

# CHAPTER 1. ACCIDENT AND INCIDENT INVESTIGATION AND REPORTING

## SECTION 3. INVESTIGATING OF A OCEANIC GROSS NAVIGATION AND OTHER ERRORS

### 61. GENERAL.

A. *Navigation Performance Concept.* The concept of navigation performance involves the precision that must be maintained for the assigned route and altitude within a particular area. Navigation performance is measured by the deviation (for any cause) from the exact centerline of the route and altitude specified in an air traffic control (ATC) clearance. This includes errors due to degraded accuracy and reliability of navigation equipment and/or the flightcrew's competence in using the equipment. Flightcrew competence involves both flight technical errors and navigation errors. Flight technical error is defined as the pilot's accuracy in controlling the aircraft as measured by how closely the aircraft's actual position matches the desired position. Standards of navigational performance vary depending on traffic density and the complexity of the routes flown. Aircraft operating in special use airspace must achieve the highest standards of navigation performance accuracy. Improvements in navigation accuracy benefit aviation through reductions in separation minimums and more cost-effective routing. Flights within the North Atlantic (NAT) minimum navigation performance specification (MNPS) airspace require that the aircraft have approved navigation performance capabilities and be authorized by the Administrator to perform such operations required by (Federal Aviation Regulations (FAR) § 91.705). This authorization includes all aspects of the expected navigation performance accuracy of the aircraft, navigation equipment, installation and maintenance procedures, and crew navigation procedures and qualifications. FAR Part 91, Subpart H, is applicable to all U.S.-certificated aircraft.

B. *MNPS Airspace Requirements for Operations in the NAT.* FAR Part 91, Appendix C, defines the limit of NAT MNPS airspace, the required navigation performance capabilities, and the ATC deviation authorizations. FAR § 91.703(a)(1) makes the flight rules contained in International Civil Aviation Organization (ICAO) Annex 2 binding for U.S. operators operating over the high seas. ICAO Annex 2 states

that the aircraft "shall adhere to its current flight plan" and "when on an established ATS route, operate along the defined centerline of that route."

C. *Separation Minimums.* Separation minimums represent the minimum dimensions of a three-dimensional block of airspace assigned by ATC. Separation minimums establish the minimum lateral, vertical, and longitudinal distances used to separate aircraft, and represent the minimum level of overall navigation performance that can be accommodated at any time without jeopardizing safety. Any aircraft deviating by greater than one-half the separation minimums established for that operation has failed to meet the required level of navigation performance and to navigate to the degree of accuracy required for control of air traffic. Separation minimums for U.S. national airspace system operations can be found in Federal Aviation Administration (FAA) Order 7110.65, "Air Traffic Control." FAA Order 7110.83, "Oceanic Air Traffic Control," prescribes separation minimums in international oceanic airspace delegated to the United States by ICAO. ICAO Document 7030/3, "Regional Supplementary Procedures," prescribes separation minimums in international airspace.

63. **TYPES OF INVESTIGATIONS.** There are three types of navigation/altitude deviations to be investigated: gross navigation errors, altitude deviation errors, and erosion of longitudinal separation in excess of 3 minutes. Investigations to determine the cause(s) of these errors are conducted upon receipt of reports of navigation and altitude deviations and erosion of longitudinal separation. These reports are generated by domestic and foreign ATC units. Reports are forwarded to the appropriate flight standards district office (FSDO) or certificate management office (CMO), for civil aircraft, by the Flight Standards National Field Office (FSNFO), AFS-500. Military navigation errors are sent directly to the applicable military service by AFS-400. Inspectors must be aware that these investigations are not enforcement investigations, although the findings may result in initiation of enforcement investigations. Representatives from Flight Standards, Air Traffic, and the Gen-

eral Counsel's office have determined that, since a navigation error could occur for several reasons, it would be inappropriate to investigate errors in accordance with the guidelines for investigation of pilot deviations in accordance with the geographic unit concept as contained in FAA Order 8020.11A, "Aircraft Accident and Incident Notification, Investigation, and Reporting," and also, FAA Order 7110.83B, "Monitoring of Navigation/Altitude Performance in Oceanic Airspace."

A. *Reasons for Investigations.* The cause(s) of reported navigation/altitude deviations are investigated for numerous reasons. These include promotion of aviation safety, the necessity of ensuring safe and economic flight, and U.S. compliance with international agreements as a member of ICAO. The data gathered during these investigations is used in the risk modeling process conducted by the FAA Technical Center in Atlantic City, NJ, and can lead to a reduction of separation minimums and availability of more economic flight routes in heavily used airspace.

B. *Timeliness of Investigations.* Investigation of navigation/altitude deviation reports should begin promptly to ensure the availability of evidence needed to establish the cause(s) of the deviation. The nature and extent of the investigation will depend upon factors such as the status of the equipment at the time of the deviation, crew qualifications for oceanic operations, and other factors.

## 65. REFERENCES, FORMS, AND JOB AIDS.

### A. *References.*

- Advisory Circular (AC) 91-70, "Oceanic Operations"
- AC 91-RVSM, "Approval of Aircraft and Operations for Flight in Airspace Above Flight Level (FL) 290 Where a 1,000 Foot Vertical Separation Minimum is Applied"
- AC 90-92, "Guidelines for the Operational Use of Loran-C Navigation Systems Outside the U.S. National Airspace System (NAS)"
- Annexes to the Convention on Civil Aviation
- FAA Order 8400.10
- FAA Order 7110.83B, "Monitoring of Navigation/Altitude Performance in Oceanic Airspace."

### B. *Forms.*

- FAA Form 8000-36, "Program Tracking and Reporting Subsystem Data Sheet"

### C. *Inspector Work Sheets.*

- Oceanic Navigation Error Report (ONER) (figure 7.1.3.1.)
- ONER Supplemental Information Record (figure 7.1.3.2.)
- Oceanic Altitude Deviation Report (OADR) (figure 7.1.3.1.)
- OADR Supplemental Information Record (figure 7.1.3.3.)
- Investigative Report-Erosion of Longitudinal Separation Worksheet (figure 7.1.3.4.)
- Navigation Error Report for Omega-Equipped Aircraft (figure 7.1.3.5.)

## 67. PROCEDURES AND RESPONSIBILITIES.

A. *FSNFO Responsibilities.* The FSNFO, AFS-500, will send an ONER, OADR, or an erosion of longitudinal separation report to the FSDO or CMO best suited to investigate the deviation. If the investigation reveals that a FAR violation has occurred, that office will also be responsible for initiating and completing an enforcement investigation report. The FSNFO will also be responsible for the following:

- Determining the appropriate office (FSDO/CMO) to investigate the reported deviation, if it involves a civil aircraft
- Coordinating with the appropriate FSDO and regional office as required
- Reviewing completed investigations to ensure that the findings are correct and that appropriate action was taken
- Forwarding a copy of the completed report to the Technical Programs Division, AFS-400, within 10 days of receipt

B. *Regional Office Responsibilities.* Regional Flight Standards divisions shall:

- Appoint an individual to act as focal point within that region for matters pertaining to oceanic operations
- Monitor investigations conducted within that region and ensure that report investigations are completed and the findings are recorded on the prescribed forms, within 45 days after a deviation occurrence
- Review actions proposed by FSDO's in that region to prevent recurrence of navigation errors, altitude deviations, erosion of longitudinal separation

- Coordinate follow-up action with FSDO's and the FSNFO, as necessary. Forward the completed investigation, with attachments, to AFS-500

C. *FSDO/CMO Responsibilities.* Upon receipt of a report, the FSDO's/CMO's shall:

- Contact the appropriate ATC unit and obtain all available flight data within 15 days of the deviation's occurrence
- Contact the aircraft operator and conduct an investigation
- Establish the cause and/or factors contributing to the deviation
- Complete the appropriate supplemental information record (figure 7.1.3.3. and 7.1.3.4.)
- Take action as necessary to prevent recurrence of the deviation and determine if remedial training, counseling, administrative action, equipment replacement, or enforcement action is the most appropriate course of action and proceed accordingly. If the air carrier has an internal publication for its pilots, ensure that an article is published to educate other pilots
- Complete the Flight Standards portion of the deviation report, including appropriate attachments
- Forward a copy of the completed package to the regional flight standards division (RFSD)
- Complete the PTRS entry
- Notify the FSNFO when the investigation is completed and entered in the PTRS system (within 45 days of the deviation occurrence)

## 69. ONER/OADR REPORT INVESTIGATION PROCEDURES.

A. *FSDO Report Investigation.* Upon receipt of an ONER or OADR, inspectors should familiarize themselves with Items 1-16 (figure 7.1.3.1.). For either an ONER or an OADR, the inspector must complete the following tasks:

- (1) Open a PTRS record of the investigation using activity code 1712. Enter the report number assigned by the FSNFO in the National Use field.
- (2) Obtain all available flight information, relative to the flight under investigation, from ATC.
- (3) Contact the operator and obtain the information needed to complete the investigation, establish the cause, and identify any contributing fac-

tors within 45 days. Inspectors should complete the appropriate supplemental information record (figure 7.1.3.2., 7.1.3.3., or 7.1.3.4.).

**NOTE: Do not use FAA Form 8020-5, Aircraft Incident Record, or other such forms to report supplemental information for this task.**

B. *ONER Report Completion.* Inspectors should complete Items 17-23 on the ONER report form (figure 7.1.3.1.) and the items listed on the ONER Supplemental Information Record (figure 7.1.3.2.).

(1) In Item 17, Operator/Crew Identification and Remarks, enter any operator or crew comments that may identify factors that resulted in or contributed to the navigation error.

(2) In Item 18, Was the Use of Special Use Airspace Authorized? i.e., Does the air carrier have the appropriate operations specifications.

(3) In Item 19, Cause of Deviation, indicate the most likely cause of the navigation error as determined by the investigation and analysis of the data gathered.

(4) In Item 20, Investigator's Comments, record the investigator's findings and an analysis of the event. Include the number, manufacturer(s), and type(s) of long-range navigation equipment in use at the time of the event.

**NOTE: If pilot error, expand the write-up to the maximum extent possible, so as to allow details of the events to be incorporated into future CRM training curriculum.**

(5) In Item 21, Corrective Action Recommended or Initiated, enter any action taken with reference to equipment, procedures, or personnel to prevent recurrence of the deviation and improve performance. Enter any recommendations for action in reference to the authorization for operations in MNPS airspace, if pertinent. This section will determine what further action is required. Inspectors must determine if verification of equipment repair or replacement, remedial training or counseling, administrative action, or an enforcement investigation is the best disposition of the ONER. A recommendation may also be made for no further action. Completion of the investigation report does not require that the recommended corrective action be completed.

(6) In Item 22, Flight Standards National Field Office Assigned Report Number, enter the number assigned by the FSNFO.

(7) In Item 23, Attachments, check "yes" or "no" to indicate the additional information that is attached to the report.

(8) Complete the PTRS entry as described in paragraph 77 of this section.

C. *OADR Report Completion.* Inspectors should complete Items 17-23 on the OADR report (figure 7.1.3.1.) and the items listed on the OADR Supplemental Information Record (figure 7.1.3.3.).

**NOTE: An OADR is often referred to as a Height Deviation Report, particularly by foreign governments.**

(1) In Item 17, Operator/Crew Identification and Remarks, enter any operator or crew comments that may identify factors that resulted in or contributed to the navigation error.

(2) In Item 18, Was the use of Special Use Airspace Authorized

(3) In Item 19, Cause of Deviation, indicate the most likely cause of the altitude deviation as determined by the investigation and the analyses.

(4) In Item 20, Investigator's Comments, record the investigator's findings and an analysis of the event. Include the number, manufacturer(s), and type(s) of altimeter equipment in use at the time of the event.

**NOTE: If pilot error, expand the write-up to the maximum extent possible, so as to allow details of the events to be incorporated into future CRM training curriculum.**

(5) In Item 21, Corrective Action Recommended or Initiated, enter any action taken with reference to equipment, procedures, or personnel to prevent recurrence of the deviation and improve performance. Enter any recommendations for action in reference to the authorization for operations in MNPS airspace, if pertinent. This section will determine what further action is required. Inspector's must determine if an enforcement investigation, verification of equipment replacement, remedial training or counseling, or administrative action is the best disposition of the OADR. A recommendation may also be made for no further action.

(6) In Item 22, Flight Standards National Field Office Assigned Report Number, enter the number assigned by the FSNFO.

(7) In Item 23, Attachments, check "yes" or "no" to indicate the additional information that is attached to the report.

(8) Complete the PTRS entry as described in paragraph 77 of this section.

A. *FSDO Procedures.* The FSNFO will forward reports of erosion of longitudinal separation to the appropriate FSDO or CMO. Upon receipt of a request to investigate an incident involving erosion of longitudinal separation, inspectors should contact the operators of both aircraft and obtain the information necessary to complete Part 2 of the Investigative Report-Erosion of Longitudinal Separation Investigation Worksheet (figure 7.1.3.4.). If an inspector determines that another FSDO or CMO can provide significant input to the investigation because of familiarity with either of the aircraft involved, the inspector should solicit the assistance of that office and record that fact in the Remarks section of Part 1 of the investigation worksheet. The majority of the information required to complete Part 1 of the investigation worksheet will have been provided by air traffic. FSDO/CMO investigations will require the inspector to obtain the information necessary to complete Part 2 and, if appropriate, Part 3 of the investigation worksheet.

B. *Completion of Part 2.* Inspectors should complete Part 2 of the investigation worksheet as follows:

(1) In Item 12, enter aircraft #1's home base or, in the case of air carriers, the CMO.

(2) In Item 13, enter aircraft #1's operator's name and address. Post office boxes should not be used as an address unless the inspector has exhausted all means to obtain a street address.

(3) Items 15 through 17 - repeat Items 12 through 14 for aircraft #2.

(4) In Item 18, record the type of special use airspace where the loss of longitudinal separation occurred, or enter "N/A."

(5) Item 19 - All details of the investigation should be included in this section and copies of any flight strips, weather reports or other data should accompany the submission of the report. Inspectors should request a copy of the flight strip from ATC and a recording of the oceanic clearance for each of the aircraft. If the first aircraft's position reports are consistent with its clearance, the second aircraft most likely caused the erosion of separation. This can be verified by comparing the second aircraft's position reports and clearance. Inspectors should note that erosion of separation, regardless of which aircraft caused the erosion, does not necessarily constitute cause for an enforcement investigation. During oceanic operations, individual aircraft may encounter the effects of a jet stream shift that does not affect other aircraft. When an inspector suspects this type of situation, it may be necessary to investigate all available weather data in determining the cause of the deviation.

## 71. INVESTIGATE EROSION OF LONGITUDINAL SEPARATION.

(7) Complete the PTRS entry as described in paragraph 77 of this section.

*C. Completion of Parts 3A and 3B.* Part 3A should be completed only in the event that aircraft #1 experienced a partial or complete flight management system failure. Part 3B should be completed only in the event that aircraft #2 experienced a partial or complete flight management system failure. Since instructions for both parts are identical, only instructions for Part 3A are included in this paragraph.

(1) Item 20 - Inspectors should provide as much detail as possible about the failed unit(s). If more than one unit failed, each unit should be listed.

(2) Item 21 - As close an estimate as possible of the latitude and longitude of the aircraft at the time of equipment failure should be listed for each equipment failure.

(3) Item 22 - This requires only a "yes" or "no" answer.

(4) Item 23 - Time of failure should be entered in UTC and the date of failure entered in this block.

(5) Item 24 - Enter the estimated duration of equipment failure. If the equipment became operational prior to the end of the flight, enter the word "temporary" after the time entry. If the equipment failure was total (until the end of the flight), inspectors should attempt to obtain the name and location of the repair station and note this information in the Remarks section of Part 1.

(6) Item 25 - The time entered in this item should be the UTC when the aircraft departed the special use airspace. If the flight did not take place in special use airspace, enter "N/A."

(7) Item 26 - Enter the time in hours and minutes that the equipment failed while in special use airspace. If more than one unit failed, list time for each. If the flight was not in special use airspace, enter "N/A."

(8) Item 27 - If ATC was advised of the failure by the crew, enter the time ATC was advised. If multiple units failed, enter the time for each. If ATC was not advised, enter "not advised."

### **73. REPORT COMPLETION DIFFICULTIES.**

Numerous situations exist which may make it difficult or impossible for an inspector to determine ownership of an aircraft at the time of a deviation. As a general rule, inspectors should attempt to impress upon the owner of record that the owner should provide as much information as possible to prevent the possibility of any future liabilities resulting from illegal export, operating an unregistered aircraft in a foreign country,

or other liabilities resulting from incidents or accidents by the current owner. If the current owner of an aircraft cannot be located, a certified letter should be sent to the owner, at the address of record. The letter should inform the owner that authorization for operation in special use airspace will be cancelled in 30 days unless the owner contacts the inspector and the matter is resolved. The following paragraphs provide examples of special situations that may be encountered, and include recommendations for resolving those situations:

*A. Change in Aircraft Ownership.* A U.S. owner sells an aircraft to a foreign national and refuses to give the inspector details regarding the sale, and the owner claims that deregistration papers were sent to the Aircraft Certification Branch in Oklahoma City, AFS-760. Change in an aircraft's ownership negates an aircraft's registration under FAR § 47.41. This applies regardless of whether the ownership change is domestic or international. If the previous owner is still the certificate holder at the time of a deviation, that owner should be advised of the liability implications of the new owner operating an unregistered aircraft. Every attempt should be made to obtain information about the new aircraft owner. Inspectors should advise the owner of the potential for future liability as noted above. If still unable to obtain cooperation, contact the regional oceanic operations focal point and AFS-500.

*B. Corporate Ownership of Aircraft.* An aircraft cited in a deviation report is found to be registered to a lending institution such as a bank or a savings and loan. Inspectors should contact the lending institution and advise them that an operational deviation has been reported and that it is necessary to contact the aircraft operator to possibly prevent legal action. If the institution is uncooperative, they too can be advised of the potential for future liabilities and enforcement action. If the inspector is still unable to determine the operator, notify the regional oceanic operations focal point and AFS-500.

*C. Sale to a Foreign Country.* An aircraft cited in a deviation report is found to have been sold to a foreign country. Inspectors should obtain as much detail as possible about the sale and return the information and deviation report to AFS-500 as soon as possible.

*D. Training Considerations.* Inspectors investigating deviations should be especially diligent in determining what type of international operations training the crew has received. If the training appears to be lacking in quality or content, the inspectors should consider surveillance of the training program

as a possible remedial action to prevent future deviations.

E. *Omega/VLF or GPS Equipped Aircraft.* Figure 7.1.3.5. is a sample of a form used by the U.S. Coast Guard and the Omega Association to provide information that will further their cooperative efforts to improve Omega navigation. Inspectors should encourage operators of Omega-equipped aircraft to provide this information during investigation of deviations by those aircraft. A loss of GPS signal shall also be documented. The information should become part of the investigation report.

## 75. EXAMPLES OF DEVIATION INVESTIGATIONS THAT REQUIRE ENFORCEMENT ACTION.

While conducting investigations of navigation/altitude errors, inspectors should be alert for the following situations.

A. When applicable, ensure that the aircraft involved were authorized to operate in MNPS airspace in accordance with FAR § 91.705.

B. Ensure that the aircraft was equipped with the appropriate radio equipment in accordance with FAR § 91.511.

C. Ensure that the pilots have the proper qualifications to operate the navigation systems, which includes having the ability to monitor the progress of the flight and to resolve discrepancies between the navigation systems.

D. Determine if the following occurred:

(1) The aircraft was flown contrary to ATC instructions and in violation of FAR § 91.123. (ICAO Rule 3.6 Annex 2)

(2) The aircraft was flown off course in violation of FAR § 91.181. (ICAO Rule 3.6 Annex 2)

(3) The pilot was careless by inserting incorrect waypoints in the navigation system in violation of FAR § 91.13. (ICAO Rule 3.1 Annex 2)

(4) An emergency was declared, prior to or immediately after the event, such as an altitude deviation or a track deviation due to weather.

## 77. TASK COMPLETION.

A. *PTRS Entry.* Complete the PTRS entry in the normal manner, and include the following specific entries required for this task:

(1) Activity number: 1712

(2) In the National Use field, enter the FSNFO assigned report number.

(3) Under Miscellaneous in Section 1, identify the type of investigation using one of the following acronyms:

- (a) "ONER" for oceanic navigation error report
- (b) "OADR" for oceanic altitude
- (c) "EOLS" for erosion of longitudinal separation

(4) In Section II, Personnel, list the names of the crewmembers and note their certificate numbers in the Remarks column.

(5) In Section III, Equipment, if equipment failure contributed to the deviation, list the equipment in this section.

(6) In Section IV, Comment Section, enter the following codes as appropriate:

- (a) For an ONER, enter Primary/Key code A741
- (b) For an OADR, enter Primary/Key code A729
- (c) For a report of erosion of longitudinal separation, enter Primary/Key code A749
- (7) Enter appropriate opinion code.

(8) In the Comment Text section, record the responses to all items on the appropriate report (ONER, OADR, erosion of longitudinal separation) in the order that those items appear on the report (for example, record the answers to Items 1 - 22 of an ONER report in order by number).

B. *Report Disposition.* After completing the PTRS entries, forward the complete investigation package, with attachments, to the regional office. The package should include the initial deviation report and any required supplemental information reports as identified on the appropriate checklist. Upon completion of the report, notify the FSNFO by the most expeditious means (cc:mail, fax, E-mail) by forwarding the report's FSNFO assigned report number, the PTRS record number for that report, and the date of completion.

**79. TASK OUTCOMES.** The following activities may be initiated:

A. Administrative action against an airman or certificate holder.

B. Remedial training or counseling of an airman.

C. An airworthiness or avionics inspector may inspect the aircraft to determine if defective equipment that caused the deviation has been repaired or

replaced, as appropriate, and to determine if the pilot made a malfunction report as required by FAR § 91.187.

D. Enforcement action may be initiated against an airman or certificate holder.

E. Future activities may include:

- Change in operations specifications
- Initiation of enforcement action

**82.-98. RESERVED**

**FIGURE 7.1.3.1**  
**OCEANIC NAVIGATION ERROR REPORT/OCEANIC ALTITUDE DEVIATION REPORT**

FROM:	FAX:	PHONE:
OCEANIC NAVIGATION ERROR REPORT/OCEANIC ALTITUDE DEVIATION REPORT (TO BE COMPLETED BY AIR TRAFFIC)		
1. Gross navigation error report message <input type="checkbox"/> Altitude deviation of 300 feet or more <input type="checkbox"/> (Check one)		
2. Reporting agency and local reporting number, if used		
3. Date of occurrence		
4. Time of occurrence (UTC)		
5. Aircraft identification and operator (If military, provide call sign)		
6. Aircraft type		
7. ATC cleared route or track		
8. Radar observed position (in latitude and longitude) and distance left or right of assigned route or track or observed* or reported** flight level or altitude (*Use observed if Mode C; **reported if pilot reported)		
9. Assigned flight level or altitude		
10. Crew comments when notified		
11. Location where flight plan filed (For general aviation aircraft, insert the 4-letter ICAO location identifier. For air carrier aircraft insert the company or agency which filed the flight plan.)		
12. Type of long-range navigation equipment in use		
13. Did ATC advise operator of occurrence?		
14. Remarks (anything which might assist in the investigation or analysis. For example, for ONER's, if time permits, ask the pilot if the aircraft is equipped with and using Omega, Loran C, or GPS. If so ask the pilot to identify the facilities in use if any ground-based NAVAID's are being used, the number of satellites used for navigation (if GPS), and any malfunction codes displayed by those stations)		
15. Flight plan data. (Forward flight plan, if available. If the flight plan is not available, enter any available information to help locate the operator, such as identification of departure and arrival points.)		

**FIGURE 7.1.3.1--Continued  
OCEANIC NAVIGATION ERROR REPORT/OCEANIC ALTITUDE DEVIATION REPORT**

TO BE COMPLETED BY FLIGHT STANDARDS	
16. Addressee -- please acknowledge receipt.	
17. Operator/crew identification and remarks (For military, provide call sign only)	
18. Was the use of special use airspace authorized?	
19. Cause of deviation	
20. Investigator's comments	
21. Corrective action recommended or initiated	
22. Flight Standards National Field Office assigned report number	
23. Attachments - Please indicate what additional information is attached to this report by circling "yes" or "no," as appropriate.	
• ONER/OADR supplemental information record*	Yes    No
• Flight log	Yes    No
• Waypoint notebook	Yes    No
• ATC flight plan	Yes    No
• Other (please identify) _____	
<p>**Copies of the ONER/OADR Supplemental Information Record are contained in:                      FAA Order 8700.1, Chapter 223.                      FAA Order 8400.10, Vol. 7, Chap. 1, Sect. 3.</p>	

**FIGURE 7.1.3.2  
ONER SUPPLEMENTAL INFORMATION RECORD**

PART 1 GENERAL INFORMATION	
1. Flight Standards National Field Office record number _____ PTRS report number _____	
2. Operator's name and address	
3. Aircraft registration, model/series, and home base	
4. Type of special use airspace where deviation occurred	
5. Letter of Authorization number (if applicable)	
6. PIC's name	
7. PIC's address	
8. PIC's certificate number _____ Certificate type _____	
9. Did flightcrew declare an emergency?	

10. PART 2 AIRCRAFT NAVIGATION EQUIPMENT				
Number and Type	INS	OMEGA/GPS	IRS/FMS	OTHER (Specify)
Single				
Dual				
Triple				
Model #				
Nav. system program #				
What system coupled to autopilot?				

Investigator	Date	Routing Symbol

**FIGURE 7.1.3.2--Continued  
ONER SUPPLEMENTAL INFORMATION RECORD**

11. <b>PART 3 DETAILED DESCRIPTION OF INCIDENT</b>
Please provide an assessment of the actual track flown by the aircraft and the cause(s) of the deviation. Continue on a separate sheet of paper, if necessary.

12. <b>PART 4 TO BE COMPLETED IN THE EVENT OF PARTIAL OR COMPLETE NAVIGATION EQUIPMENT FAILURE</b>				
	INS	OMEGA	GPS	OTHER (Specify)
Indicate the number of units that failed				
Estimated latitude/longitude at time of equipment failure				
Time of failure				
Estimate duration of equipment failure				
Time of exit from special use airspace (if applicable)				
Duration of failure in special use airspace (if applicable)				
Time ATC was advised of failure				

Investigator	Date	Routing Symbol

**FIGURE 7.1.3.3  
OADR SUPPLEMENTAL INFORMATION RECORD**

PART 1 GENERAL INFORMATION	
1. Flight Standards National Field Office record number _____	
PTRS report number _____	
2. Operator's name and address	
3. Aircraft registration, model/series, and home base	
4. Position (latitude & longitude)	
5. Did flightcrew declare an emergency?	
6. Radar unit observing deviation	
7. Type of special use airspace where deviation occurred	
8. Letter of Authorization number (if applicable)	
9. PIC's name	
10. PIC's address	
11. PIC's certificate number _____	Certificate type _____
12. Separation minimum of airspace where deviation occurred (circle one) 1,000 ft. 2,000 ft.	
13. Was aircraft CAS or TCAS equipped? (circle one) Yes No	

14. PART 2 AIRCRAFT ALTIMETERS				
Check or enter data as appropriate. This part is not required if an operational malfunction caused the deviation.				
Number and type	Primary	#2	#3	#4
Calibration date				
Check unit coupled to encoder				
Manufacturer				
Check unit coupled to autopilot				

Investigator _____	Date _____	Routing Symbol _____
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**FIGURE 7.1.3.3--Continued  
OADR SUPPLEMENTAL INFORMATION RECORD**

15. PART 3 DETAILED DESCRIPTION OF INCIDENT
Please provide an assessment of the actual track flown by the aircraft and the cause(s) of the deviation. Continue on a separate sheet of paper if necessary.

16. PART 4 TO BE COMPLETED IN THE EVENT OF PARTIAL OR COMPLETE ALTIMETER FAILURE				
	PRIMARY	#2	#3	#4
Indicate the number of units that failed				
Estimated latitude/longitude at time of equipment failure				
Time of failure				
Estimate duration of equipment failure				
Time of exit from special use airspace (if applicable)				
Duration of failure in special use airspace (if applicable)				
Time ATC was advised of failure				

Investigator	Date	Routing Symbol

**FIGURE 7.1.3.4  
INVESTIGATIVE REPORT - EROSION OF LONGITUDINAL SEPARATION WORKSHEET**

PART 1
1. Erosion of longitudinal separation report
2. Reporting agency
3. Date
4. First aircraft identification and operator
5. Aircraft type
6. Mach number/position/time/altitude
7. Second aircraft identification and operator
8. Second aircraft type
9. Match number/position/time/altitude
10. Crew comments when notified (if applicable)
11. Remarks

Investigator	Date	Routing Symbol

**FIGURE 7.1.3.4--Continued  
INVESTIGATIVE REPORT - EROSION OF LONGITUDINAL SEPARATION WORKSHEET**

PART 2 GENERAL INFORMATION	
12. Aircraft #1 home base	
13. Operator's name and address	
14. Letter of Authorization number (if applicable)	
15. Aircraft #2 home base	
16. Operator's name and address	
17. Letter of Authorization number (if applicable)	
18. Type of special use airspace where deviation occurred	
19. Please provide an assessment of the actual track flown by the aircraft and the cause(s) of the deviation. Continue on a separate sheet of paper, if necessary.	

Investigator	Date	Routing Symbol

**FIGURE 7.1.3.4--Continued  
INVESTIGATIVE REPORT - EROSION OF LONGITUDINAL SEPARATION WORKSHEET**

PART 3 TO BE COMPLETED IN THE EVENT OF PARTIAL OR COMPLETE FLIGHT MANAGEMENT SYSTEM FAILURE				
AIRCRAFT #1	Primary	#2	#3	#4
20. Indicate manufacturer & model of units that failed				
21. Estimated latitude/longitude at time of equipment failure				
22. Did aircraft flight management system auto throttle malfunction?				
23. Time of failure				
24. Estimate duration of equipment failure				
25. Time of exit from special use airspace (if applicable)				
26. Duration of failure in special use airspace (if applicable)				
27. Time ATC was advised of failure				

AIRCRAFT #2	Primary	#2	#3	#4
28. Indicate manufacturer & model of units that failed				
29. Estimated latitude/longitude at time of equipment failure				
30. Did aircraft flight management system auto throttle malfunction?				
31. Time of failure				
32. Estimate duration of equipment failure				
33. Time of exit from special use airspace (if applicable)				
34. Duration of failure in special use airspace (if applicable)				
35. Time ATC was advised of failure				

Investigator	Date	Routing Symbol

**FIGURE 7.1.3.5  
NAVIGATION ERROR REPORT FOR OMEGA/GPS-EQUIPPED AIRCRAFT**

1. Details of aircraft and reported error
Name of operator
Aircraft identification
Date/time of observed error
Flight level
Position (latitude/longitude)
Approximate cross-track deviation (NM)
2. Was Omega/GPS being used as the primary means of navigation and steering guidance?
3. Do you consider failure of, or difficulty with, the Omega system as a contributory cause of the deviation? If not, do not complete items 5-10.
4. Manufacturer of Omega/GPS equipment, type of equipment, most recent modification date.
5. Give details of cleared track within NAT oceanic airspace.
6. Give details of any problems experienced with Omega, together with the approximate geographic location.
7. Give details of Omega/VLF signals used and received strength.
8. Have there been previous difficulties with the Omega installation? If so, give details.
9. Have any faults been discovered during general checks/maintenance work?
10. What rectification work has been performed?
11. Please provide any additional information that you feel is relevant.

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**[PAGES 7-59 THROUGH 7-76 RESERVED]**