

RVSM

Altimeters Comparison:

On the Ground: **±75' of Each Other**
±50' of Field Elev

In Flight: Within a tolerance band of **±65** feet about an acquired altitude when the aircraft is operated in straight and level flight under nonturbulent, nongust conditions

The aircraft must be equipped with an altitude alert system that signals an alert when the altitude displayed to the flight crew deviates from the selected altitude by more than **±200** feet for aircraft for which application for type certification is made after April 9, 1997.

Pre-Flight:

No Obstructions around the Static

Ports within **6" Forward**
3" All Around

Check there is No MEL that restricts flight in RVSM airspace

Minimum Airspeed: 160 KIAS

Minimum Weight 14,000 lbs (*maintains level pitch attitude for accuracy of pitot system*)

RVSM

FL 290 to FL410

During Climb/Descent - The last 1,000' should not exceed 1,000 feet per min. Limit Climb & Descent rates to 1,000 fpm when operating within 5 nm and 2,000' vertically of other aircraft.

Cross check both primary and stand-by altimeters when entering RVSM airspace and at least once each hour. Initial check should be recorded for reference.

Inoperative Equipment in RVSM Airspace

Advise ATC "Negative RVSM"

Initial Calls

Request for FL Changes

All Read-backs of FL Clearances

Advise ATC if Failure Enroute:

Automatic Altitude Controller

Altitude Alerter

Both Altimeters

Either Altimeter

Transponder Failure

Reporting Deviations

Total Vertical Error of 300'

Altimeter Error of 245'

Assigned Altitude Deviation of 300'

Revision Sept. 1, 2005

GEN04009
Operational Policy/Procedures For RVSM In the
Domestic U.S., Alaska, Offshore Airspace and the San Juan FIR
Revisions to November 24, 2004 Edition

GEN04009 Revisions Effective Sept. 1, 2005. This GEN04009 revision contains new aircraft equipment suffixes for FAA Flight Plans that are effective September 1. The suffixes indicate Advanced RNAV and RVSM capability. **See paragraph d and the attachment.**

Explanation/Effective Date. The operational policy and procedures for Reduced Vertical Separation Minimum (RVSM) contained in this notice were effective as of January 20, 2005 at 0901 UTC. Paragraph “a.” (Applicability and RVSM Mandate) discusses their applicability in the airspace of the lower 48 states, Alaska, the San Juan FIR and Atlantic and Gulf of Mexico High Offshore Airspace. This revised notice is posted in the Domestic/International NOTAM book under Part 4 (Graphic Notices).

Coordination/Distribution. To harmonize North American RVSM policy/procedures to the maximum extent possible, the material has been coordinated with Canadian and Mexican authorities. During the review process, the FAA received comment on the material from FAA organizations and from industry. The notice has been distributed to FAA organizations and industry and posted on the RVSM Documentation Webpage. (See paragraph c 2). The material will be published in the August 4, 2005 edition of the Aeronautical Information Manual (AIM).

Paragraph Revisions. Paragraphs containing revisions are marked with a line in the left hand border.

Separate Notices With Information On RVSM Operations In the Gulf of Mexico and Oceanic Airspace In the West Atlantic Route System (WATRS) and the San Juan FIR. On November 25, 2004 two other notices were published. One updated and replaced the 7/13/01 notice on WATRS RVSM operations. The other provides additional information on RVSM operations and the Strategic Lateral Offset Procedure in Gulf of Mexico operations. The notices are posted on the RVSM Documentation Webpage under “Area of Operations Specific Information and Operational Policy/Procedures”.

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a. APPLICABILITY AND RVSM MANDATE (DATE/TIME AND AREA)

1. Applicability. The policies, guidance and direction in this notice apply to RVSM operations in the airspace over the lower 48 states, Alaska, Atlantic and Gulf Of Mexico High Offshore Airspace and airspace in the San Juan FIR where VHF or UHF voice direct controller-pilot communication (DCPC) is normally available. Policies, guidance and direction for RVSM operations in oceanic airspace where VHF or UHF voice DCPC is not available and the airspace of other countries are posted on the FAA “RVSM Documentation” Webpage described in paragraph c 2.

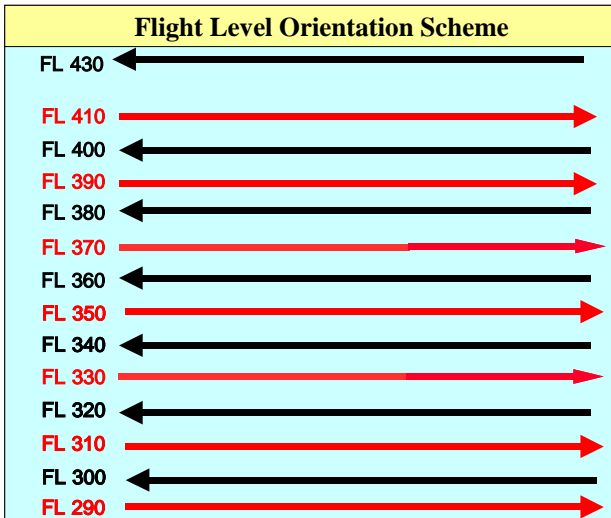
2. Mandate. At 0901 UTC on January 20, 2005, the FAA implemented RVSM between flight level (FL) 290-410 (inclusive) in the following airspace: the airspace of the lower 48 states of the United States, Alaska, Atlantic and Gulf of Mexico High Offshore Airspace and the San Juan FIR. (A chart showing the location of Offshore airspace is posted on the DRVSM Webpage. See paragraph c 2). On the same time and date, RVSM was also introduced into the adjoining airspace of Canada and Mexico to provide a seamless environment for aircraft traversing those borders. In addition, RVSM was implemented on the same date in the Caribbean and South American regions.

3. RVSM Authorization. In accordance with Title 14 of the Code of Federal Regulations (14 CFR) Section 91.180, with only limited exceptions, prior to operating in RVSM airspace, operators and aircraft must have received RVSM authorization from the responsible civil aviation authority. (See paragraph c). If the operator or aircraft or both have not been authorized for RVSM operations, the aircraft will be referred to as a “Non-RVSM” aircraft. Paragraph j discusses ATC policies for accommodation of Non-RVSM aircraft flown by the Department of Defense, Air Ambulance (Lifeguard) operators, foreign State governments and aircraft flown for certification and development. Paragraph k contains policies for Non-RVSM aircraft climbing and descending through RVSM airspace to/from flight levels above RVSM airspace.

4. Benefits. DRVSM enhances ATC flexibility, mitigates conflict points, enhances sector throughput, reduces controller workload and enables crossing traffic. Operators gain fuel savings and operating efficiency benefits by flying at more fuel efficient flight levels and on more user preferred routings.

b. FLIGHT LEVEL ORIENTATION SCHEME

1. Altitude assignments for direction of flight follow a scheme of odd altitude assignment for magnetic courses 000-179 degrees and even altitudes for magnetic courses 180-359 degrees for flights up to and including FL410, as indicated in the chart below.



RVSM Note:

Odd Flight Levels: Magnetic Course 000-179 Degrees

Even Flight Levels: Magnetic Course 180-359 Degrees

c. AIRCRAFT AND OPERATOR APPROVAL POLICY/PROCEDURES, RVSM MONITORING AND DATABASES FOR AIRCRAFT AND OPERATOR APPROVAL

1. **RVSM Authority.** 14 CFR Section 91.180 applies to RVSM operations within the U.S. Section 91.706 applies to RVSM operations outside the U.S. Both sections require that the operator obtain authorization prior to operating in RVSM airspace. Section 91.180 requires that, prior to conducting RVSM operations within the U.S., the operator obtain authorization from the FAA or from the responsible authority, as appropriate. In addition, it requires that the operator and the operator's aircraft comply with the standards of part 91 Appendix G (Operations in RVSM Airspace).

2. **Sources Of Information.** The FAA RVSM Website Homepage can be accessed at: www.faa.gov/ats/ato/rvsm1.htm. The "RVSM Documentation" and "Domestic RVSM" webpages are linked to the RVSM Homepage. "RVSM Documentation" contains guidance and direction for an operator to obtain aircraft and operator approval to conduct RVSM operations. It provides information for DRVSM and oceanic and international RVSM airspace. It is recommended that operators planning to operate in Domestic U.S. RVSM airspace first review the following documents to orient themselves to the approval process.

(a) Under "Area of Operations Specific Information", the document, "Basic Operator Information on DRVSM Programs", provides an overview of the DRVSM program and the related aircraft and operator approval programs.

(b) In the "Getting Started" section, review the "RVSM Approval Checklist – US Operators" or "RVSM Approval Checklist – Non-US Operators" (as applicable). These are job aids or check lists that show aircraft/operator approval process events with references to related RVSM documents published on the website.

(c) Under “Documents Applicable to All RVSM Approvals”, review “RVSM Area New to the Operator”. This document provides a guide for operators that are conducting RVSM operations in one or more areas of operation, but are planning to conduct RVSM operations in an area where they have not previously conducted RVSM operations, such as the U.S.

3. **TCAS Equipage.** TCAS equipage requirements are contained in 14 CFR sections 121.356, 125.224, 129.18 and 135.189. Part 91 Appendix G does not contain TCAS equipage requirements specific to RVSM, however, Appendix G does require that aircraft equipped with TCAS II and flown in RVSM airspace be modified to incorporate TCAS II Version 7.0 or a later version.

4. **Aircraft Monitoring.** Operators are required to participate in the RVSM aircraft monitoring program. The “Monitoring Requirements and Procedures” section of the RVSM Documentation Webpage contains policies and procedures for participation in the monitoring program. Ground-based and GPS-based monitoring systems are available for the Domestic RVSM program. Monitoring is a quality control program that enables the FAA and other civil aviation authorities to assess the in-service altitude-keeping performance of aircraft and operators.

5. **Registration On RVSM Approvals Databases.** The “Registration on RVSM Approvals Database” section of the RVSM Documentation Webpage provides policies/procedures for operator and aircraft registration on RVSM approvals databases.

(a) **Purpose of RVSM Approvals Databases.** ATC does **not** use RVSM approvals databases to determine whether or not a clearance can be issued into RVSM airspace. RVSM program managers do regularly review the operators and aircraft that operate in RVSM airspace to identify and investigate those aircraft and operators flying in RVSM airspace, but not listed on the RVSM approvals databases.

(b) **Registration of U.S. Operators.** When U.S. operators and aircraft are granted RVSM authority, the FAA Flight Standards office will make an input to the FAA Program Tracking and Reporting Subsystem (PTRS). The Separation Standards Group at the FAA Technical Center obtains PTRS operator and aircraft information to update the FAA maintained U.S. Operator/Aircraft RVSM Approvals Database. Basic database operator and aircraft information can be viewed on the RVSM Documentation Webpage by clicking on the appropriate database icon.

(c) **Registration of Non-U.S. Operators.** Non-U.S. operators can find policy/procedures for registration on the North American Approvals Registry and Monitoring Organization (NAARMO) database in the “Registration on RVSM Approvals Database” section of RVSM Documentation.

d. FLIGHT PLANNING INTO DRVSM AIRSPACE

1. Operators that do not file the correct aircraft equipment suffix on the FAA or ICAO Flight Plan may be denied clearance into RVSM airspace. Policies for the FAA Flight Plan (FAA Form 7233-1) are detailed in paragraph d.3 below. Policies for the ICAO Flight Plan are detailed in d.4.

2. Aircraft Equipment Suffix Table Revisions. Effective September 1, 2005, when filing an FAA Flight Plan, operators will use a new set of aircraft equipment suffixes. Either “/J”, “/K”, “/L” or a newly defined “/Q” will be filed to indicate Advanced RNAV and RVSM capabilities. “/W” will continue to indicate RVSM capability only. The revised equipment suffix table is attached to this notice and was published in the August 4, 2005 edition of the AIM.

(a) Equipment Suffix Definition Changes. The September 1 table also contains significant changes to the definitions of “/E”, “/F” and “/Q”. See the attachment to this Notice.

(b) The September 1, 2005 change will mark the fourth and final phase of a plan announced in October 2004 to enable operators to better indicate Advanced RNAV and RVSM capabilities using aircraft equipment suffixes. Phase 3 was implemented on January 20 to coincide with RVSM implementation in the domestic U.S.

3. Policies for Use of the FAA Flight Plan Equipment Suffix.

a. Operators can only file one equipment suffix in block 3 of the FAA Flight Plan. Only this equipment suffix is displayed directly to the controller.

b. All operators/aircraft that are RVSM-compliant are **required** to file “/J”, “/K”, “/L”, “/Q” or “/W”, as appropriate, in the FAA Flight Plan for flights between flight level (FL) 290-410, inclusive. This includes operators filing through DUATS and Flight Service Stations.

c. Flights To/From Hawaii. The aircraft equipment suffixes published in the AIM and in the attachment to this notice are **not** applicable to the FAA International Flight plan (FAA Form 7233-4). The FAA International Flight Plan **or** an ICAO Flight Plan must be filed for flights to/from Hawaii. See page 2 of the attachment for more detail.

d. If the operator or aircraft has not been authorized to conduct RVSM operations, an equipment suffix indicating RVSM capability will not be filed. This is in accordance with 14 CFR Part 91 Appendix G, Section 4. The appropriate equipment suffix from the Aircraft Equipment Suffix Table will be filed instead.

e. **Aircraft with RNAV Capability.** For flight in RVSM airspace, aircraft with RNAV and RVSM capability, but not “Advanced RNAV” capability, will file “/W”. Filing “/W” will not preclude such aircraft from filing direct routes in enroute airspace.

4. Policy for ICAO Flight Plan Equipment Suffixes.

(a) Operators/aircraft that are RVSM-compliant that file ICAO flight plans will continue to file letter “W” in block 10 (Equipment) to indicate RVSM authorization and will also file the appropriate ICAO Flight Plan suffixes to indicate navigation and communication capabilities. **“/Q” is not an authorized ICAO equipment suffix and will not be filed in an ICAO flight plan.**

(b) Operators/aircraft that file ICAO flight plans that include flight in Domestic U.S. RVSM airspace must file letter “W” in block 10 to indicate RVSM authorization.

5. Importance of Flight Plan Equipment Suffixes. The operator must file the appropriate equipment suffix in the equipment block of the FAA Flight Plan (FAA Form 7233-1) or the ICAO Flight Plan. The equipment suffix informs ATC:

- Whether or not the operator and aircraft are authorized to fly in RVSM airspace
- The navigation and/or transponder capability of the aircraft (e.g., Advanced RNAV, Transponder with Mode C)

Significant ATC uses of the flight plan equipment suffix information are:

- To issue or deny clearance into RVSM airspace
- To apply a 2,000 foot vertical separation minimum in RVSM airspace to aircraft that are not authorized for RVSM, but are in one of the limited categories that the FAA has agreed to accommodate. (See paragraphs j and k for policy on limited operation of unapproved aircraft in RVSM airspace).
- To determine if the aircraft has “Advanced RNAV” capabilities and can be cleared to fly procedures for which that capability is required.

e. PILOT RVSM OPERATING PRACTICES AND PROCEDURES

1. **RVSM Mandate.** If either the operator or the aircraft or both have not received RVSM authorization (Non-RVSM aircraft), the pilot will neither request nor accept a clearance into RVSM airspace unless:

(a) The flight is conducted by a Non-RVSM DoD, Lifeguard, certification/development or foreign State (government) aircraft in accordance with paragraph j.

(b) The pilot intends to climb to or descend from FL 430 or above in accordance with paragraph k.

(c) An emergency situation exists.

2. **Basic RVSM Operating Practices And Procedures.** Appendix 4 of Guidance 91-RVSM contains pilot practices and procedures for RVSM. Operators must incorporate Appendix 4 practices and procedures, as supplemented by the applicable paragraphs of this notice, into operator training or pilot knowledge programs and operator documents containing RVSM operational policies. Guidance 91-RVSM is published on the RVSM Documentation Webpage under “Documents Applicable to All RVSM Approvals”.

3. Appendix 4 contains practices and procedures for flight planning, preflight procedures at the aircraft, procedures prior to RVSM airspace entry, in-flight (enroute) procedures, contingency procedures and post flight.

4. The paragraphs below either clarify or supplement Appendix 4 practices and procedures.

f. Guidance on Severe Turbulence and Mountain Wave Activity (MWA)

1. Introduction/Explanation

(a) The information and practices in this paragraph are provided to emphasize to pilots and controllers the importance of taking appropriate action in RVSM airspace when aircraft experience severe turbulence and/or MWA that is of sufficient magnitude to significantly affect altitude-keeping

(b) **Severe Turbulence.** Severe turbulence causes large, abrupt changes in altitude and/or attitude usually accompanied by large variations in indicated airspeed. Aircraft may be momentarily out of control. Encounters with severe turbulence must be remedied immediately in any phase of flight. Severe turbulence may be associated with MWA.

(c) **Mountain Wave Activity (MWA).**

(1) Significant MWA occurs both below and above the floor of RVSM airspace, FL 290. MWA often occurs in western states in the vicinity of mountain ranges. It may occur when strong winds blow perpendicular to mountain ranges resulting in up and down or wave motions in the atmosphere. Wave action can produce altitude excursions and airspeed fluctuations accompanied by only light turbulence. With sufficient amplitude, however, wave action can induce altitude and airspeed fluctuations accompanied by severe turbulence. MWA is difficult to forecast and can be highly localized and short lived.

(2) Wave activity is not necessarily limited to the vicinity of mountain ranges. Pilots experiencing wave activity anywhere that significantly affects altitude-keeping can follow the guidance provided below.

(3) **In-flight MWA Indicators (Including Turbulence).** Indicators that the aircraft is being subjected to MWA are:

- Altitude excursions and/or airspeed fluctuations with or without associated turbulence
- Pitch and trim changes required to maintain altitude with accompanying airspeed fluctuations.
- Light to Severe Turbulence depending on the magnitude of the MWA.

(d) Priority for Controller Application of Merging Target Procedures.

(1) Explanation of Merging Target Procedures. As described in paragraph 3 below, ATC will use “merging target procedures” to mitigate the effects of both severe turbulence and MWA. The procedures in paragraph 3 have been adapted from existing procedures published in FAA Order 7110.65, paragraph 5-1-8 (Merging Target Procedures). Paragraph 5-1-8 calls for enroute controllers to advise pilots of potential traffic that they perceive may fly directly above or below his/her aircraft at minimum vertical separation. In response, pilots are given the option of requesting a radar vector to ensure their radar target will not merge or overlap with the traffic’s radar target.

(2) The provision of “merging target procedures” to mitigate the effects of severe turbulence and/or MWA is not optional for the controller, but rather is a priority responsibility. Pilot requests for vectors for traffic avoidance when encountering MWA or pilot reports of “Unable RVSM due turbulence or MWA” are considered first priority aircraft separation and sequencing responsibilities. (FAA Order 7110.65, paragraph 2-1-2 states that the controller’s first priority is to separate aircraft and issue safety alerts).

(3) Explanation of the term “traffic permitting”. The contingency actions for MWA and severe turbulence detailed in paragraph “i”, state that the controller will “vector aircraft to avoid merging targets with traffic at adjacent flight levels, traffic permitting.” The term “traffic permitting” is not intended to imply that merging target procedures are not a priority duty. The term is intended to recognize that, as stated in FAA Order 7110.65, paragraph 2-1-2, there are circumstances when the controller is required to perform more than one action and must “exercise their best judgment based on the facts and circumstances known to them” to prioritize their actions. Further direction given is: “That action which is most critical from a safety standpoint is performed first.”

(e) **TCAS Sensitivity.** For both MWA and severe turbulence encounters in RVSM airspace, an additional concern is the sensitivity of collision avoidance systems when one or both aircraft operating in close proximity receive TCAS advisories in response to disruptions in altitude hold capability.

2. **Pre-flight tools.** Sources of observed and forecast information that can help the pilot ascertain the possibility of MWA or severe turbulence are: Forecast Winds and Temperatures Aloft (FD), Area Forecast (FA), SIGMETS and PIREPS.

3. Pilot Actions When Encountering Weather (e.g., Severe Turbulence or MWA)

(a) **Weather Encounters Inducing Altitude Deviations of Approximately 200 feet.**

When the pilot experiences weather induced altitude deviations of approximately 200 feet, the pilot will contact ATC and state “Unable RVSM Due (state reason) (e.g., turbulence, mountain wave). See contingency actions in paragraph i.

(b) **Severe Turbulence (including that associated with MWA).** When pilots encounter severe turbulence, they should contact ATC and report the situation. **Until the pilot reports clear of severe turbulence, the controller will apply merging target vectors to one or both passing aircraft to prevent their targets from merging:**

Pilot: Yankee 123, FL 310, unable RVSM due severe turbulence.

Controller: Yankee 123, fly heading 290; traffic twelve o'clock, 10 miles, opposite direction; eastbound MD-80 at FL 320; *(or the controller may issue a vector to the MD-80 traffic to avoid Yankee 123)*

(c) **MWA.** When pilots encounter MWA, they should contact ATC and report the magnitude and location of the wave activity. When a controller makes a merging targets traffic call, the pilot may request a vector to avoid flying directly over or under the traffic. **In situations where the pilot is experiencing altitude deviations of 200 feet or greater, the pilot will request a vector to avoid traffic. Until the pilot reports clear of MWA, the controller will apply merging target vectors to one or both passing aircraft to prevent their targets from merging:**

Pilot: Yankee 123, FL 310, unable RVSM due mountain wave.

Controller: Yankee 123, fly heading 290; traffic twelve o'clock, 10 miles, opposite direction; eastbound MD-80 at FL 320; *(or the controller may issue a vector to the MD-80 traffic to avoid Yankee 123)*

(d) **FL Change or Re-route.** To leave airspace where MWA or severe turbulence is being encountered, the pilot may request a FL change and/or reroute, if necessary.

g. GUIDANCE ON WAKE TURBULENCE

1. Pilots should be aware of the potential for wake turbulence encounters following DRVSM implementation. Experience gained since 1997, however, has shown that such encounters in RVSM airspace are generally moderate or less in magnitude.
2. It is anticipated that, in DRVSM airspace, wake turbulence experience will mirror European RVSM experience gained since January 2002. European authorities have found that reports of wake turbulence encounters had not increased significantly since RVSM implementation (eight versus seven reports in a ten month period). In addition, they found that reported wake turbulence was generally similar to moderate clear air turbulence.

3. Pilot Action To Mitigate Wake Turbulence Encounters.

(a) Pilots should be alert for wake turbulence when operating:

(1) In the vicinity of aircraft climbing or descending through their altitude.

(2) Approximately 10-30 miles after passing 1,000 feet below opposite direction traffic.

(3) Approximately 10-30 miles behind and 1,000 below same-direction traffic.

(b) Pilots encountering or anticipating wake turbulence in DRVSM airspace have the option of requesting a vector, FL change or if capable, a lateral offset.

NOTE 1. Offsets of approximately a wing span upwind generally can move the aircraft out of the immediate vicinity of another aircraft's wake vortex.

NOTE 2. In domestic U.S. airspace, pilots must request clearance to fly a lateral offset. Strategic lateral offsets flown in oceanic airspace do not apply.

4. The FAA will track wake turbulence events as an element of its post implementation program. The FAA will advertise wake turbulence reporting procedures to the operator community and publish reporting procedures on the RVSM Documentation Webpage. (See address in paragraph c. 2).

h. PILOT/CONTROLLER PHRASEOLOGY

Figure 1 shows standard phraseology that pilots and controllers will use to communicate in DRVSM operations.

FIGURE 1
Standard Phraseology for DRVSM Operations

Message	Phraseology
For a controller to ascertain the RVSM approval status of an aircraft:	(call sign) confirm RVSM approved
Pilot indication that flight is RVSM approved	Affirm RVSM
<p>Pilot will report lack of RVSM approval (Non-RVSM status):</p> <p>a. On the initial call on any frequency in the RVSM airspace and...</p> <p>b. In all requests for flight level changes pertaining to flight levels within the RVSM airspace and...</p> <p>c. In all read-backs to flight level clearances pertaining to flight levels within the RVSM airspace and...</p> <p>d. In read back of flight level clearances involving climb and descent through RVSM airspace (FL290-410)</p>	Negative RVSM, (supplementary information, e.g., "Certification flight").
<p>Pilot report of one of the following after entry into RVSM airspace: all primary altimeters, automatic altitude control systems or altitude alerters have failed. (See paragraph i).</p> <p><i>(This phrase is to be used to convey both the initial indication of RVSM aircraft system failure and on initial contact on all frequencies in RVSM airspace until the problem ceases to exist or the aircraft has exited RVSM airspace).</i></p>	Unable RVSM Due Equipment
ATC denial of clearance into RVSM airspace	Unable issue clearance into RVSM airspace, maintain FL ____ .
<p>Pilot reporting inability to maintain cleared flight level due to weather encounter.</p> <p>(See paragraph i).</p>	Unable RVSM due (state reason) (e.g., turbulence, mountain wave)
ATC requesting pilot to confirm that an aircraft has regained RVSM-approved status or a pilot is ready to resume RVSM	Confirm able to resume RVSM
Pilot ready to resume RVSM after aircraft system or weather contingency	Ready to resume RVSM

i. CONTINGENCY ACTIONS: WEATHER ENCOUNTERS AND AIRCRAFT SYSTEM FAILURES

Figure 2 provides pilot guidance on actions to take under certain conditions of aircraft system failure and weather encounters. It also describes the expected ATC controller actions in these situations. It is recognized that the pilot and controller will use judgment to determine the action most appropriate to any given situation.

FIGURE 2

Contingency Actions: Weather Encounters and Aircraft System Failures

Initial Pilot Actions in Contingency Situations

Initial Pilot Actions when unable to maintain flight level (FL) or unsure of aircraft altitude-keeping capability:

- Notify ATC and request assistance as detailed below.
- Maintain cleared flight level, to the extent possible, while evaluating the situation
- Watch for conflicting traffic both visually and by reference to TCAS, if equipped
- Alert nearby aircraft by illuminating exterior lights (commensurate with aircraft limitations)

Severe Turbulence and/or Mountain Wave Activity (MWA) Induced Altitude Deviations of Approximately 200 feet

Pilot will:

- When experiencing severe turbulence and/or MWA induced altitude deviations of approximately 200 feet or greater, pilot will contact ATC and state “Unable RVSM Due (state reason)” (e.g., turbulence, mountain wave)
- If not issued by the controller, request vector clear of traffic at adjacent FL’s
- If desired, request FL change or re-route
- Report location and magnitude of turbulence or MWA to ATC

See paragraph f for detailed guidance.

Controller will:

- Vector aircraft to avoid merging target with traffic at adjacent flight levels, traffic permitting
- Advise pilot of conflicting traffic
- Issue FL change or re-route, traffic permitting
- Issue PIREP to other aircraft

Paragraph f (d) (3) explains “traffic permitting.”

Mountain Wave Activity (MWA) Encounters – General

Note: MWA encounters do not necessarily result in altitude deviations on the order of 200 feet. The guidance below is intended to address less significant MWA encounters.

<p>Pilot actions:</p> <ul style="list-style-type: none"> • Contact ATC and report experiencing MWA • If so desired, pilot may request a FL change or re-route • Report location and magnitude of MWA to ATC <p>See paragraph f for guidance on MWA.</p>	<p>Controller actions:</p> <ul style="list-style-type: none"> • Advise pilot of conflicting traffic at adjacent FL • If pilot requests, vector aircraft to avoid merging target with traffic at adjacent RVSM flight levels, traffic permitting • Issue FL change or re-route, traffic permitting • Issue PIREP to other aircraft <p>Paragraph f (d) (3) explains “traffic permitting.”</p>
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Wake Turbulence Encounters

<p>Pilot should:</p> <ul style="list-style-type: none"> • Contact ATC and request vector, FL change or, if capable, a lateral offset <p>See paragraph g for guidance on wake turbulence.</p>	<p>Controller should:</p> <ul style="list-style-type: none"> • Issue vector, FL change or lateral offset clearance, traffic permitting <p>Paragraph f(d)(3) explains “traffic permitting.”</p>
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“Unable RVSM Due Equipment”

Failure of Automatic Altitude Control System, Altitude Alarmer or All Primary Altimeters.

<p>Pilot will:</p> <ul style="list-style-type: none"> • Contact ATC and state “Unable RVSM Due Equipment” • Request clearance out of RVSM airspace unless operational situation dictates otherwise 	<p>Controller will:</p> <ul style="list-style-type: none"> • Provide 2,000 ft. vertical separation or appropriate horizontal separation • Clear aircraft out of RVSM airspace unless operational situation dictates otherwise
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One Primary Altimeter Remains Operational.

<p>Pilot will:</p> <ul style="list-style-type: none"> • Cross check stand-by altimeter • Notify ATC of operation with single primary altimeter • If unable to confirm primary altimeter accuracy, follow actions for failure of all primary altimeters 	<p>Controller will:</p> <ul style="list-style-type: none"> • Acknowledge operation with single primary altimeter
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Transponder Failure

<p>Pilot will:</p> <ul style="list-style-type: none">• Contact ATC and request authority to continue to operate at cleared flight level• Comply with revised ATC clearance, if issued <p><u>Note:</u> Part 91 Section 91.215 (ATC transponder and altitude reporting equipment and use) regulates operation with the transponder inoperative.</p>	<p>Controller will:</p> <ul style="list-style-type: none">• Consider request to continue to operate at cleared flight level• Issue revised clearance, if necessary
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j. PROCEDURES FOR ACCOMMODATION OF NON-RVSM AIRCRAFT

1. General Policies For Accommodation Of Non-RVSM Aircraft.

(a) The RVSM mandate calls for only RVSM authorized aircraft/operators to fly in designated RVSM airspace with limited exceptions. The policies detailed below are intended exclusively for use by aircraft that the FAA has agreed to accommodate. They are not intended to provide other operators a means to circumvent the normal RVSM approval process.

(b) If either the operator or aircraft or both have not been authorized to conduct RVSM operations, the aircraft will be referred to as a "Non-RVSM" aircraft. 14 CFR 91.180 and part 91 Appendix G enable the FAA to authorize a deviation to operate a Non-RVSM aircraft in RVSM airspace.

(c) Non-RVSM aircraft flights will be handled on a workload permitting basis. The vertical separation standard applied between aircraft not approved for RVSM and all other aircraft shall be 2,000 feet.

(d) Required Pilot Calls. The pilot of Non-RVSM aircraft will inform the controller of the lack of RVSM approval in accordance with the direction provided in paragraph h (Pilot/Controller Phraseology).

2. Categories of Non-RVSM Aircraft That May Be Accommodated

(a) Subject to FAA approval and clearance, the following categories of Non-RVSM aircraft may operate in Domestic U.S. RVSM airspace **provided that they have an operational transponder:**

- Department of Defense (DoD) aircraft
- Flights conducted for aircraft certification and development purposes
- Active Air Ambulance flights utilizing a "Lifeguard" call sign
- Aircraft climbing/descending through RVSM flight levels (without intermediate level off) to/from FL's above RVSM airspace (Policies for these flights are detailed in paragraph k below)
- Foreign State (government) aircraft

3. Methods For Operators of Non-RVSM Aircraft To Request Access To RVSM Airspace. **Effective May 12, 2005**, pre-coordinated conditional approvals were eliminated. Operators may:

(a) LOA/MOU. Enter into a Letter of Agreement (LOA)/ Memorandum of Understanding (MOU) with the RVSM facility (the Air Traffic facility that provides air traffic services in RVSM airspace). Operators must comply with LOA/MOU.

(b) File-and-Fly. File a flight plan to notify the FAA of their intention to request access to RVSM airspace.

Note: Priority for access to RVSM airspace will be afforded to RVSM compliant aircraft, then File-and-Fly flights.

(c) DOD. Some DoD non-RVSM aircraft will be designated as aircraft requiring special consideration. For coordination purposes they will be referred to as STORM flights. DoD enters STORM flights on the DoD Priority Mission website and notifies the departure RVSM facility for flights that are within 60 minutes of departure.

NOTE: *Special consideration will be afforded a STORM flight; however, accommodation of any non-RVSM flight is workload permitting*

4. Center Phone Numbers. **Phone number changes that occur between document publication cycles are posted on the RVSM Documentation Webpage, North American RVSM section:**

http://www.faa.gov/ats/ato/150_docs/Center_Phone_No._Non-RVSM_Acft.doc

Ident	Centers	Center Phone Numbers
ZAB	Albuquerque	505-856-4547
ZAN	Anchorage	907-269-1108
ZAU	Chicago	630-906-8686
ZBW	Boston	603-879-6861
ZDC	Washington	703-779-3743
ZDV	Denver	303-651-4202
ZFW	Ft Worth	817-858-7504
ZHU	Houston	281-230-6262
ZID	Indianapolis	317-247-2243
ZJX	Jacksonville	904-549-1460
ZKC	Kansas City	913-254-8795
ZLA	Los Angeles	661-575-2074
ZLC	Salt Lake	801-320-2565
ZMA	Miami	305-716-1736
ZME	Memphis	901-368-8249
ZMP	Minneapolis	651-463-5545

ZNY	New York	631-468-1080
ZOA	Oakland	510-745-3332
ZOB	Cleveland	440-774-0428
ZSE	Seattle	253-351-3529
ZSU	San Juan	787-253-8664
ZTL	Atlanta	770-210-7052
ZUA	Guam CERAP	671-366-5151
E10	High Desert TRACON	661-277-3843

k. NON-RVSM AIRCRAFT REQUESTING CLIMB TO AND DESCENT FROM FLIGHT LEVELS ABOVE RVSM AIRSPACE WITHOUT INTERMEDIATE LEVEL OFF

1. File-and-Fly. Operators of Non-RVSM aircraft climbing to and descending from RVSM flight levels should just file a flight plan.

2. Non-RVSM aircraft climbing to and descending from flight levels above RVSM airspace will be handled on a workload permitting basis. The vertical separation standard applied in RVSM airspace between Non-RVSM aircraft and all other aircraft shall be 2,000 feet.

3. Non-RVSM aircraft climbing to/descending from RVSM airspace can only be considered for accommodation provided:

(a) Aircraft is capable of a continuous climb/descent and does not need to level off at an intermediate altitude for any operational considerations and.

(b) Aircraft is capable of climb/descent at the normal rate for the aircraft.

4. Required Pilot Calls. The pilot of Non-RVSM aircraft will inform the controller of the lack of RVSM approval in accordance with the direction provided in paragraph k (Pilot/Controller Phraseology).

FAA Flight Plan Aircraft Suffixes**Effective September 1, 2005**

Suffix	Equipment Capability
	NO DME
/X	No transponder
/T	Transponder with no Mode C
/U	Transponder with Mode C
	DME
/D	No transponder
/B	Transponder with no Mode C
/A	Transponder with Mode C
	TACAN ONLY
/M	No transponder
/N	Transponder with no Mode C
/P	Transponder with Mode C
	AREA NAVIGATION (RNAV)
/Y	LORAN, VOR/DME, or INS with no transponder
/C	LORAN, VOR/DME, or INS, transponder with no Mode C
/I	LORAN, VOR/DME, or INS, transponder with Mode C
	ADVANCED RNAV WITH TRANSPONDER AND MODE C (If an aircraft is unable to operate with a transponder and/or Mode C, it will revert to the appropriate code listed above under Area Navigation.)
/E	Flight Management System (FMS) with DME/DME and IRU position updating
/F	Flight Management System (FMS) with DME/DME position updating
/G	Global Navigation Satellite System (GNSS), including GPS or WAAS, with enroute and terminal capability.
/R	Required Navigational Performance. The aircraft meets the RNP type prescribed for the route segment(s), route(s) and/or area concerned.
	Reduced Vertical Separation Minimum (RVSM). Prior to conducting RVSM operations within the U.S., the operator must obtain authorization from the FAA or from the responsible authority, as appropriate.
/J	/E with RVSM
/K	/F with RVSM
/L	/G with RVSM
/Q	/R with RVSM
/W	RVSM

General Policies For Use of FAA Flight Plan Aircraft Equipment Suffixes

a. **Introduction.** Paragraph d of this notice (Flight Planning Into DRVSM Airspace) discusses policies for use of the Aircraft Equipment Suffix Table when filing FAA Flight Plans. They are repeated below for emphasis.

b. **Policies for Use of the FAA Flight Plan Equipment Suffix.**

1. Operators can only file one equipment suffix in block 3 of the FAA Flight Plan. Only this equipment suffix is displayed directly to the controller.

2. All operators/aircraft that are RVSM-compliant are **required** to file “/J”, “/K”, “/L”, “/Q” or “/W”, as appropriate, in the FAA Flight Plan for flights between flight level (FL) 290-410, inclusive. This includes operators filing through DUATS and Flight Service Stations.

3. If the operator or aircraft has not been authorized to conduct RVSM operations, an equipment suffix indicating RVSM capability will not be filed. This is in accordance with 14 CFR Part 91 Appendix G, Section 4. The appropriate equipment suffix from the Aircraft Equipment Suffix Table will be filed instead.

4. **Aircraft with RNAV Capability.** For flight in RVSM airspace, aircraft with RNAV capability, but not Advanced RNAV capability, will file “/W”. Filing “/W” will not preclude such aircraft from filing direct routes in enroute airspace.

5. **Flights To/From Hawaii.** The aircraft equipment suffixes on the previous page are applicable **only** to the domestic US FAA Flight Plan (FAA Form 7233-1), as published in the AIM. Flights between the US mainland and Hawaii must file an ICAO Flight Plan **or** an **FAA International Flight Plan** (FAA Form 7233-4). The FAA International FP is published in the International Flight Information Manual (IFIM) “Planning” section. (www.faa.gov/ats/aat/ifim/ifim0107.htm). The aircraft equipment suffixes published in the IFIM are used on the FAA International FP. On the FAA International FP, operators can file more than one equipment suffix and should file “/W” for RVSM, “/R” for RNP and any other applicable suffixes published in the IFIM.