 | Q    |            | RANG  | 1.44834379  | VAMI  | 378.222959 | ALFA  | 0.23832573 |
| MAYB | 32239.3041 | GAMA | 4.25115494  | LATV | 40.6578942  | LONV |            | ELRLH | 4.52991106  | AZRLN | 70.9835051 | GMT   | 18.300000  |
| VDR  | 28.0371355 | RB1  | 27.3100000  | DVDR | -30.6734655 | VCAL |            | BANK  | -199260131  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 17.5111833 | BETA | 5.64387693  | MAZB | 0.0000E+00  | MAXB |            | AZR   | -176.218879 | RGR   | 54815.3406 |       |            |
| TC1  | 18.6000000 | H    | 16596.1457  | MACH | 0.359768902 | Q    |            | RANG  | 1.46793962  | VAMI  | 378.071705 | ALFA  | 0.23825066 |
| MAYB | 32817.7222 | GAMA | 2.85485729  | LATV | 40.6580004  | LONV |            | ELRLH | 3.12686910  | AZRLN | 70.9894556 | GMT   | 18.600000  |
| VDR  | 18.8302562 | RB1  | 27.3100000  | DVDR | -30.7096400 | VCAL |            | BANK  | -199244996  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 17.5328884 | BETA | 5.66260717  | MAZB | 0.0000E+00  | MAXB |            | AZR   | -176.339477 | RGR   | 54773.7527 |       |            |
| TC1  | 18.9000000 | H    | 16600.5406  | MACH | 0.359851208 | Q    |            | RANG  | 1.487555630 | VAMI  | 378.151759 | ALFA  | 0.23010516 |
| MAYB | 32782.5133 | GAMA | 1.45605014  | LATV | 40.6581067  | LONV |            | ELRLH | 1.71311233  | AZRLN | 70.9954458 | GMT   | 18.900000  |
| VDR  | 9.6088679  | RB1  | 27.3100000  | DVDR | -30.7704327 | VCAL |            | BANK  | -199348141  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 17.5518111 | BETA | 5.67135394  | MAZB | 0.0000E+00  | MAXB |            | AZR   | -176.460420 | RGR   | 54731.5088 |       |            |
| TC1  | 19.2000000 | H    | 16602.1660  | MACH | 0.360148790 | Q    |            | RANG  | 1.50719431  | VAMI  | 378.462092 | ALFA  | 0.21323971 |
| MAYB | 32042.4936 | GAMA | 0.055311233 | LATV | 40.6582131  | LONV |            | ELRLH | 0.288636118 | AZRLN | 71.0014818 | GMT   | 19.200000  |

|      |                 |                 |                  |                   |                   |                  |            |
|------|-----------------|-----------------|------------------|-------------------|-------------------|------------------|------------|
| VDR  | 0.365353296 RB1 | 27.3100000 DVDR | -30.8576261 VCAL | 294.677688 BANK   | -199572267 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 17.5679399 BETA | 5.67010288 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -176.581710 RGR   | 54688.6050       |            |
| TC1  | 19.2118392 H    | 16602.1732 MACH | 0.360164934 Q    | 101.677837 RANG   | 1.50796975 VAMI   | 378.479047 ALFA  | 0.21238935 |
| MAYB | 31997.4715 GAMA | 0.3452E-14 LATV | 40.6582173 LONV  | -72.6387795 ELRLH | 0.232202927 AZRLN | 71.0017210 GMT   | 19.211835  |
| VDR  | 0.3420E-13 RB1  | 27.3100000 DVDR | -30.8616248 VCAL | 294.691048 BANK   | -199583635 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 17.5685189 BETA | 5.66984864 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -176.586504 RGR   | 54686.8982       |            |

EVENT ESN 20  
TIME = 19.212  
EVENT CAUSED BY  
TYPE = PRIMARY-ORDERED  
CASE = 1.  
DATE / TIME 15-03-04 13:36:12  
CP = 0.125 CYCLES = 194.  
TG MODEL - G7  
VDR = 0.00000000E+00

|      |                 |                  |                  |                   |                   |                  |             |
|------|-----------------|------------------|------------------|-------------------|-------------------|------------------|-------------|
| TC1  | 19.2118392 H    | 16602.1732 MACH  | 0.360164934 Q    | 101.677837 RANG   | 1.50796975 VAMI   | 378.479047 ALFA  | 0.21238935  |
| MAYB | 31997.4715 GAMA | 0.3452E-14 LATV  | 40.6582173 LONV  | -72.6387795 ELRLH | 0.232202926 AZRLN | 71.0017210 GMT   | 19.211835   |
| VDR  | 0.3420E-13 RB1  | 27.3100000 DVDR  | -30.8616248 VCAL | 294.691048 BANK   | -199583635 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 17.5685189 BETA | 5.66984864 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -176.586504 RGR   | 54686.8982       |             |
| TC1  | 19.5000000 H    | 16601.0141 MACH  | 0.360660535 Q    | 101.962668 RANG   | 1.52685404 VAMI   | 379.001551 ALFA  | 0.18731385  |
| MAYB | 30522.6294 GAMA | -1.34686041 LATV | 40.6583196 LONV  | -72.6383882 ELRLH | -1.14633358 AZRLN | 71.0075690 GMT   | 19.500000   |
| VDR  | -8.90842532 RB1 | 27.3100000 DVDR  | -30.9721517 VCAL | 295.1109335 BANK  | -199920451 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 17.5812608 BETA | 5.65887716 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -176.703351 RGR   | 54645.0370       |             |
| TC1  | 19.8000000 H    | 16597.0746 MACH  | 0.361385201 Q    | 102.389247 RANG   | 1.54653574 VAMI   | 379.768865 ALFA  | 0.15228385  |
| MAYB | 28164.5720 GAMA | -2.75001313 LATV | 40.6584261 LONV  | -72.6379804 ELRLH | -2.59132238 AZRLN | 71.0137121 GMT   | 19.800000   |
| VDR  | -18.2206864 RB1 | 27.3100000 DVDR  | -31.1141249 VCAL | 295.734314 BANK   | -200396074 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 17.5917570 BETA | 5.63773663 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -176.825344 RGR   | 54600.8008       |             |
| TC1  | 20.1000000 H    | 16590.3348 MACH  | 0.362321419 Q    | 102.948693 RANG   | 1.56623950 VAMI   | 380.762650 ALFA  | 0.10839835  |
| MAYB | 24928.2870 GAMA | -4.15371225 LATV | 40.6585328 LONV  | -72.6375721 ELRLH | -4.04558198 AZRLN | 71.0199154 GMT   | 20.100000   |
| VDR  | -27.5795789 RB1 | 27.3100000 DVDR  | -31.2828430 VCAL | 296.551748 BANK   | -201002733 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 17.5994088 BETA | 5.60677682 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -176.947690 RGR   | 54555.8922       |             |
| TC1  | 20.4000000 H    | 16580.7794 MACH  | 0.363467690 Q    | 103.641436 RANG   | 1.58596521 VAMI   | 381.981401 ALFA  | 0.05618220  |
| MAYB | 20793.0617 GAMA | -5.55751018 LATV | 40.6586395 LONV  | -72.6371634 ELRLH | -5.50807713 AZRLN | 71.0261824 GMT   | 20.400000   |
| VDR  | -36.9929220 RB1 | 27.3100000 DVDR  | -31.4768140 VCAL | 297.560739 BANK   | -201744140 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 17.6041938 BETA | 5.56612801 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -177.070388 RGR   | 54510.3071       |             |
| TC1  | 20.7000000 H    | 16568.3910 MACH  | 0.364822387 Q    | 104.468131 RANG   | 1.60571255 VAMI   | 383.423500 ALFA  | -0.00358421 |
| MAYB | 15757.4554 GAMA | -6.96091833 LATV | 40.6587463 LONV  | -72.6367542 ELRLH | -6.97747897 AZRLN | 71.0325158 GMT   | 20.700000   |
| VDR  | -46.4679741 RB1 | 27.3100000 DVDR  | -31.6938684 VCAL | 298.760369 BANK   | -202624012 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 17.6060868 BETA | 5.51595405 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -177.193437 RGR   | 54464.0416       |             |
| TC1  | 21.0000000 H    | 16553.1501 MACH  | 0.366384753 Q    | 105.430222 RANG   | 1.62548094 VAMI   | 385.088256 ALFA  | -0.06987601 |
| MAYB | 9826.84258 GAMA | -8.36339387 LATV | 40.6588532 LONV  | -72.6363445 ELRLH | -8.45216332 AZRLN | 71.0389176 GMT   | 21.000000   |
| VDR  | -56.0114547 RB1 | 27.3100000 DVDR  | -31.9324546 VCAL | 300.150523 BANK   | -203645952 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 17.6050598 BETA | 5.45643620 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -177.316832 RGR   | 54417.0922       |             |
| TC1  | 21.3000000 H    | 16535.0353 MACH  | 0.368153828 Q    | 106.529338 RANG   | 1.64526961 VAMI   | 386.974786 ALFA  | -1.14147120 |

329 B

|      |             |      |             |      |             |      |             |       |             |       |            |       |             |
|------|-------------|------|-------------|------|-------------|------|-------------|-------|-------------|-------|------------|-------|-------------|
| MAYB | 3059.71360  | GAMA | -9.76429508 | LATV | 40.6589602  | LONV | -72.6359345 | ELRLH | -9.93021403 | AZRLN | 71.0453888 | GMT   | 21.300000   |
| VDR  | -65.6291402 | RB1  | 27.3100000  | DVDR | -32.1879216 | VCAL | 301.731007  | BANK  | -204813322  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00  |
| ELR  | 17.6010829  | BETA | 5.38778876  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -177.440570 | RGR   | 54369.4555 |       |             |
| TC1  | 21.6000000  | H    | 16514.0235  | MACH | 0.370127718 | Q    | 107.766856  | RANG  | 1.66507751  | VAMI  | 389.081239 | ALFA  | -21699248   |
| MAYB | -4479.49642 | GAMA | -11.1628548 | LATV | 40.6590672  | LONV | -72.6355239 | ELRLH | -11.4094388 | AZRLN | 71.0519295 | GMT   | 21.600000   |
| VDR  | -75.3254861 | RB1  | 27.3100000  | DVDR | -32.4561192 | VCAL | 303.500924  | BANK  | -206129107  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00  |
| ELR  | 17.5941239  | BETA | 5.31026857  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -177.564644 | RGR   | 54321.1286 |       |             |
| TC1  | 21.9000000  | H    | 16490.0907  | MACH | 0.372304338 | Q    | 109.144324  | RANG  | 1.68490332  | VAMI  | 391.405581 | ALFA  | -29493275   |
| MAYB | -12704.2373 | GAMA | -12.5581756 | LATV | 40.6591743  | LONV | -72.6351131 | ELRLH | -12.8873907 | AZRLN | 71.0585391 | GMT   | 21.900000   |
| VDR  | -85.1036245 | RB1  | 27.3100000  | DVDR | -32.7323913 | VCAL | 305.459304  | BANK  | -207595787  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00  |
| ELR  | 17.5841487  | BETA | 5.22416214  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -177.689045 | RGR   | 54272.1094 |       |             |
| TC1  | 22.2000000  | H    | 16463.2120  | MACH | 0.374681411 | Q    | 110.663447  | RANG  | 1.70474537  | VAMI  | 393.945593 | ALFA  | -37381150   |
| MAYB | -17259.7815 | GAMA | -13.9492194 | LATV | 40.6592815  | LONV | -72.6347018 | ELRLH | -14.3615145 | AZRLN | 71.0652163 | GMT   | 22.200000   |
| VDR  | -94.9652487 | RB1  | 27.3100000  | DVDR | -33.0120547 | VCAL | 307.605088  | BANK  | -209215312  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00  |
| ELR  | 17.5711223  | BETA | 5.12978428  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -177.813763 | RGR   | 54222.3966 |       |             |
| TC1  | 22.5000000  | H    | 16433.3622  | MACH | 0.377256452 | Q    | 112.326073  | RANG  | 1.72460172  | VAMI  | 396.698849 | ALFA  | -45323396   |
| MAYB | -17387.5455 | GAMA | -15.3348817 | LATV | 40.6593887  | LONV | -72.6342903 | ELRLH | -15.8302864 | AZRLN | 71.0719635 | GMT   | 22.500000   |
| VDR  | -104.911066 | RB1  | 27.3100000  | DVDR | -33.2938969 | VCAL | 309.937115  | BANK  | -210990192  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00  |
| ELR  | 17.5550087  | BETA | 5.02747651  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -177.938786 | RGR   | 54171.9898 |       |             |
| TC1  | 22.8000000  | H    | 16400.5160  | MACH | 0.380026753 | Q    | 114.134169  | RANG  | 1.74447014  | VAMI  | 399.662704 | ALFA  | -53412194   |
| MAYB | -13534.3107 | GAMA | -16.7141923 | LATV | 40.6594959  | LONV | -72.6338784 | ELRLH | -17.2936182 | AZRLN | 71.0787887 | GMT   | 22.800000   |
| VDR  | -114.942101 | RB1  | 27.3100000  | DVDR | -33.5809646 | VCAL | 312.454109  | BANK  | -212924494  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00  |
| ELR  | 17.5357710  | BETA | 4.91760482  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -178.064099 | RGR   | 54120.8895 |       |             |
| TC1  | 23.1000000  | H    | 16364.6475  | MACH | 0.382989382 | Q    | 116.089820  | RANG  | 1.76434803  | VAMI  | 402.834293 | ALFA  | -61835337   |
| MAYB | -5404.07267 | GAMA | -18.0864858 | LATV | 40.6596032  | LONV | -72.6334664 | ELRLH | -18.7527260 | AZRLN | 71.0857053 | GMT   | 23.100000   |
| VDR  | -125.060803 | RB1  | 27.3100000  | DVDR | -33.8797024 | VCAL | 315.154677  | BANK  | -215024484  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00  |
| ELR  | 17.5133712  | BETA | 4.80055637  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -178.189686 | RGR   | 54069.0973 |       |             |
| TC1  | 23.4000000  | H    | 16325.7296  | MACH | 0.386141190 | Q    | 118.195219  | RANG  | 1.78423242  | VAMI  | 406.210536 | ALFA  | -70876385   |
| MAYB | 7550.69631  | GAMA | -19.4515552 | LATV | 40.6597104  | LONV | -72.6330542 | ELRLH | -20.2102260 | AZRLN | 71.0927333 | GMT   | 23.400000   |
| VDR  | -135.272056 | RB1  | 27.3100000  | DVDR | -34.1998861 | VCAL | 318.037317  | BANK  | -217299588  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00  |
| ELR  | 17.4877698  | BETA | 4.67673538  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -178.315527 | RGR   | 54016.6155 |       |             |
| TC1  | 23.7000000  | H    | 16283.7335  | MACH | 0.389478816 | Q    | 120.452665  | RANG  | 1.80411990  | VAMI  | 409.788148 | ALFA  | -80913602   |
| MAYB | 26277.9878  | GAMA | -20.8098073 | LATV | 40.6598176  | LONV | -72.6326420 | ELRLH | -21.6703120 | AZRLN | 71.0999003 | GMT   | 23.700000   |
| VDR  | -145.584194 | RB1  | 27.3100000  | DVDR | -34.5548118 | VCAL | 321.100427  | BANK  | -219763656  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00  |
| ELR  | 17.4589246  | BETA | 4.54655872  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -178.441602 | RGR   | 53963.4473 |       |             |
| TC1  | 24.0000000  | H    | 16238.6269  | MACH | 0.392998681 | Q    | 122.864559  | RANG  | 1.82400644  | VAMI  | 413.563634 | ALFA  | -92400866   |
| MAYB | 37772.0687  | GAMA | -22.1624271 | LATV | 40.6599248  | LONV | -72.6322297 | ELRLH | -23.1387194 | AZRLN | 71.1072430 | GMT   | 24.000000   |
| VDR  | -156.010076 | RB1  | 27.3100000  | DVDR | -34.9607088 | VCAL | 324.342305  | BANK  | -222436179  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00  |
| ELR  | 17.4267892  | BETA | 4.41045120  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -178.567882 | RGR   | 53909.5965 |       |             |
| TC1  | 24.3000000  | H    | 16190.3734  | MACH | 0.396697023 | Q    | 125.433414  | RANG  | 1.84388726  | VAMI  | 417.533321 | ALFA  | -1.05533302 |
| MAYB | 44479.3528  | GAMA | -23.5112925 | LATV | 40.6600319  | LONV | -72.6318175 | ELRLH | -24.6192939 | AZRLN | 71.1147930 | GMT   | 24.300000   |
| VDR  | -166.566487 | RB1  | 27.3100000  | DVDR | -35.4252387 | VCAL | 327.761184  | BANK  | -225337602  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00  |
| ELR  | 17.3913120  | BETA | 4.26884050  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | -178.694338 | RGR   | 53855.0675 |       |             |

|      |                 |                  |                  |                   |                   |                  |            |
|------|-----------------|------------------|------------------|-------------------|-------------------|------------------|------------|
| TC1  | 24.6000000 H    | 16138.9311 MACH  | 0.400569967 Q    | 128.161900 RANG   | 1.86375668 VAMI   | 421.693443 ALFA  | -1.2031476 |
| MAYB | 52076.8252 GAMA | -24.8585351 LATV | 40.6601389 LONV  | -72.6314056 ELRLH | -26.1142381 AZRLN | 71.1225779 GMT   | 24.6000000 |
| VDR  | -177.271185 RB1 | 27.3100000 DVDR  | -35.9494772 VCAL | 331.355298 BANK   | -228488994 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 17.3524351 BETA | 4.12215361 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -178.820932 RGR   | 53799.8652       |            |
| TC1  | 24.9000000 H    | 16084.2527 MACH  | 0.404613492 Q    | 131.052814 RANG   | 1.88360799 VAMI   | 426.040101 ALFA  | -1.3675945 |
| MAYB | 60586.4761 GAMA | -26.2064528 LATV | 40.6602458 LONV  | -72.6309940 ELRLH | -27.6260120 AZRLN | 71.1306295 GMT   | 24.9000000 |
| VDR  | -188.142249 RB1 | 27.3100000 DVDR  | -36.5345426 VCAL | 335.122856 BANK   | -231915331 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 17.3100938 BETA | 3.97081609 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -178.947621 RGR   | 53743.9956       |            |
| TC1  | 25.2000000 H    | 16026.2854 MACH  | 0.408823357 Q    | 134.109025 RANG   | 1.90343329 VAMI   | 430.569185 ALFA  | -1.5489144 |
| MAYB | 70036.4920 GAMA | -27.5575292 LATV | 40.6603525 LONV  | -72.6305829 ELRLH | -29.1573737 AZRLN | 71.1389848 GMT   | 25.2000000 |
| VDR  | -199.198099 RB1 | 27.3100000 DVDR  | -37.1815684 VCAL | 339.061974 BANK   | -235646358 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 17.2642169 BETA | 3.81525212 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -179.074352 RGR   | 53687.4656       |            |
| TC1  | 25.5000000 H    | 15964.9712 MACH  | 0.413159250 Q    | 137.309631 RANG   | 1.92322338 VAMI   | 435.238608 ALFA  | -1.7432725 |
| MAYB | 80233.2021 GAMA | -28.9169964 LATV | 40.6604590 LONV  | -72.6301726 ELRLH | -30.7113849 AZRLN | 71.1476869 GMT   | 25.5000000 |
| VDR  | -210.456174 RB1 | 27.3100000 DVDR  | -37.8760033 VCAL | 343.140356 BANK   | -239717581 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 17.2147262 BETA | 3.70734985 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -179.201066 RGR   | 53630.2834       |            |
| TC1  | 25.8000000 H    | 15900.2474 MACH  | 0.417610779 Q    | 140.652790 RANG   | 1.94296772 VAMI   | 440.037794 ALFA  | -1.9514242 |
| MAYB | 91220.8891 GAMA | -30.2875894 LATV | 40.6605651 LONV  | -72.6297632 ELRLH | -32.2913623 AZRLN | 71.1567860 GMT   | 25.8000000 |
| VDR  | -221.928923 RB1 | 27.3100000 DVDR  | -38.6189324 VCAL | 347.350930 BANK   | -244171372 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 17.1615377 BETA | 3.63735508 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -179.327692 RGR   | 53572.4591       |            |
| TC1  | 26.1000000 H    | 15832.0469 MACH  | 0.422195076 Q    | 144.155349 RANG   | 1.96265421 VAMI   | 444.985184 ALFA  | -2.1767024 |
| MAYB | 103219.967 GAMA | -31.6707389 LATV | 40.6606709 LONV  | -72.6293549 ELRLH | -33.9008765 AZRLN | 71.1663409 GMT   | 26.1000000 |
| VDR  | -233.633718 RB1 | 27.3100000 DVDR  | -39.4233560 VCAL | 351.710017 BANK   | -249058460 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 17.1045616 BETA | 3.56620047 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -179.454152 RGR   | 53514.0048       |            |
| TC1  | 26.4000000 H    | 15760.2975 MACH  | 0.426904815 Q    | 147.818153 RANG   | 1.982226897 VAMI  | 450.073478 ALFA  | -2.4194181 |
| MAYB | 116234.951 GAMA | -33.0700158 LATV | 40.6607763 LONV  | -72.6289481 ELRLH | -35.5438220 AZRLN | 71.1764211 GMT   | 26.4000000 |
| VDR  | -245.588664 RB1 | 27.3100000 DVDR  | -40.2856837 VCAL | 356.213361 BANK   | -254440055 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 17.0437007 BETA | 3.49403027 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -179.580353 RGR   | 53454.9348       |            |
| TC1  | 26.7000000 H    | 15684.9212 MACH  | 0.431731793 Q    | 151.641464 RANG   | 2.00179606 VAMI   | 455.294471 ALFA  | -2.6800565 |
| MAYB | 130287.639 GAMA | -34.4891484 LATV | 40.6608812 LONV  | -72.6285432 ELRLH | -37.2244266 AZRLN | 71.1871097 GMT   | 26.7000000 |
| VDR  | -257.810559 RB1 | 27.3100000 DVDR  | -41.2024635 VCAL | 360.856022 BANK   | -260390422 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.9788508 BETA | 3.42098517 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -179.706191 RGR   | 53395.2662       |            |
| TC1  | 27.0000000 H    | 15605.8357 MACH  | 0.436666692 Q    | 155.624906 RANG   | 2.02121726 VAMI   | 460.639042 ALFA  | -2.9591842 |
| MAYB | 145409.117 GAMA | -35.9321228 LATV | 40.6609854 LONV  | -72.6281404 ELRLH | -38.9472562 AZRLN | 71.1985066 GMT   | 27.0000000 |
| VDR  | -270.315156 RB1 | 27.3100000 DVDR  | -42.1695587 VCAL | 365.632363 BANK   | -267000240 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.9099010 BETA | 3.34720152 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -179.831544 RGR   | 53335.0193       |            |
| TC1  | 27.3000000 H    | 15522.9536 MACH  | 0.441700074 Q    | 159.767266 RANG   | 2.04051180 VAMI   | 466.096959 ALFA  | -3.2574391 |
| MAYB | 161629.624 GAMA | -37.4031987 LATV | 40.6610890 LONV  | -72.6277402 ELRLH | -40.7172250 AZRLN | 71.2107328 GMT   | 27.3000000 |
| VDR  | -283.116703 RB1 | 27.3100000 DVDR  | -43.1809611 VCAL | 370.535880 BANK   | -274381059 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.8367336 BETA | 3.27281188 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | -179.956274 RGR   | 53274.2185       |            |
| TC1  | 27.6000000 H    | 15436.1840 MACH  | 0.446819805 Q    | 164.066262 RANG   | 2.05965607 VAMI   | 471.656652 ALFA  | -3.5755308 |
| MAYB | 178977.179 GAMA | -38.9069225 LATV | 40.6611916 LONV  | -72.6273430 ELRLH | -42.5396051 AZRLN | 71.2239366 GMT   | 27.6000000 |
| VDR  | -296.227300 RB1 | 27.3100000 DVDR  | -44.2282879 VCAL | 375.559001 BANK   | -282671298 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.7592244 BETA | 3.19794590 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 179.919776 RGR    | 53212.8926       |            |

331 B

|      |                  |                  |                  |                   |                   |                  |            |
|------|------------------|------------------|------------------|-------------------|-------------------|------------------|------------|
| TC1  | 27.9000000 H     | 15345.4324 MACH  | 0.452013160 Q    | 168.518259 RANG   | 2.07862326 VAMI   | 477.304930 ALFA  | -3.9142373 |
| MAYB | 197475.992 GAMA  | -40.4481379 LATV | 40.6612933 LONV  | -72.6269496 ELRLH | -44.4200356 AZRLN | 71.2383017 GMT   | 27.900000  |
| VDR  | -309.656102 RB1  | 27.3100000 DVDR  | -45.3001868 VCAL | 380.692837 BANK   | -292044433 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.6772441 BETA  | 3.12273115 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 179.796785 RGR    | 53151.0756       |            |
| TC1  | 28.2000000 H     | 15250.6019 MACH  | 0.457272767 Q    | 173.123548 RANG   | 2.09738313 VAMI   | 483.034509 ALFA  | -4.2733154 |
| MAYB | 198004.243 GAMA  | -42.0321445 LATV | 40.6613938 LONV  | -72.6265604 ELRLH | -46.3635904 AZRLN | 71.2540518 GMT   | 28.200000  |
| VDR  | -323.414512 RB1  | 27.3100000 DVDR  | -46.4359160 VCAL | 385.933304 BANK   | -302715166 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.5906578 BETA  | 3.04724448 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 179.674953 RGR    | 53088.8078       |            |
| TC1  | 28.5000000 H     | 15151.5906 MACH  | 0.462601229 Q    | 177.890042 RANG   | 2.11590210 VAMI   | 488.848659 ALFA  | -4.6484090 |
| MAYB | 194265.971 GAMA  | -43.6642741 LATV | 40.6614929 LONV  | -72.6261762 ELRLH | -48.3712603 AZRLN | 71.2714338 GMT   | 28.500000  |
| VDR  | -337.516504 RB1  | 27.3100000 DVDR  | -47.5713157 VCAL | 391.284981 BANK   | -314930705 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.4993238 BETA  | 2.97149036 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 179.554507 RGR    | 53026.1343       |            |
| TC1  | 28.8000000 H     | 15048.2964 MACH  | 0.467984582 Q    | 182.813108 RANG   | 2.13414291 VAMI   | 494.733152 ALFA  | -5.0341811 |
| MAYB | 185760.457 GAMA  | -45.3486329 LATV | 40.6615905 LONV  | -72.6257977 ELRLH | -50.4418331 AZRLN | 71.2907410 GMT   | 28.800000  |
| VDR  | -351.951315 RB1  | 27.3100000 DVDR  | -48.6474704 VCAL | 396.738187 BANK   | -328988762 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.4030975 BETA  | 2.89557927 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 179.435696 RGR    | 52963.1074       |            |
| TC1  | 29.1000000 H     | 14940.6227 MACH  | 0.473389847 Q    | 187.872565 RANG   | 2.15206445 VAMI   | 500.653633 ALFA  | -5.4226852 |
| MAYB | 171600.866 GAMA  | -47.0904954 LATV | 40.6616862 LONV  | -72.6254258 ELRLH | -52.5725520 AZRLN | 71.3123332 GMT   | 29.100000  |
| VDR  | -366.693724 RB1  | 27.3100000 DVDR  | -49.6103135 VCAL | 402.266619 BANK   | -345256102 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.3018377 BETA  | 2.81738580 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 179.318795 RGR    | 52899.7880       |            |
| TC1  | 29.4000000 H     | 14828.4827 MACH  | 0.478806046 Q    | 193.054485 RANG   | 2.16962205 VAMI   | 506.598957 ALFA  | -5.8082094 |
| MAYB | 151125.407 GAMA  | -48.8909656 LATV | 40.6617800 LONV  | -72.6250614 ELRLH | -54.7588315 AZRLN | 71.3366546 GMT   | 29.400000  |
| VDR  | -381.701913 RB1  | 27.3100000 DVDR  | -50.4155744 VCAL | 407.862807 BANK   | -364187179 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.1954117 BETA  | 2.73735169 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 179.204106 RGR    | 52836.2469       |            |
| TC1  | 29.7000000 H     | 14711.8041 MACH  | 0.484232864 Q    | 198.393203 RANG   | 2.18676783 VAMI   | 512.569229 ALFA  | -6.1852505 |
| MAYB | 123799.287 GAMA  | -50.7488078 LATV | 40.6618715 LONV  | -72.6247056 ELRLH | -56.9940300 AZRLN | 71.3642585 GMT   | 29.700000  |
| VDR  | -396.923093 RB1  | 27.3100000 DVDR  | -51.0222208 VCAL | 413.528426 BANK   | -386349077 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 16.0837000 BETA  | 2.65742195 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 179.091950 RGR    | 52772.5646       |            |
| TC1  | 30.0000000 H     | 14590.5323 MACH  | 0.489656098 Q    | 203.851516 RANG   | 2.20345112 VAMI   | 518.549812 ALFA  | -6.5457717 |
| MAYB | 89174.6294 GAMA  | -52.6631730 LATV | 40.6619604 LONV  | -72.6243593 ELRLH | -59.2692768 AZRLN | 71.3958411 GMT   | 30.000000  |
| VDR  | -412.290563 RB1  | 27.3100000 DVDR  | -51.3833957 VCAL | 419.252861 BANK   | -412455044 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 15.9666007 BETA  | 2.57768841 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 178.982670 RGR    | 52708.8320       |            |
| TC1  | 30.3000000 H     | 14464.6347 MACH  | 0.495063659 Q    | 209.433244 RANG   | 2.21961917 VAMI   | 524.528246 ALFA  | -6.8811201 |
| MAYB | 47028.3288 GAMA  | -54.6314489 LATV | 40.6620465 LONV  | -72.6240236 ELRLH | -61.5733242 AZRLN | 71.4322858 GMT   | 30.300000  |
| VDR  | -427.724268 RB1  | 27.3100000 DVDR  | -51.4574751 VCAL | 425.027060 BANK   | -443409424 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 15.8440345 BETA  | 2.49823073 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 178.876624 RGR    | 52645.1499       |            |
| TC1  | 30.6000000 H     | 14334.1046 MACH  | 0.500446648 Q    | 215.134207 RANG   | 2.23521823 VAMI   | 530.495374 ALFA  | -7.1821405 |
| MAYB | -2581.67682 GAMA | -56.6490743 LATV | 40.6621294 LONV  | -72.6236997 ELRLH | -63.8924721 AZRLN | 71.4747243 GMT   | 30.600000  |
| VDR  | -443.132891 RB1  | 27.3100000 DVDR  | -51.2116462 VCAL | 430.844451 BANK   | -480368589 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 15.7159496 BETA  | 2.41911498 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 178.774176 RGR    | 52581.6280       |            |
| TC1  | 30.9000000 H     | 14198.9638 MACH  | 0.505800429 Q    | 220.953309 RANG   | 2.25019471 VAMI   | 536.446478 ALFA  | -7.4393451 |
| MAYB | -59262.0671 GAMA | -58.7093811 LATV | 40.6622089 LONV  | -72.6233887 ELRLH | -66.2105811 AZRLN | 71.5246196 GMT   | 30.900000  |
| VDR  | -458.417055 RB1  | 27.3100000 DVDR  | -50.6255449 VCAL | 436.701888 BANK   | -524824033 OMXB   | 0.0000E+00 DOMXB | 0.0000E+00 |

|      |             |      |             |      |             |      |             |       |             |       |            |       |            |
|------|-------------|------|-------------|------|-------------|------|-------------|-------|-------------|-------|------------|-------|------------|
| ELR  | 15.5823256  | BETA | 2.34039280  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 178.675692  | RGR   | 52518.3835 |       |            |
| TC1  | 31.2000000  | H    | 14059.2649  | MACH | 0.511125595 | Q    | 226.893630  | RANG  | 2.26449665  | VAMI  | 542.382313 | ALFA  | -7.643153E |
| MAYB | -122236.702 | GAMA | -60.8034775 | LATV | 40.6622848  | LONV | -72.6230917 | ELRLH | -68.5091964 | AZRLN | 71.5838802 | GMT   | 31.200000  |
| VDR  | -473.473554 | RB1  | 27.3100000  | DVDR | -49.6945027 | VVAL | 442.600539  | BANK  | -578716097  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 15.4431766  | BETA | 2.26210162  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 178.581526  | RGR   | 52455.5391 |       |            |
| TC1  | 31.5000000  | H    | 13915.0916  | MACH | 0.516292734 | Q    | 232.840754  | RANG  | 2.27807555  | VAMI  | 548.165531 | ALFA  | -7.756843E |
| MAYB | -189524.510 | GAMA | -62.9480532 | LATV | 40.66233566 | LONV | -72.6228096 | ELRLH | -70.7678038 | AZRLN | 71.6550160 | GMT   | 31.500000  |
| VDR  | -488.193235 | RB1  | 27.3100000  | DVDR | -48.3532002 | VVAL | 448.425568  | BANK  | -644589861  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 15.2985536  | BETA | 2.17553674  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 178.492013  | RGR   | 52393.2196 |       |            |
| TC1  | 31.8000000  | H    | 13766.5635  | MACH | 0.521388123 | Q    | 238.870132  | RANG  | 2.29089062  | VAMI  | 553.887519 | ALFA  | -7.787818E |
| MAYB | -259267.847 | GAMA | -65.1137425 | LATV | 40.6624243  | LONV | -72.6225432 | ELRLH | -72.9644331 | AZRLN | 71.7413602 | GMT   | 31.800000  |
| VDR  | -502.456279 | RB1  | 27.3100000  | DVDR | -46.6950899 | VVAL | 454.252867  | BANK  | -725816075  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 15.1485510  | BETA | 2.08217560  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 178.407435  | RGR   | 52331.5458 |       |            |
| TC1  | 32.1000000  | H    | 13613.8292  | MACH | 0.526532220 | Q    | 245.093600  | RANG  | 2.30290956  | VAMI  | 559.676123 | ALFA  | -7.748817E |
| MAYB | -330023.209 | GAMA | -67.2646978 | LATV | 40.6624876  | LONV | -72.6222934 | ELRLH | -75.0762833 | AZRLN | 71.8473731 | GMT   | 32.100000  |
| VDR  | -516.189368 | RB1  | 27.3100000  | DVDR | -44.8282642 | VVAL | 460.189635  | BANK  | -826893589  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 14.9933006  | BETA | 1.98800739  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 178.328019  | RGR   | 52270.6314 |       |            |
| TC1  | 32.4000000  | H    | 13457.0560  | MACH | 0.531744249 | Q    | 251.534113  | RANG  | 2.31410781  | VAMI  | 565.551762 | ALFA  | -7.632606E |
| MAYB | -399531.046 | GAMA | -69.3850074 | LATV | 40.6625464  | LONV | -72.6220606 | ELRLH | -77.0801954 | AZRLN | 71.9790331 | GMT   | 32.400000  |
| VDR  | -529.338033 | RB1  | 27.3100000  | DVDR | -42.8092772 | VVAL | 466.253287  | BANK  | -953840159  | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 14.8329604  | BETA | 1.89313994  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 178.253941  | RGR   | 52210.5812 |       |            |
| TC1  | 32.7000000  | H    | 13296.4251  | MACH | 0.537046379 | Q    | 258.218572  | RANG  | 2.32447010  | VAMI  | 571.538000 | ALFA  | -7.434147E |
| MAYB | -465186.443 | GAMA | -71.4569374 | LATV | 40.6626006  | LONV | -72.6218450 | ELRLH | -78.9533744 | AZRLN | 72.1443266 | GMT   | 32.700000  |
| VDR  | -541.866551 | RB1  | 27.3100000  | DVDR | -40.7056267 | VVAL | 472.463969  | BANK  | -1.11468123 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 14.6677094  | BETA | 1.79770020  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 178.185316  | RGR   | 52151.4876 |       |            |
| TC1  | 33.0000000  | H    | 13132.1252  | MACH | 0.542461521 | Q    | 265.176027  | RANG  | 2.33399181  | VAMI  | 577.659226 | ALFA  | -7.151000E |
| MAYB | -524129.926 | GAMA | -73.4613749 | LATV | 40.6626502  | LONV | -72.6216469 | ELRLH | -80.6742324 | AZRLN | 72.3537739 | GMT   | 33.000000  |
| VDR  | -553.760338 | RB1  | 27.3100000  | DVDR | -38.5896464 | VVAL | 478.842669  | BANK  | -1.31997426 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 14.4977424  | BETA | 1.70183980  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 178.122187  | RGR   | 52093.4265 |       |            |
| TC1  | 33.3000000  | H    | 12964.3463  | MACH | 0.548042004 | Q    | 272.466411  | RANG  | 2.34267998  | VAMI  | 583.971222 | ALFA  | -6.794004E |
| MAYB | -574341.079 | GAMA | -75.3659962 | LATV | 40.6626953  | LONV | -72.6214660 | ELRLH | -82.2233169 | AZRLN | 72.6207640 | GMT   | 33.300000  |
| VDR  | -565.026846 | RB1  | 27.3100000  | DVDR | -36.5468438 | VVAL | 485.437354  | BANK  | -1.58314217 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 14.3232627  | BETA | 1.62859676  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 178.064519  | RGR   | 52036.4541 |       |            |
| TC1  | 33.6000000  | H    | 12793.2715  | MACH | 0.553864434 | Q    | 280.178089  | RANG  | 2.35055233  | VAMI  | 590.555810 | ALFA  | -6.386760E |
| MAYB | -615321.922 | GAMA | -77.1235321 | LATV | 40.6627360  | LONV | -72.6213020 | ELRLH | -83.5839231 | AZRLN | 72.9609715 | GMT   | 33.600000  |
| VDR  | -575.704987 | RB1  | 27.3100000  | DVDR | -34.6588045 | VVAL | 492.318858  | BANK  | -1.91988911 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 14.1444735  | BETA | 1.64061634  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 178.012204  | RGR   | 51980.6067 |       |            |
| TC1  | 33.9000000  | H    | 12619.0711  | MACH | 0.559810932 | Q    | 288.205195  | RANG  | 2.35763613  | VAMI  | 597.287547 | ALFA  | -5.893775E |
| MAYB | -640440.003 | GAMA | -78.7625930 | LATV | 40.6627723  | LONV | -72.6211543 | ELRLH | -84.7425142 | AZRLN | 73.3891414 | GMT   | 33.900000  |
| VDR  | -585.836432 | RB1  | 27.3100000  | DVDR | -32.9102031 | VVAL | 499.381110  | BANK  | -2.34498404 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 13.9615695  | BETA | 1.65215005  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 177.965073  | RGR   | 51925.9011 |       |            |
| TC1  | 34.2000000  | H    | 12441.9024  | MACH | 0.565889249 | Q    | 296.565615  | RANG  | 2.36397211  | VAMI  | 604.174815 | ALFA  | -5.327420E |
| MAYB | -647118.191 | GAMA | -80.2617760 | LATV | 40.6628045  | LONV | -72.6210221 | ELRLH | -85.6905354 | AZRLN | 73.9109035 | GMT   | 34.200000  |

|                           |                                                                        |                                                                          |                                                                         |                                                                           |                                                                            |                                                                     |                                       |
|---------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------|
| VDR<br>ELR                | -595.469166 RB1<br>13.7747390 BETA                                     | 27.310000 DVDR<br>1.66312801 MAZB                                        | -31.3381368 VCAL<br>0.0000E+00 MAXB                                     | 506.631976 BANK<br>0.0000E+00 AZR                                         | -2.86407257 OMXB<br>177.922863 RGR                                         | 0.0000E+00 DOMXB<br>51872.3283                                      | 0.0000E+00                            |
| TC1<br>MAYB<br>VDR<br>ELR | 34.5000000 H<br>-633507.680 GAMA<br>-604.658654 RB1<br>13.5841600 BETA | 12261.9073 MACH<br>-81.6023242 LATV<br>27.310000 DVDR<br>1.67352487 MAZB | 0.572093905 Q<br>40.6628330 LONV<br>-29.9552915 VCAL<br>0.0000E+00 MAXB | 305.264149 RANG<br>-72.6209042 ELRLH<br>514.067339 BANK<br>0.0000E+00 AZR | 2.36961429 VAMI<br>-86.4254613 AZRLN<br>-3.45757225 OMXB<br>177.885225 RGR | 611.211910 ALFA<br>74.5066707 GMT<br>0.0000E+00 DOMXB<br>51819.8531 | -4.7034242<br>34.500000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 34.8000000 H<br>-58823.605 GAMA<br>-613.460622 RB1<br>13.3899979 BETA  | 12079.2106 MACH<br>-82.7692456 LATV<br>27.310000 DVDR<br>1.68336043 MAZB | 0.578405635 Q<br>40.6628580 LONV<br>-28.7512650 VCAL<br>0.0000E+00 MAXB | 314.290692 RANG<br>-72.6207994 ELRLH<br>521.670363 BANK<br>0.0000E+00 AZR | 2.37462862 VAMI<br>-86.9515488 AZRLN<br>-4.06034797 OMXB<br>177.851726 RGR | 618.378410 ALFA<br>75.1113156 GMT<br>0.0000E+00 DOMXB<br>51768.4161 | -4.0406036<br>34.800000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 35.1000000 H<br>-530747.992 GAMA<br>-621.971161 RB1<br>13.1924000 BETA | 11893.9173 MACH<br>-83.6510074 LATV<br>27.310000 DVDR<br>1.70873647 MAZB | 0.584950542 Q<br>40.6628800 LONV<br>-28.0412330 VCAL<br>0.0000E+00 MAXB | 323.795065 RANG<br>-72.6207060 ELRLH<br>529.559250 BANK<br>0.0000E+00 AZR | 2.37909017 VAMI<br>-87.2830785 AZRLN<br>-4.56295224 OMXB<br>177.821873 RGR | 625.809400 ALFA<br>75.6154168 GMT<br>0.0000E+00 DOMXB<br>51717.9382 | -3.4637546<br>35.100000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 35.4000000 H<br>-471195.493 GAMA<br>-630.297970 RB1<br>12.9914711 BETA | 11706.0961 MACH<br>-84.3132677 LATV<br>27.310000 DVDR<br>1.72681530 MAZB | 0.591644448 Q<br>40.6628994 LONV<br>-27.4838564 VCAL<br>0.0000E+00 MAXB | 333.701165 RANG<br>-72.6206226 ELRLH<br>537.658108 BANK<br>0.0000E+00 AZR | 2.38306776 VAMI<br>-87.4394925 AZRLN<br>-4.84913764 OMXB<br>177.795216 RGR | 633.415297 ALFA<br>75.9027627 GMT<br>0.0000E+00 DOMXB<br>51668.3429 | -2.9320646<br>35.400000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 35.7000000 H<br>-399510.319 GAMA<br>-638.468093 RB1<br>12.7872943 BETA | 11515.7982 MACH<br>-84.8415761 LATV<br>27.310000 DVDR<br>1.72108094 MAZB | 0.598364118 Q<br>40.6629165 LONV<br>-26.9905155 VCAL<br>0.0000E+00 MAXB | 343.881775 RANG<br>-72.6205479 ELRLH<br>545.853393 BANK<br>0.0000E+00 AZR | 2.38662701 VAMI<br>-87.4402640 AZRLN<br>-4.85760929 OMXB<br>177.771320 RGR | 641.064466 ALFA<br>75.9120946 GMT<br>0.0000E+00 DOMXB<br>51619.5556 | -2.3844741<br>35.700000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 36.0000000 H<br>-319315.156 GAMA<br>-646.495203 RB1<br>12.5799480 BETA | 11323.0685 MACH<br>-85.2381410 LATV<br>27.310000 DVDR<br>1.69269757 MAZB | 0.605088451 Q<br>40.6629316 LONV<br>-26.5260804 VCAL<br>0.0000E+00 MAXB | 354.319082 RANG<br>-72.6204803 ELRLH<br>554.125858 BANK<br>0.0000E+00 AZR | 2.38983994 VAMI<br>-87.3084806 AZRLN<br>-4.62606390 OMXB<br>177.749711 RGR | 648.734412 ALFA<br>75.6811529 GMT<br>0.0000E+00 DOMXB<br>51571.4899 | -1.8454196<br>36.000000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 36.3000000 H<br>-234568.963 GAMA<br>-654.383845 RB1<br>12.3695078 BETA | 11127.9497 MACH<br>-85.5105568 LATV<br>27.310000 DVDR<br>1.64312765 MAZB | 0.611791915 Q<br>40.6629453 LONV<br>-26.0613538 VCAL<br>0.0000E+00 MAXB | 364.988293 RANG<br>-72.6204183 ELRLH<br>562.451753 BANK<br>0.0000E+00 AZR | 2.39278178 VAMI<br>-87.0699940 AZRLN<br>-4.25521180 OMXB<br>177.729892 RGR | 656.397822 ALFA<br>75.3106970 GMT<br>0.0000E+00 DOMXB<br>51524.0536 | -1.3357391<br>36.300000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 36.6000000 H<br>-142278.776 GAMA<br>-662.128464 RB1<br>12.1560480 BETA | 10930.4843 MACH<br>-85.6895890 LATV<br>27.310000 DVDR<br>1.60523987 MAZB | 0.618429711 Q<br>40.6629579 LONV<br>-25.5530327 VCAL<br>0.0000E+00 MAXB | 375.839004 RANG<br>-72.6203604 ELRLH<br>570.788642 BANK<br>0.0000E+00 AZR | 2.39552766 VAMI<br>-86.7522857 AZRLN<br>-3.84418745 OMXB<br>177.711365 RGR | 664.006611 ALFA<br>74.8999142 GMT<br>0.0000E+00 DOMXB<br>51477.1549 | -0.8411444<br>36.600000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 36.9000000 H<br>-45706.2990 GAMA<br>-669.709920 RB1<br>11.9396463 BETA | 10730.7187 MACH<br>-85.7776927 LATV<br>27.310000 DVDR<br>1.61612780 MAZB | 0.624975653 Q<br>40.6629698 LONV<br>-24.9861978 VCAL<br>0.0000E+00 MAXB | 386.839784 RANG<br>-72.6203049 ELRLH<br>579.111055 BANK<br>0.0000E+00 AZR | 2.39815480 VAMI<br>-86.3851950 AZRLN<br>-3.45870026 OMXB<br>177.693619 RGR | 671.532535 ALFA<br>74.5145713 GMT<br>0.0000E+00 DOMXB<br>51430.6995 | -0.3764561<br>36.900000<br>0.0000E+00 |
| TC1<br>MAYB<br>VDR<br>ELR | 37.2000000 H<br>36579.9539 GAMA<br>-677.118854 RB1<br>11.7203837 BETA  | 10528.7041 MACH<br>-85.7497741 LATV<br>27.310000 DVDR<br>1.62272558 MAZB | 0.631439726 Q<br>40.6629815 LONV<br>-24.4062589 VCAL<br>0.0000E+00 MAXB | 398.002299 RANG<br>-72.6202503 ELRLH<br>587.427608 BANK<br>0.0000E+00 AZR | 2.40073900 VAMI<br>-86.0001116 AZRLN<br>-3.13031441 OMXB<br>177.676152 RGR | 678.986139 ALFA<br>74.1862928 GMT<br>0.0000E+00 DOMXB<br>51384.5962 | -0.0181445<br>37.200000<br>0.0000E+00 |
| TC1                       | 37.5000000 H                                                           | 10324.4917 MACH                                                          | 0.637815177 Q                                                           | 409.317556 RANG                                                           | 2.40334233 VAMI                                                            | 686.359980 ALFA                                                     | 0.23642566                            |

|      |             |      |             |      |             |      |             |       |             |       |            |       |            |
|------|-------------|------|-------------|------|-------------|------|-------------|-------|-------------|-------|------------|-------|------------|
| MAYB | 101668.931  | GAMA | -85.6341564 | LATV | 40.6629932  | LONV | -72.6201953 | ELRLH | -85.6243739 | AZRLN | 73.9219310 | GMT   | 37.500000  |
| VDR  | -684.368377 | RB1  | 27.3100000  | DVDR | -23.9281907 | VVAL | 595.730968  | BANK  | -2.86582911 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 11.4983342  | BETA | 1.62496805  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 177.658551  | RGR   | 51338.7769 |       |            |
| TC1  | 37.8000000  | H    | 10118.1261  | MACH | 0.644102496 | Q    | 420.785416  | RANG  | 2.40601136  | VAMI  | 693.654400 | ALFA  | 0.39491731 |
| MAYB | 148236.490  | GAMA | -85.4580376 | LATV | 40.6630053  | LONV | -72.6201390 | ELRLH | -85.2798086 | AZRLN | 73.7169744 | GMT   | 37.800000  |
| VDR  | -691.476051 | RB1  | 27.3100000  | DVDR | -23.4586835 | VVAL | 604.020700  | BANK  | -2.66069055 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 11.2735576  | BETA | 1.62278461  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 177.640509  | RGR   | 51293.1984 |       |            |
| TC1  | 38.1000000  | H    | 9909.64971  | MACH | 0.650243356 | Q    | 432.327527  | RANG  | 2.40877742  | VAMI  | 700.806349 | ALFA  | 0.51722718 |
| MAYB | 189216.525  | GAMA | -85.2944002 | LATV | 40.6630178  | LONV | -72.6200806 | ELRLH | -84.9823048 | AZRLN | 73.5633259 | GMT   | 38.100000  |
| VDR  | -698.444193 | RB1  | 27.3100000  | DVDR | -22.9855783 | VVAL | 612.239476  | BANK  | -2.50677043 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 11.0461047  | BETA | 1.61115336  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 177.621815  | RGR   | 51247.8427 |       |            |
| TC1  | 38.4000000  | H    | 9699.10525  | MACH | 0.656218304 | Q    | 443.912601  | RANG  | 2.41166620  | VAMI  | 707.794501 | ALFA  | 0.60630236 |
| MAYB | 224109.934  | GAMA | -85.1583241 | LATV | 40.6630311  | LONV | -72.6200196 | ELRLH | -84.7452819 | AZRLN | 73.4542794 | GMT   | 38.400000  |
| VDR  | -705.268899 | RB1  | 27.3100000  | DVDR | -22.5219457 | VVAL | 620.366791  | BANK  | -2.39733613 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 10.8160241  | BETA | 1.59170846  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 177.602301  | RGR   | 51202.7013 |       |            |
| TC1  | 38.7000000  | H    | 9486.53425  | MACH | 0.662081627 | Q    | 455.608900  | RANG  | 2.41469749  | VAMI  | 714.677055 | ALFA  | 0.60666185 |
| MAYB | 235009.312  | GAMA | -85.0055766 | LATV | 40.6630450  | LONV | -72.6199557 | ELRLH | -84.5803799 | AZRLN | 73.3853359 | GMT   | 38.700000  |
| VDR  | -711.963553 | RB1  | 27.3100000  | DVDR | -22.1198086 | VVAL | 628.453708  | BANK  | -2.32786547 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 10.5833610  | BETA | 1.57228682  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 177.581833  | RGR   | 51157.7752 |       |            |
| TC1  | 39.0000000  | H    | 9271.97293  | MACH | 0.667827400 | Q    | 467.405441  | RANG  | 2.41787483  | VAMI  | 721.447352 | ALFA  | 0.53953742 |
| MAYB | 224925.512  | GAMA | -84.8606989 | LATV | 40.6630598  | LONV | -72.6198888 | ELRLH | -84.4918871 | AZRLN | 73.3519571 | GMT   | 39.000000  |
| VDR  | -718.547030 | RB1  | 27.3100000  | DVDR | -21.7796562 | VVAL | 636.493220  | BANK  | -2.29381119 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 10.3481487  | BETA | 1.55288018  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 177.560387  | RGR   | 51113.0918 |       |            |
| TC1  | 39.3000000  | H    | 9055.45192  | MACH | 0.673450582 | Q    | 479.291931  | RANG  | 2.42118782  | VAMI  | 728.099674 | ALFA  | 0.42674745 |
| MAYB | 198099.063  | GAMA | -84.7423843 | LATV | 40.6630752  | LONV | -72.6198190 | ELRLH | -84.4771432 | AZRLN | 73.3499122 | GMT   | 39.300000  |
| VDR  | -725.036381 | RB1  | 27.3100000  | DVDR | -21.4894730 | VVAL | 644.479128  | BANK  | -2.29094720 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 10.1104102  | BETA | 1.53347858  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 177.538033  | RGR   | 51068.7011 |       |            |
| TC1  | 39.6000000  | H    | 8836.99760  | MACH | 0.678926647 | Q    | 491.229371  | RANG  | 2.42461650  | VAMI  | 734.607203 | ALFA  | 0.32467555 |
| MAYB | 171864.256  | GAMA | -84.6780756 | LATV | 40.6630913  | LONV | -72.6197468 | ELRLH | -84.5281771 | AZRLN | 73.3754467 | GMT   | 39.600000  |
| VDR  | -731.440517 | RB1  | 27.3100000  | DVDR | -21.2014936 | VVAL | 652.385965  | BANK  | -2.31553397 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 9.87016135  | BETA | 1.59309124  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 177.514903  | RGR   | 51024.6682 |       |            |
| TC1  | 39.9000000  | H    | 8616.63562  | MACH | 0.684262498 | Q    | 503.222564  | RANG  | 2.42814058  | VAMI  | 740.977071 | ALFA  | 0.21837312 |
| MAYB | 141174.767  | GAMA | -84.6579716 | LATV | 40.6631078  | LONV | -72.6196727 | ELRLH | -84.6360474 | AZRLN | 73.4262978 | GMT   | 39.900000  |
| VDR  | -737.758766 | RB1  | 27.3100000  | DVDR | -20.9218702 | VVAL | 660.218994  | BANK  | -2.36532576 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 9.62741823  | BETA | 1.67559137  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 177.491130  | RGR   | 50981.0585 |       |            |
| TC1  | 40.2000000  | H    | 8394.39111  | MACH | 0.689461979 | Q    | 515.272281  | RANG  | 2.43173872  | VAMI  | 747.213105 | ALFA  | 0.10829425 |
| MAYB | 104297.190  | GAMA | -84.6795776 | LATV | 40.6631247  | LONV | -72.6195970 | ELRLH | -84.7909084 | AZRLN | 73.5010469 | GMT   | 40.200000  |
| VDR  | -743.993895 | RB1  | 27.3100000  | DVDR | -20.6447963 | VVAL | 667.980530  | BANK  | -2.43892296 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 9.38219725  | BETA | 1.75298942  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 177.466856  | RGR   | 50937.9389 |       |            |
| TC1  | 40.5000000  | H    | 8170.28895  | MACH | 0.694524153 | Q    | 527.372287  | RANG  | 2.43538771  | VAMI  | 753.313957 | ALFA  | 0.00594801 |
| MAYB | 67650.9903  | GAMA | -84.7423405 | LATV | 40.6631419  | LONV | -72.6195202 | ELRLH | -84.9809282 | AZRLN | 73.5979837 | GMT   | 40.500000  |
| VDR  | -750.144529 | RB1  | 27.3100000  | DVDR | -20.3566947 | VVAL | 675.668157  | BANK  | -2.53463806 | OMXB  | 0.0000E+00 | DOMXB | 0.0000E+00 |
| ELR  | 9.13451521  | BETA | 1.82485284  | MAZB | 0.0000E+00  | MAXB | 0.0000E+00  | AZR   | 177.442235  | RGR   | 50895.3793 |       |            |

WWSB

|      |                  |                  |                  |                   |                   |                  |             |
|------|------------------|------------------|------------------|-------------------|-------------------|------------------|-------------|
| TC1  | 40.8000000 H     | 7944.35441 MACH  | 0.699467427 Q    | 539.545964 RANG   | 2.43906500 VAMI   | 759.299263 ALFA  | -0.09682012 |
| MAYB | 29198.9003 GAMA  | -84.8320570 LATV | 40.6631592 LONV  | -72.6194429 ELRLH | -85.1941175 AZRLN | 73.7152130 GMT   | 40.800000   |
| VDR  | -756.212675 RB1  | 27.3100000 DVDR  | -20.1095948 VCAL | 683.298794 BANK   | -2.65059928 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 8.88433088 BETA  | 1.87456077 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.417417 RGR    | 50853.4481       |             |
| TC1  | 41.1000000 H     | 7716.60988 MACH  | 0.704325001 Q    | 551.841594 RANG   | 2.44274606 VAMI   | 765.204799 ALFA  | -0.21732732 |
| MAYB | -17621.7554 GAMA | -84.9309247 LATV | 40.6631765 LONV  | -72.6193654 ELRLH | -85.4177750 AZRLN | 73.8495904 GMT   | 41.100000   |
| VDR  | -762.212007 RB1  | 27.3100000 DVDR  | -19.8759054 VCAL | 690.904522 BANK   | -2.78368712 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 8.63184063 BETA  | 1.87176825 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.392566 RGR    | 50812.2163       |             |
| TC1  | 41.4000000 H     | 7487.07678 MACH  | 0.709061223 Q    | 564.201037 RANG   | 2.44640294 VAMI   | 770.991591 ALFA  | -0.29727352 |
| MAYB | -49964.2412 GAMA | -85.0640993 LATV | 40.6631937 LONV  | -72.6192885 ELRLH | -85.6371568 AZRLN | 73.9947818 GMT   | 41.400000   |
| VDR  | -768.132430 RB1  | 27.3100000 DVDR  | -19.5845390 VCAL | 698.448451 BANK   | -2.92759627 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 8.37688020 BETA  | 1.86820273 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.367866 RGR    | 50771.7605       |             |
| TC1  | 41.7000000 H     | 7255.78112 MACH  | 0.713678010 Q    | 576.623177 RANG   | 2.45001535 VAMI   | 776.661401 ALFA  | -0.33989500 |
| MAYB | -68231.1685 GAMA | -85.2179178 LATV | 40.6632106 LONV  | -72.6192124 ELRLH | -85.8412830 AZRLN | 74.1439045 GMT   | 41.700000   |
| VDR  | -773.957826 RB1  | 27.3100000 DVDR  | -19.2442167 VCAL | 705.931130 BANK   | -3.07546595 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 8.11953415 BETA  | 1.86382172 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.343454 RGR    | 50732.1444       |             |
| TC1  | 42.0000000 H     | 7022.75336 MACH  | 0.718177846 Q    | 589.107794 RANG   | 2.45357168 VAMI   | 782.216598 ALFA  | -0.35157967 |
| MAYB | -74267.0379 GAMA | -85.3801856 LATV | 40.6632272 LONV  | -72.6191376 ELRLH | -86.0237712 AZRLN | 74.2906728 GMT   | 42.000000   |
| VDR  | -779.675242 RB1  | 27.3100000 DVDR  | -18.8667018 VCAL | 713.353638 BANK   | -3.22102311 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 7.85983574 BETA  | 1.85858142 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.319407 RGR    | 50693.4177       |             |
| TC1  | 42.3000000 H     | 6788.02752 MACH  | 0.722560818 Q    | 601.650713 RANG   | 2.45706837 VAMI   | 787.656930 ALFA  | -0.33048920 |
| MAYB | -66626.6952 GAMA | -85.5419138 LATV | 40.6632434 LONV  | -72.6190639 ELRLH | -86.1824323 AZRLN | 74.4303396 GMT   | 42.300000   |
| VDR  | -785.273845 RB1  | 27.3100000 DVDR  | -18.4535992 VCAL | 720.714591 BANK   | -3.35952517 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 7.59782536 BETA  | 1.87561641 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.295749 RGR    | 50655.6163       |             |
| TC1  | 42.6000000 H     | 6551.64054 MACH  | 0.726830643 Q    | 614.253689 RANG   | 2.46050966 VAMI   | 792.986090 ALFA  | -0.29734630 |
| MAYB | -53516.6073 GAMA | -85.6926620 LATV | 40.6632593 LONV  | -72.6189914 ELRLH | -86.3191577 AZRLN | 74.5610907 GMT   | 42.600000   |
| VDR  | -790.746319 RB1  | 27.3100000 DVDR  | -18.0284672 VCAL | 728.016262 BANK   | -3.48915435 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 7.33354951 BETA  | 1.89352281 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.272452 RGR    | 50618.7632       |             |
| TC1  | 42.9000000 H     | 6313.63070 MACH  | 0.730987697 Q    | 626.912948 RANG   | 2.46390381 VAMI   | 798.204128 ALFA  | -0.26053490 |
| MAYB | -38335.0287 GAMA | -85.8295760 LATV | 40.6632750 LONV  | -72.6189198 ELRLH | -86.4380533 AZRLN | 74.6836699 GMT   | 42.900000   |
| VDR  | -796.090603 RB1  | 27.3100000 DVDR  | -17.6000358 VCAL | 735.257518 BANK   | -3.61064644 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 7.06705773 BETA  | 1.90970998 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.249462 RGR    | 50582.8741       |             |
| TC1  | 43.2000000 H     | 6074.03657 MACH  | 0.735031498 Q    | 639.623107 RANG   | 2.46726048 VAMI   | 803.310150 ALFA  | -0.22548220 |
| MAYB | -23413.2221 GAMA | -85.9524352 LATV | 40.6632904 LONV  | -72.6188490 ELRLH | -86.5439907 AZRLN | 74.8006094 GMT   | 43.200000   |
| VDR  | -801.306532 RB1  | 27.3100000 DVDR  | -17.1734529 VCAL | 742.436323 BANK   | -3.72652413 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 6.79840066 BETA  | 1.92411998 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.226714 RGR    | 50547.9622       |             |
| TC1  | 43.5000000 H     | 5832.89652 MACH  | 0.738953413 Q    | 652.364194 RANG   | 2.47058902 VAMI   | 808.294339 ALFA  | -0.20428730 |
| MAYB | -14246.0179 GAMA | -86.0725540 LATV | 40.6633056 LONV  | -72.6187788 ELRLH | -86.6417529 AZRLN | 74.9155075 GMT   | 43.500000   |
| VDR  | -806.396127 RB1  | 27.3100000 DVDR  | -16.7606688 VCAL | 749.542185 BANK   | -3.84037633 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 6.52762902 BETA  | 1.89571168 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.204146 RGR    | 50514.0405       |             |
| TC1  | 43.8000000 H     | 5590.24781 MACH  | 0.742758218 Q    | 665.139255 RANG   | 2.47389563 VAMI   | 813.161520 ALFA  | -0.19121630 |
| MAYB | -8490.28759 GAMA | -86.1890487 LATV | 40.6633207 LONV  | -72.6187091 ELRLH | -86.7346050 AZRLN | 75.0312847 GMT   | 43.800000   |
| VDR  | -811.363443 RB1  | 27.3100000 DVDR  | -16.3553129 VCAL | 756.578411 BANK   | -3.95511696 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00  |
| ELR  | 6.25479201 BETA  | 1.84790446 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.181717 RGR    | 50481.1267       |             |

|      |                  |                  |                  |                   |                   |                  |            |
|------|------------------|------------------|------------------|-------------------|-------------------|------------------|------------|
| TC1  | 44.1000000 H     | 5346.12696 MACH  | 0.746449198 Q    | 677.948984 RANG   | 2.47718410 VAMI   | 817.914903 ALFA  | -18230322  |
| MAYB | -4483.15822 GAMA | -86.2995503 LATV | 40.6633357 LONV  | -72.6186397 ELRLH | -86.8244873 AZRLN | 75.1499782 GMT   | 44.100000  |
| VDR  | -816.209642 RB1  | 27.3100000 DVDR  | -15.9532101 VCAL | 763.546820 BANK   | -4.07277956 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 5.97993796 BETA  | 1.79904460 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.159401 RGR    | 50449.2418       |            |
| TC1  | 44.4000000 H     | 5100.57018 MACH  | 0.750026067 Q    | 690.787680 RANG   | 2.48045709 VAMI   | 822.553787 ALFA  | -17724622  |
| MAYB | -2169.32488 GAMA | -86.4055520 LATV | 40.6633506 LONV  | -72.6185706 ELRLH | -86.9127569 AZRLN | 75.2733512 GMT   | 44.400000  |
| VDR  | -820.935666 RB1  | 27.3100000 DVDR  | -15.5540636 VCAL | 770.445536 BANK   | -4.19512449 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 5.70311520 BETA  | 1.74914201 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.137183 RGR    | 50418.4084       |            |
| TC1  | 44.7000000 H     | 4853.61342 MACH  | 0.753469825 Q    | 703.614525 RANG   | 2.48371630 VAMI   | 827.056925 ALFA  | -17170284  |
| MAYB | 446.497924 GAMA  | -86.5316436 LATV | 40.6633654 LONV  | -72.6185018 ELRLH | -87.0002491 AZRLN | 75.4028272 GMT   | 44.700000  |
| VDR  | -825.542056 RB1  | 27.3100000 DVDR  | -15.1549630 VCAL | 777.253026 BANK   | -4.32357359 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 5.42437219 BETA  | 1.65031790 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.115049 RGR    | 50388.6498       |            |
| TC1  | 45.0000000 H     | 4605.29255 MACH  | 0.756794319 Q    | 716.448785 RANG   | 2.48696324 VAMI   | 831.439077 ALFA  | -17351085  |
| MAYB | -429.137071 GAMA | -86.6631726 LATV | 40.6633802 LONV  | -72.6184332 ELRLH | -87.0876861 AZRLN | 75.5399637 GMT   | 45.000000  |
| VDR  | -830.029464 RB1  | 27.3100000 DVDR  | -14.7624250 VCAL | 783.982069 BANK   | -4.45968303 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 5.14375785 BETA  | 1.51823508 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.092990 RGR    | 50359.9892       |            |
| TC1  | 45.3000000 H     | 4355.64291 MACH  | 0.760013821 Q    | 729.311825 RANG   | 2.49019751 VAMI   | 835.715523 ALFA  | -18298811  |
| MAYB | -5092.11516 GAMA | -86.7848622 LATV | 40.6633948 LONV  | -72.6183649 ELRLH | -87.1749347 AZRLN | 75.6852496 GMT   | 45.300000  |
| VDR  | -834.400091 RB1  | 27.3100000 DVDR  | -14.3757143 VCAL | 790.646092 BANK   | -4.60394182 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 4.86132084 BETA  | 1.38661999 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.071009 RGR    | 50332.4523       |            |
| TC1  | 45.6000000 H     | 4104.69932 MACH  | 0.763127748 Q    | 742.197454 RANG   | 2.493441619 VAMI  | 839.885244 ALFA  | -19600015  |
| MAYB | -11636.9604 GAMA | -86.8985852 LATV | 40.6634093 LONV  | -72.6182970 ELRLH | -87.2606060 AZRLN | 75.8370192 GMT   | 45.600000  |
| VDR  | -838.655093 RB1  | 27.3100000 DVDR  | -13.9910429 VCAL | 797.242969 BANK   | -4.75468716 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 4.57710947 BETA  | 1.25608962 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.049126 RGR    | 50306.0685       |            |
| TC1  | 45.9000000 H     | 3852.49641 MACH  | 0.766145349 Q    | 755.118668 RANG   | 2.49661512 VAMI   | 843.958048 ALFA  | -20707692  |
| MAYB | -17366.6559 GAMA | -86.9909590 LATV | 40.6634237 LONV  | -72.6182294 ELRLH | -87.3426519 AZRLN | 75.9918371 GMT   | 45.900000  |
| VDR  | -842.794452 RB1  | 27.3100000 DVDR  | -13.6032186 VCAL | 803.781027 BANK   | -4.90848785 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 4.29117241 BETA  | 1.17938064 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.027368 RGR    | 50280.8682       |            |
| TC1  | 46.2000000 H     | 3599.06908 MACH  | 0.769056739 Q    | 768.051052 RANG   | 2.49979068 VAMI   | 847.922675 ALFA  | -21082972  |
| MAYB | -19500.7038 GAMA | -87.0728461 LATV | 40.6634380 LONV  | -72.6181623 ELRLH | -87.4192313 AZRLN | 76.1457217 GMT   | 46.200000  |
| VDR  | -846.816363 RB1  | 27.3100000 DVDR  | -13.2086833 VCAL | 810.248279 BANK   | -5.06136592 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 4.00355955 BETA  | 1.14000986 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 177.005760 RGR    | 50256.8808       |            |
| TC1  | 46.5000000 H     | 3344.45282 MACH  | 0.771854075 Q    | 780.973134 RANG   | 2.50294144 VAMI   | 851.770077 ALFA  | -20938676  |
| MAYB | -18995.1440 GAMA | -87.1536896 LATV | 40.6634521 LONV  | -72.6180957 ELRLH | -87.4895362 AZRLN | 76.2959031 GMT   | 46.500000  |
| VDR  | -850.719272 RB1  | 27.3100000 DVDR  | -12.8102374 VCAL | 816.634771 BANK   | -5.21055322 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 3.71432244 BETA  | 1.10042972 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 176.984312 RGR    | 50234.1309       |            |
| TC1  | 46.8000000 H     | 3088.68348 MACH  | 0.774538178 Q    | 793.880210 RANG   | 2.50606772 VAMI   | 855.500739 ALFA  | -20477844  |
| MAYB | -16813.3013 GAMA | -87.2316116 LATV | 40.6634661 LONV  | -72.6180296 ELRLH | -87.5536472 AZRLN | 76.4410865 GMT   | 46.800000  |
| VDR  | -854.502316 RB1  | 27.3100000 DVDR  | -12.4098859 VCAL | 822.939732 BANK   | -5.35475471 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |
| ELR  | 3.42351392 BETA  | 1.06064035 MAZB  | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 176.963020 RGR    | 50212.6399       |            |
| TC1  | 47.1000000 H     | 2831.79686 MACH  | 0.777131939 Q    | 806.813347 RANG   | 2.50916985 VAMI   | 859.139545 ALFA  | -23907247  |
| MAYB | -35210.9738 GAMA | -87.2754341 LATV | 40.6634800 LONV  | -72.6179640 ELRLH | -87.6118429 AZRLN | 76.5803843 GMT   | 47.100000  |
| VDR  | -858.168361 RB1  | 27.3100000 DVDR  | -12.0397630 VCAL | 829.186207 BANK   | -5.49308249 OMXB  | 0.0000E+00 DOMXB | 0.0000E+00 |

337 B

| ELR  | 3.13118739 BETA  | 0.989618900 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 176.941885 RGR    | 50192.4284       |
|------|------------------|------------------|------------------|-------------------|-------------------|------------------|
| TC1  | 47.4000000 H     | 2573.82655 MACH  | 0.779623214 Q    | 819.742273 RANG   | 2.51223697 VAMI   | 862.672705 ALFA  |
| MAYB | -52392.6955 GAMA | -87.3139602 LATV | 40.6634936 LONV  | -72.6178991 ELRLH | -87.6594993 AZRLN | 76.7011500 GMT   |
| VDR  | -861.724907 RB1  | 27.3100000 DVDR  | -11.6672075 VCAL | 835.359675 BANK   | -5.61289944 OMXB  | 0.0000E+00 DOMXB |
| ELR  | 2.83739318 BETA  | 0.904889369 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 176.920977 RGR    | 50173.5345       |
| TC1  | 47.7000000 H     | 2314.80599 MACH  | 0.782002241 Q    | 832.640365 RANG   | 2.51525714 VAMI   | 866.089018 ALFA  |
| MAYB | -57384.3088 GAMA | -87.3560202 LATV | 40.6635069 LONV  | -72.6178352 ELRLH | -87.6907462 AZRLN | 76.7860049 GMT   |
| VDR  | -865.167027 RB1  | 27.3100000 DVDR  | -11.2780477 VCAL | 841.448025 BANK   | -5.69683892 OMXB  | 0.0000E+00 DOMXB |
| ELR  | 2.54218233 BETA  | 0.823497214 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 176.900378 RGR    | 50155.9975       |
| TC1  | 48.0000000 H     | 2054.77014 MACH  | 0.784271447 Q    | 845.506054 RANG   | 2.51822645 VAMI   | 869.390746 ALFA  |
| MAYB | -53821.6234 GAMA | -87.3926589 LATV | 40.6635200 LONV  | -72.6177723 ELRLH | -87.7035760 AZRLN | 76.8266266 GMT   |
| VDR  | -868.490708 RB1  | 27.3100000 DVDR  | -10.8785730 VCAL | 847.452259 BANK   | -5.73658283 OMXB  | 0.0000E+00 DOMXB |
| ELR  | 2.24560925 BETA  | 0.745498658 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 176.880113 RGR    | 50139.8428       |
| TC1  | 48.3000000 H     | 1793.75514 MACH  | 0.786412687 Q    | 858.292940 RANG   | 2.52114803 VAMI   | 872.557330 ALFA  |
| MAYB | -30608.9782 GAMA | -87.4467679 LATV | 40.6635328 LONV  | -72.6177105 ELRLH | -87.6992874 AZRLN | 76.8245591 GMT   |
| VDR  | -871.691111 RB1  | 27.3100000 DVDR  | -10.4540561 VCAL | 853.350913 BANK   | -5.73367256 OMXB  | 0.0000E+00 DOMXB |
| ELR  | 1.94773088 BETA  | 0.657581646 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 176.860162 RGR    | 50125.0831       |
| TC1  | 48.6000000 H     | 1531.79894 MACH  | 0.788446280 Q    | 871.037466 RANG   | 2.52403573 VAMI   | 875.610847 ALFA  |
| MAYB | -11023.8883 GAMA | -87.4802914 LATV | 40.6635454 LONV  | -72.6176493 ELRLH | -87.6841700 AZRLN | 76.7956086 GMT   |
| VDR  | -874.764270 RB1  | 27.3100000 DVDR  | -10.0358567 VCAL | 859.164403 BANK   | -5.70390165 OMXB  | 0.0000E+00 DOMXB |
| ELR  | 1.64860723 BETA  | 0.569812143 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 176.840433 RGR    | 50111.7131       |
| TC1  | 48.9000000 H     | 1268.93927 MACH  | 0.790376736 Q    | 883.742746 RANG   | 2.52690295 VAMI   | 878.555878 ALFA  |
| MAYB | 456.419868 GAMA  | -87.4913396 LATV | 40.6635579 LONV  | -72.6175885 ELRLH | -87.6648050 AZRLN | 76.7566870 GMT   |
| VDR  | -877.713885 RB1  | 27.3100000 DVDR  | -9.63021718 VCAL | 864.896045 BANK   | -5.66416853 OMXB  | 0.0000E+00 DOMXB |
| ELR  | 1.34829797 BETA  | 0.486016011 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 176.820835 RGR    | 50099.7273       |
| TC1  | 49.0922864 H     | 1100.00000 MACH  | 0.791559384 Q    | 891.861502 RANG   | 2.52873376 VAMI   | 880.385765 ALFA  |
| MAYB | 4249.07449 GAMA  | -87.4900362 LATV | 40.6635659 LONV  | -72.6175497 ELRLH | -87.6520998 AZRLN | 76.7313799 GMT   |
| VDR  | -879.541142 RB1  | 27.3100000 DVDR  | -9.37606094 VCAL | 868.525495 BANK   | -5.63834205 OMXB  | 0.0000E+00 DOMXB |
| ELR  | 1.15521681 BETA  | 0.434510221 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 176.808318 RGR    | 50092.7739       |
| TC1  | 49.0922864 H     | 1100.00000 MACH  | 0.791559384 Q    | 891.861502 RANG   | 2.52873376 VAMI   | 880.385765 ALFA  |
| MAYB | 4249.07449 GAMA  | -87.4900362 LATV | 40.6635659 LONV  | -72.6175497 ELRLH | -87.6520998 AZRLN | 76.7313799 GMT   |
| VDR  | -879.541142 RB1  | 27.3100000 DVDR  | -9.37606094 VCAL | 868.525495 BANK   | -5.63834205 OMXB  | 0.0000E+00 DOMXB |
| ELR  | 1.15521681 BETA  | 0.434510221 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 176.808318 RGR    | 50092.7739       |

DATE / TIME 15-03-04 13:36:12  
CP = 0.281 CYCLES = 495.

CASE = 1.

TG MODEL - G1

TYPE = PRIMARY-ORDERED

H = 1.10000000E+03

EVENT ESN 30  
TIME = 49.092  
EVENT CAUSED BY

| TC1  | 49.0922864 H     | 1100.00000 MACH  | 0.791559384 Q    | 891.861502 RANG   | 2.52873376 VAMI   | 880.385765 ALFA  |
|------|------------------|------------------|------------------|-------------------|-------------------|------------------|
| MAYB | -376900.517 GAMA | -87.4900362 LATV | 40.6635659 LONV  | -72.6175497 ELRLH | -87.4900362 AZRLN | 66.4316943 GMT   |
| VDR  | -879.541142 RB1  | 27.3100000 DVDR  | -15.6833891 VCAL | 868.525495 BANK   | 0.4665E-12 OMXB   | 0.0000E+00 DOMXB |
| ELR  | 1.15521681 BETA  | -0.1590E-13 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 176.808318 RGR    | 50092.7739       |
| TC1  | 49.0922864 H     | 1100.00000 MACH  | 0.791559384 Q    | 891.861502 RANG   | 2.52873376 VAMI   | 880.385765 ALFA  |
| MAYB | 4249.07449 GAMA  | -87.4900362 LATV | 40.6635659 LONV  | -72.6175497 ELRLH | -87.4900362 AZRLN | 66.4316943 GMT   |
| VDR  | -879.541142 RB1  | 27.3100000 DVDR  | -9.37606094 VCAL | 868.525495 BANK   | -5.63834205 OMXB  | 0.0000E+00 DOMXB |
| ELR  | 1.15521681 BETA  | 0.434510221 MAZB | 0.0000E+00 MAXB  | 0.0000E+00 AZR    | 176.808318 RGR    | 50092.7739       |

VDR -879.541142 RB1 27.3100000 DVDR -15.6833996 VCAL 868.525495 BANK 0.4665E-12 OMXB 0.0000E+00 DOMXB 0.0000E+00  
ELR 1.15521681 BETA -0.1590E-13 MAZB 0.0000E+00 MAXB 0.0000E+00 AZR 176.808318 RGR 50092.7739

EVENT ESN 40  
TIME = 49.092  
EVENT CAUSED BY  
DATE / TIME 15-03-04 13:36:12  
CASE = 1. CP = 0.281 CYCLES = 495.  
TG MODEL - G1

TDURP = 0.00000000E+00

TC1 49.0922864 H 1100.00000 MACH 0.791559384 Q 891.861502 RANG 2.52873376 VAMI 880.385765 ALFA 0.1590E-1  
MAYB 0.0000E+00 GAMA -87.4900362 LATV 40.6635659 LONV -72.6175497 ELRLH -87.4900362 AZRLN 66.4316943 GMT 49.092286  
VDR -879.541142 RB1 27.3100000 DVDR -15.6833996 VCAL 868.525495 BANK 0.4665E-12 OMXB 0.0000E+00 DOMXB 0.0000E+00  
ELR 1.15521681 BETA -0.1590E-13 MAZB 0.0000E+00 MAXB 0.0000E+00 AZR 176.808318 RGR 50092.7739

TC1 49.2000000 H 1005.17611 MACH 0.792813010 Q 897.781896 RANG 2.52975749 VAMI 882.069631 ALFA -0.1217E-1  
MAYB 0.0000E+00 GAMA -87.4893670 LATV 40.6635703 LONV -72.6175280 ELRLH -87.4893670 AZRLN 67.1055861 GMT 49.200000  
VDR -881.222941 RB1 27.3100000 DVDR -15.5438684 VCAL 871.216603 BANK 0.2332E-12 OMXB 0.0000E+00 DOMXB 0.0000E+00  
ELR 1.04681931 BETA -0.3222E-07 MAZB 0.0000E+00 MAXB 0.0000E+00 AZR 176.801318 RGR 50089.1285

TC1 49.5000000 H 740.130469 MACH 0.796210185 Q 914.258969 RANG 2.53260207 VAMI 886.661604 ALFA 0.4612E-1  
MAYB 0.0000E+00 GAMA -87.5150366 LATV 40.6635826 LONV -72.6174677 ELRLH -87.5150366 AZRLN 67.2040982 GMT 49.500000  
VDR -885.827818 RB1 27.3100000 DVDR -15.1551833 VCAL 878.640337 BANK 0.0000E+00 OMXB 0.0000E+00 DOMXB 0.0000E+00  
ELR 0.743753746 BETA -0.1495E-12 MAZB 0.0000E+00 MAXB 0.0000E+00 AZR 176.781859 RGR 50079.9294

TC1 49.8000000 H 473.720748 MACH 0.799493119 Q 930.768390 RANG 2.53543671 VAMI 891.136641 ALFA 0.3976E-1  
MAYB 0.0000E+00 GAMA -87.5408615 LATV 40.6635949 LONV -72.6174076 ELRLH -87.5408615 AZRLN 67.2678904 GMT 49.800000  
VDR -890.315972 RB1 27.3100000 DVDR -14.7657205 VCAL 885.984800 BANK -0.2381E-12 OMXB 0.0000E+00 DOMXB 0.0000E+00  
ELR 0.439024130 BETA -0.8906E-13 MAZB 0.0000E+00 MAXB 0.0000E+00 AZR 176.762457 RGR 50072.1523

TC1 50.1000000 H 205.981997 MACH 0.802662353 Q 947.304568 RANG 2.53826128 VAMI 895.494918 ALFA 0.4930E-1  
MAYB 0.0000E+00 GAMA -87.5662713 LATV 40.6636070 LONV -72.6173476 ELRLH -87.5662713 AZRLN 67.3320841 GMT 50.100000  
VDR -894.687187 RB1 27.3100000 DVDR -14.3756193 VCAL 893.248932 BANK 0.1203E-12 OMXB 0.0000E+00 DOMXB 0.0000E+00  
ELR 0.132687350 BETA -0.1050E-12 MAZB 0.0000E+00 MAXB 0.0000E+00 AZR 176.743115 RGR 50065.8200

TC1 50.2629619 H 60.0000000 MACH 0.804336324 Q 956.296050 RANG 2.53979134 VAMI 897.813360 ALFA -0.1590E-1  
MAYB 0.0000E+00 GAMA -87.5799043 LATV 40.6636135 LONV -72.6173152 ELRLH -87.5799043 AZRLN 67.3671249 GMT 50.262961  
VDR -897.012584 RB1 27.3100000 DVDR -14.1635004 VCAL 897.160684 BANK 0.6048E-12 OMXB 0.0000E+00 DOMXB 0.0000E+00  
ELR -0.034369977 BETA -0.2544E-13 MAZB 0.0000E+00 MAXB 0.0000E+00 AZR 176.732632 RGR 50062.9937

EVENT ESN 50  
TIME = 50.263  
EVENT CAUSED BY  
DATE / TIME 15-03-04 13:36:12  
CASE = 1. CP = 0.281 CYCLES = 510.  
TG MODEL - G7

H = 6.00000000E+01

TC1 50.2629619 H 60.0000000 MACH 0.804336324 Q 956.296050 RANG 2.53979134 VAMI 897.813360 ALFA -0.1590E-1

MAYB 0.0000E+00 GAMA -87.5799043 LATV 40.6636135 LONV -72.6173152 ELRLH -87.5799043 AZRLN 67.3671249 GMT 50.262961  
 VDR -897.012584 RB1 27.3100000 DVDR -14.1635004 VCAL 897.160684 BANK 0.6048E-12 OMXB 0.0000E+00 DOMXB 0.0000E+00  
 ELR -0.034369977 BETA -0.2544E-13 MAZB 0.0000E+00 MAXB 0.0000E+00 AZR 176.732632 RGR 50062.9937  
 ONO. 1 TAPE75 ENDS AT TD= 50.263

## EVENT SUMMARY

## VEHICLE NUMBER 1

|        |    |
|--------|----|
| 0.000  | 2  |
| 0.000  | 3  |
| 0.000  | 10 |
| 0.000  | 11 |
| 0.000  | 12 |
| 0.000  | 13 |
| 19.212 | 20 |
| 49.092 | 30 |
| 49.092 | 40 |
| 50.263 | 50 |

MAXIMUM NUMBER OF INTEGRATIONS WAS 35 , STORAGE WOULD HAVE ALLOWED (NIV) 50 .  
 BUCKET SIZE FOR THIS CASE 2660

CONTROL CARD 1.0

CONTROL CARD 1.00

0 BUCKET SIZE REQUESTED IS163841  
 0 CPU TIME AT CALL TO INP1M = 0.0000  
 0 CPU TIME AT RETURN FROM INP1M = 0.1094  
 0 CPU TIME USED BY INP1M MODULE = 0.1094  
 0 CPU TIME AT CALL TO INP2M = 0.1094  
 0 CPU TIME AT RETURN FROM INP2M = 0.1719  
 0 CPU TIME USED BY INP2M MODULE = 0.0625

----- CASE 1. -----  
 ESN 2 CASE= 1. AT TD= 0.0  
 ESN 2 CASE= 1. AT TD= 0.0  
 ESN 3 CASE= 1. AT TD= 0.0  
 ESN 3 CASE= 1. AT TD= 0.0  
 ESN 10 CASE= 1. AT TD= 0.0  
 ESN 10 CASE= 1. AT TD= 0.0  
 ESN 11 CASE= 1. AT TD= 0.0  
 ESN 11 CASE= 1. AT TD= 0.0  
 ESN 12 CASE= 1. AT TD= 0.0  
 ESN 12 CASE= 1. AT TD= 0.0  
 ESN 13 CASE= 1. AT TD= 0.0  
 ESN 13 CASE= 1. AT TD= 0.0  
 ESN 20 CASE= 1. AT TD= 19.2  
 ESN 20 CASE= 1. AT TD= 19.2  
 ESN 30 CASE= 1. AT TD= 49.1  
 ESN 30 CASE= 1. AT TD= 49.1  
 ESN 40 CASE= 1. AT TD= 49.1

ESN 40 CASE= 1. AT TD= 49.1  
ESN 50 CASE= 1. AT TD= 50.3  
ESN 50 CASE= 1. AT TD= 50.3  
0 BUCKET SIZE REQUESTED IS163841  
0 CPU TIME AT CALL TO INP1M = 0.5469  
0 CPU TIME AT RETURN FROM INP1M = 0.5469  
0 CPU TIME USED BY INP1M MODULE = 0.0000  
0 CPU TIME AT CALL TO INP2M = 0.5469