APPENDIX F Example Operator Application for Approval
To Conduct Operations in Airspace Where RVSM Is Applied

This Appendix provides an EXAMPLE of an operator application for authority to conduct RVSM operations. It shows a suggested format and content for such an application.

This information is provided for *EXAMPLE* purposes only!
Other States may have different requirements.

This material has been reviewed by the Technical Programs And Aircraft Maintenance Divisions at FAA Headquarters in Washington. It is believed that this material provides a useful aid for operators preparing material to submit to FAA Flight Standards District Offices (FSDO) and Certificate Holding District Offices (CHDO).

It is assumed that each operator will review the applicable paragraphs in FAA Interim Guidance On The Approval Of Operators/Aircraft For RVSM Operations (91-RVSM found at Appendix A to this document), and provide information pertinent to the specific aircraft type or group for which it intends to seek approval and to the operator's individual operations and maintenance programs.

Additional information is available on the RVSM website:

www.faa.gov/ats/ato/rvsm1.htm
OR
www.faa.gov , QUICK JUMP MENU, RVSM, GO

For questions or revisions to this material, please contact one of the following:

Roy Grimes (FAA HQ, AFS-400)
Ph. 202-267-3734; Fax 202-267-5086; E-Mail: roy.grimes@faa.gov

Bob Hanson (FAA HQ, AFS-430)
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Ph: 202-484-3359, Fax 202-863-2398, E-Mail: rmiller@cssiinc.com

Additional References:

1. PILOT TRAINING RELATED TO TCAS OPERATION IN RVSM. The FAA has developed coordinated, and distributed a package that informs pilots on the effect that RVSM may have on TCAS. Operators should include this information in the RVSM pilot training program. Training may take the form of a pilot bulletin. This material is published on the FAA web page.

2. Policy Regarding Aircraft System Requirements for RVSM Operations in MMEL (7/18/96) (CG 59). Operators are expected to revise their MEL, as necessary, in accordance with the guidance provided in GC-33. GC-33 is published on the FAA web page.

EXAMPLE OPERATOR APPLICATION

SAMPLE COVER LETTER

Date:

Name of Point of Contact
Principal Operations Inspector
Point of Contact's Office Number
Federal Aviation Administration
Point of Contact's Address

Subject: Application for Approval of XYZ Airline's Reduced Vertical Separation Minimum (RVSM) Program - ABC Aircraft

Reference: FAA "Interim Guidance Material on the Approval of Operators/Aircraft for RVSM Operations (91-RVSM)", dated March 14, 1994

Joint Flight Standards Information Bulletin (FSIB) for Air Transportation (FSAT) and General Aviation (FSGA), Number FSAT 95-22/FSGA 95-12

.

Dear Point of Contact:

Airline XYZ respectfully requests FAA approval to conduct flight operations in Pacific airspace at or above flight level (FL) 290 with 1,000 feet vertical separation (i.e., RVSM operations) using ABC aircraft.

In support of this request, we have prepared the attached approval package. This document has been developed in accordance with the requirements of the referenced guidance material and FSIB/FSAT. In addition, this document will satisfy all requirements for issuance of approved Operations Specifications [FAR Part 121, 125, 135 operators] or Letter of Authorization (LOA) [FAR Part 91 operators] authorizing RVSM operations utilizing ABC aircraft, as outlined in the referenced FSIB/FSAT.

Your review and approval of our attached application for RVSM operations with aircraft ABC is requested. If you have any questions, or require any additional information, please contact (airline's point of contact for RVSM approval) at (telephone number). Airline XYZ expects to start RVSM operations on DD/MM/YY.

Sincerely,

Airline Official
Official's Title

TABLE OF CONTENTS OF APPROVAL PACKAGE

Aircraft Manufacturer's Certification

Paragraph 9 of the FAA 91-RVSM Interim Guidance Material specifies the requirements for airworthiness approval of an RVSM data package. These requirements have been complied with by the aircraft manufacturer, and is documented in Aircraft ABC Service Bulletin (SB) XXXX, dated MM/DD/YY.

This SB meets the requirements for the manufacturer's data package, as specified in Paragraph 9 of the FAA "Interim Guidance Material on the Approval of Operators/Aircraft for RVSM Operations (91-RVSM)", dated March 14, 1994, and has been FAA-approved. Consequently, no additional operator-specific approval is required; an operator need only meet the requirements of this SB.

A copy of this SB is included as Appendix I. Airline XYZ has complied with this SB on our ABC aircraft in accordance with Airline XYZ Engineering Authorization (EA) 1-11111-11, dated MM/DD/YY. A copy of this EA is included as Appendix II.

Requirement:

10. CONTINUED AIRWORTHINESS (MAINTENANCE REQUIREMENTS)

a. General:

(1) The integrity of the design features necessary to ensure that altimetry systems continue to meet RVSM standards should be verified by scheduled tests and/or inspections in conjunction with an approved maintenance program. The operator should review its maintenance procedures and address all aspects of continuing airworthiness which are affected by RVSM requirements.

(2) Each person or operator should demonstrate that adequate maintenance facilities are available to ensure continued compliance with the RVSM maintenance requirements.

Airline XYZ Response:

Airline XYZ conducts operations as a flag air carrier in accordance with Federal Aviation Regulation (FAR) 121. XYZ maintains its aircraft under an FAA-approved continuous airworthiness maintenance program (CAMP) in accordance with FAR 121 and FAR 43, and in accordance with FAA-approved Operations Specifications, Part D, "Aircraft Maintenance". FAA oversight of Airline XYZ's CAMP and Operations Specifications is provided by the FAA, Flight Standards District Office (FSDO), FSDO Number ##. Accordingly, Airline XYZ's current approved maintenance program is sufficient to maintain the aircraft systems and equipment in accordance with RVSM requirements.

Specific information related to Airline XYZ's maintenance procedures and CAMP for RVSM is contained in subsequent sections in this application.

Airline XYZ operates sufficient maintenance facilities for its ABC aircraft to ensure continued compliance with RVSM requirements. Airline XYZ's primary maintenance base is located at [Airport Name] Airport, in City, State. Additional maintenance support is provided by an extensive network of hangar and line maintenance at various stations throughout the Airline XYZ system.

Requirement:

10. CONTINUED AIRWORTHINESS (MAINTENANCE REQUIREMENTS)

b. Maintenance Program Approval Requirements: Each operator requesting RVSM operational approval should submit a maintenance and inspection program which includes any maintenance requirements defined in the approved data package (paragraph 9) as part of a continuous airworthiness maintenance program approval or an equivalent program approved by the FAA. Although air carriers operating aircraft subject to a continuous airworthiness maintenance program do not have to comply with the provisions of FAR Section 91.411 pertaining to altimeter system and altitude reporting equipment test and inspections, an effective maintenance and inspection program will, typically, incorporate these provisions as a requirement for maintenance program approval.

Airline XYZ Response:

The following pages list aircraft components required for RVSM, together with scheduled maintenance requirements for that equipment. No RVSM-specific maintenance requirements have been identified by the aircraft manufacturer. A copy of Aircraft ABC Service Bulletin (SB) XXXX, dated MM/DD/YY, which outlines maintenance requirements for RVSM equipment, is included as Appendix III.

- There are no RVSM-specific maintenance requirements for the Aircraft ABC Altimetry/Air-Data system. U.S. airlines who operate under FAR 121 and comply with FAR 43 for periodic maintenance via the Aircraft ABC maintenance planning document (MPD) meet the requirements of FAR 91.411 and 91.401, and therefore need not perform the periodic (2 year) altimeter check for either RVSM or normal operations.

- No RVSM-specific maintenance requirements exist for the automatic altitude control system.

- No scheduled maintenance requirements are outlined for the altitude alert module.

- Periodic checks of the ATC/MODE C Transponder shall be performed per FAR 43, Appendix F, as required by FAR 91.413, at 24 month intervals. Airline XYZ conducts a functional check of the Air Traffic Control System (ATC) at intervals not to exceed 24 months per routine operation 1234.

Note, however, that Aircraft ABC SB XXXX requires replacement of pitot-static probes that have been in service for more than three (3) years. This requirement is detailed on Page 12-1 of this application (reference 91-RVSM - Interim Guidance Material, Paragraph 11.d.(2): “Operational Approval - Content of Operator RVSM Application - Description of Aircraft Equipment”).

Requirement:

10. CONTINUED AIRWORTHINESS (MAINTENANCE REQUIREMENTS)

c. Maintenance Documents Requirements: The following items should be reviewed as appropriate for RVSM maintenance approval:

(1) Maintenance Manuals. (MM)

(2) Structural Repair Manuals. (SRM)

(3) Standards Practices Manuals.

(4) Illustrated Parts Catalogs. (IPC)

(5) Maintenance Schedule.

(6) MMEL/MEL.

Airline XYZ Response:

No RVSM-specific MM procedures have been identified; current MM procedures are sufficient for RVSM equipment.

Airline XYZ will revise the Aircraft ABC SRM to identify the area around the pitot-static probes as RVSM-critical, and to require the Airline XYZ Structures Engineer to be contacted for specific repair instructions in this area. A draft SRM revision is enclosed.

Airline XYZ's Standard Practice Manual will be revised in accordance with the enclosed draft revision. This manual will outline Airline XYZ's standard practices for the necessary RVSM maintenance requirements.

Airline XYZ will revise the aircraft ABC IPC in accordance with Airline XYZ's Engineering Authorization (EA) 22222 (draft copy enclosed) to identify RVSM-critical equipment. This equipment will also be identified as required inspection items (RIIs), requiring work on this equipment to be subject to a "buy-back" inspection per FAR 121.369 and FAR 121.371.

No change to the aircraft ABC maintenance schedule is required for RVSM. Please refer to Page 3-1 for additional information on the required maintenance schedules (reference 91-RVSM - Interim Guidance Material, Paragraph 10.b: "Continued Airworthiness (Maintenance Requirements) - Maintenance Program Approval Requirements").

Please refer to Page 16-1 for a discussion of MMEL/MEL changes for RVSM (reference FAA 91-RVSM Interim Guidance Material, Paragraph 11.d.(6): "Operational Approval - Content of Operator RVSM Application - MEL").

Requirement:

10. CONTINUED AIRWORTHINESS (MAINTENANCE REQUIREMENTS)

d. Maintenance Practices:

(1) If the operator is subject to an ongoing approved maintenance program, that program should contain the maintenance practices outlined in the applicable aircraft and component manufacturer's maintenance manuals for each aircraft type. The following items should be reviewed for compliance for RVSM approval and if the operator is not subject to an approved maintenance program the following items should be followed:

(i) All RVSM equipment should be maintained in accordance with the component manufacturer's maintenance requirements and the performance requirements outlined in the approved data package.

(ii) Any modification, repair, or design change which in any way alters the initial RVSM approval, should be subject to a design review by persons approved by the approving authority.

(iii) Any maintenance practices which may affect the continuing RVSM approval integrity, e.g., the alignment of pitot/static probes, dents, or deformation around static plates, should be referred to the approving authority or persons delegated by the authority.

(iv) Built-in Test Equipment (BITE) testing is not an acceptable basis for system calibrations, (unless it is shown to be acceptable by the airframe manufacturer with the approval authorities agreement) and should only be used for fault isolation and troubleshooting purposes.

(v) Some aircraft manufacturers have determined that the removal and replacement of components utilizing quick disconnects and associated fittings, when properly connected, will not require a leak check. While this approach may allow the aircraft to meet static system certification standards when properly connected, it does not always ensure the integrity of the fittings and connectors, nor does it confirm system integrity during component replacement and reconnections. Therefore, a system leak check or visual inspection should be accomplished any time a quick disconnect static line is broken.

(vi) Airframe and static systems should be maintained in accordance with the airframe manufacturer's inspection standards and procedures.

(vii) To ensure the proper maintenance of airframe geometry for proper surface contours and the mitigation of altimetry system error, surface measurements or skin waviness checks should be made if needed to ensure adherence to the airframe manufacturer's RVSM tolerances. These tests and inspections should be performed as established by the airframe manufacturer. These checks should also be performed following repairs, or alternations having an effect of airframe surface and airflow.

(viii) The maintenance and inspection program for the autopilot should ensure continued accuracy and integrity of the automatic altitude control system to meet the height-keeping standards for RVSM operations. This requirement will typically be satisfied with equipment inspections and serviceability checks.

(ix) Where the performance of existing equipment is demonstrated as being satisfactory for RVSM approval, it should be verified that the existing maintenance practices are also consistent with continued RVSM approval integrity. Examples of these are:

(A) Altitude alert.

(B) Automatic altitude control system.

(C) ATC altitude reporting equipment (transponders FAR 91.215).

(D) Altimetry systems.

Airline XYZ Response:

No RVSM-specific maintenance requirements have been identified for aircraft ABC, as detailed in Appendix V. Please refer to Page 3-1 for additional information on required maintenance (reference FAA 91-RVSM Interim Guidance Material, Paragraph 10.b: "Continued Airworthiness (Maintenance Requirements) - Maintenance Program Approval Requirements"). Current Maintenance Manual procedures are acceptable for RVSM, and will continue to be followed.

All RVSM equipment will be identified in the IPC as RVSM-critical, and will be identified as required inspection items, requiring work on this equipment to be subject to a "buy-back" inspection per FAR 121.369 and FAR 121.371. Please refer to Page 4-1 of this application for details on this subject (reference 91-RVSM - Interim Guidance Material, Paragraph 10.c: "Continued Airworthiness (Maintenance Requirements) - Maintenance Documents Requirements").

Requirement:

10. CONTINUED AIRWORTHINESS (MAINTENANCE REQUIREMENTS)

e. Maintenance Practices for Non-compliant Aircraft: Those aircraft positively identified as exhibiting height-keeping performance errors which require investigation as specified in paragraph 11I(1) should not be operated in airspace where RVSM is applied until the following actions have been taken:

(1) The failure or malfunction is confirmed and isolated by maintenance action and,

(2) Corrective action is carried out as required to comply with paragraph 9b(5)(iv)(F) and verified to ensure RVSM approval integrity.

Airline XYZ Response:

Airline XYZ will prepare a Standard Practice manual section that outlines responsibilities for RVSM. This manual will detail the requirements for non-compliant aircraft, including notification of Airline XYZ's Maintenance Coordination Center (MCC) and aircraft ABC Fleet Team. The MCC and fleet team will coordinate appropriate action, including:

- adding flight plan remarks to prevent aircraft operation in RVSM airspace until corrective action is accomplished;
- implementing corrective action, and;
- if required, advising Airline XYZ's FAA Liaison section to report the height-keeping performance error to FAA within 72 hours, along with initial analysis of causal factors and measures to prevent further events (refer to Page 23-1 for additional information)

A draft copy of this manual is enclosed with Page 4-1 of this application (reference 91-RVSM Interim Guidance Material, Paragraph 10.c: "Continued Airworthiness (Maintenance Requirements) - Maintenance Documents Requirements").

Requirement:

10. CONTINUED AIRWORTHINESS (MAINTENANCE REQUIREMENTS)

f. Maintenance Training Requirements: It is expected that new training requirements will be introduced by the RVSM approval processes. Areas that may need to be highlighted for initial and recurrent training of shop and line personnel are:

(1) Aircraft geometric inspection techniques.

(2) Test equipment calibration/usage techniques.

(3) Any special documentation or procedures introduced by RVSM approval.

Airline XYZ Response:

Airline XYZ's initial maintenance training will be revised to: highlight the importance of the area surrounding the pitot-static probe; emphasize that any defects in the fuselage skin around the probe can affect the accuracy of the altimetry system, and; require inspection of the area around the probe whenever a probe is replaced. Additionally, general RVSM awareness information will be added to the training.

Airline XYZ does not conduct routine recurrent maintenance training. The above information for initial training will also be included in a Maintenance Bulletin for all mechanics who have completed initial training prior to the aforementioned initial training program revision.

Test equipment calibration/usage techniques are currently taught by Avionics coordinators in the Avionics Maintenance area, as "on-the-job training" (OJT). As detailed in this application, no changes to the maintenance programs or inspection schedule are necessary. Accordingly, we believe our current training of test equipment calibration/usage techniques is sufficient, and no changes are warranted.

In addition, since no changes to the maintenance programs or inspection schedule are required, we do not anticipate the need for any special documentation or procedures.

Requirement:

10. CONTINUED AIRWORTHINESS (MAINTENANCE REQUIREMENTS)

g. Test Equipment

(1) General: The test equipment should have the capability to demonstrate continuing compliance with all the parameters established for RVSM approval in the initial data package or as approved by the approving authority.

(2) Standards: Test equipment should be calibrated utilizing reference standards whose calibration is certified as being traceable to the national standard. It should be calibrated at periodic intervals as agreed by the approving authority. The approved maintenance program should encompass an effective quality control program which includes the following:

(i) Definition of required test equipment accuracy.

(ii) Regular calibrations of test equipment traceable to a master in-house standard. Determination of calibration interval should be a function of the stability of the test equipment. The calibration interval should be established on the basis of historical data so that degradation is small in relation to the required accuracy.

(iii) Regular audits of calibration facilities both in-house and outside.

(iv) Adherence to acceptable shop and line maintenance practices.

(v) Procedures for controlling operator errors and unusual environmental conditions which may affect calibration accuracy.

Airline XYZ Response:

The maintenance programs identified for RVSM operations can be accomplished without specialized test equipment. Airline XYZ does utilize several test equipment sets to troubleshoot the air data computer system on an "as-needed" basis. These sets are highly accurate, and their calibration procedures can be traced to the national standard.

Additionally, the calibration and accuracy of test equipment used in the Avionics instruments shop are verified in accordance with the requirements outlined in the Component Maintenance Manual and by the equipment manufacturers. The calibration of individual components is performed at periodic intervals, and can be traced to the national standard.

Requirement:

11. OPERATIONAL APPROVAL

b. General: The FAA should ensure that each operator can maintain high levels of height-keeping performance.

(1) The FAA should be satisfied that operational programs are adequate. Flight crew training as well as operations manuals should be evaluated. Approval should be granted for each individual operator.

(2) Approval should be granted for each individual aircraft group and each individual aircraft to be used by the operator in RVSM operations. Each aircraft should receive airworthiness approval in accordance with paragraph 9 prior to being approved for use by the operator. (Aircraft group is defined in paragraph 9b(2)).

Airline XYZ Response:

This application is submitted for approval of RVSM operations with the ABC aircraft only. As detailed on Page 1-1 of this application, and in the Aircraft ABC Service Bulletin contained in Appendix III, the aircraft has been found to meet the airworthiness requirements contained in Paragraph 9 of the FAA Interim Guidance Material.

Additionally, Airline XYZ' various operational programs are scrutinized by the FAA, Flight Standards District Office (FSDO), FSDO number ##. Flight crew and aircraft dispatcher training programs are FAA-approved, as are various operational manuals.

Specific information relating to operational programs, manuals, and training for RVSM can be found in the subsequent sections of this application. Please refer to the Table of Contents in this application for a listing of the discrete elements of this application.

Requirement:

11. OPERATIONAL APPROVAL

c. Pre-application Meeting: A pre-application meeting should be scheduled between the operator and the CMO or FSDO. The intent of this meeting is to inform the operator of FAA expectations in regard to approval to operate in a RVSM environment. The content of the operator RVSM application, FAA review and evaluation of the application, validation flight requirements, and conditions for removal of RVSM authority should be basic items of discussion.

Airline XYZ Response:

Airline XYZ has arranged for a pre-application meeting with the FAA/Flight Standards District Office, FSDO Number ##, to be conducted on [date], at [location]. The purpose of this meeting will be to review Airline XYZ's proposed RVSM application for the ABC aircraft.

Requirement:

11. OPERATIONAL APPROVAL

d. Content of Operator RVSM Application: The following paragraphs describe the material which an operator applying for RVSM authority should provide to the FAA for review and evaluation at least 60 days prior to the intended start of RVSM operations.

(1) Airworthiness Documents: Sufficient documentation should be available to show that the aircraft has been approved by appropriate airworthiness authorities.

Airline XYZ Response:

Specific FAA Airworthiness Approval for RVSM operations with the ABC aircraft has been obtained by the aircraft manufacturer, as documented in Aircraft ABC Service Bulletin (SB) XXXX, dated 1-1-11. A copy of this SB is enclosed as Appendix III. For additional discussion of the Airworthiness Approval for RVSM operations with the ABC aircraft, please refer to Page 1-1 of this application (Aircraft Manufacturer's Certification: Airworthiness Approval).

The FAA-approved Operations Specifications for Airline XYZ, operating certificate XYZA0000, Paragraph A3, authorize Airline XYZ to conduct FAR Part 121 operations using the aircraft listed therein. Airline XYZ's ABC aircraft, the subject of this RVSM application, are listed in that paragraph. A copy of Airline XYZ' Operations Specifications, Paragraph A3, is enclosed.

Paragraph D85 of Airline XYZ' Operations Specifications authorizes Airline XYZ to conduct FAR Part 121 operations using the aircraft individually identified in the attached listing (Airline XYZ' Standard Practice manual, section 00-00-00). Copies of Airline XYZ' Operations Specifications, Paragraph D85, and the pertinent section of Airline XYZ's manual, Section 00-00-00, are enclosed.

Requirement:

11. OPERATIONAL APPROVAL

d. Content of Operator RVSM Application: The following paragraphs describe the material which an operator applying for RVSM authority should provide to the FAA for review and evaluation at least 60 days prior to the intended start of RVSM operations.

(2) Description of Aircraft Equipment: The applicant should provide a configuration list which details all components and equipment relevant to RVSM operations. (Paragraph 8 discusses equipment for RVSM operations).

Airline XYZ Response:

The following pages list aircraft components required for RVSM, together with scheduled maintenance requirements for that equipment.

This equipment will be identified in the IPC as RVSM-critical components. Additionally, this equipment will be identified as "Required Inspection Items" (RIIs), and will be subject to "buy-back" inspection procedures outlined in FAR 121.369 and FAR 121.371. Please refer to Page 4-1 for additional information on the IPC and RIIs (reference FAA 91-RVSM Interim Guidance Material, Paragraph 10.c: "Continued Airworthiness (Maintenance Requirements) - Maintenance Documents Requirements").

Aircraft ABC SB XXXX requires replacement of pitot-static probes that have been in service for more than three (3) years. Airline XYZ's aircraft ABC Fleet Team will monitor this requirement, and ensure that pitot-static tubes that have been in service for three or more years are replaced before the aircraft is operated in RVSM operations. However, we anticipate that certification activities currently underway by Pitotstatic Company (the manufacturer of the probes) will result in a plated probe that will have unlimited service life, and will not require replacement after three years of service. We plan to install these probes on our ABC aircraft when the probes are available.

Requirement:

11. OPERATIONAL APPROVAL

d. Content of Operator RVSM Application: The following paragraphs describe the material which an operator applying for RVSM authority should provide to the FAA for review and evaluation at least 60 days prior to the intended start of RVSM operations.

(3) Operations Training Programs and Operating Practices and Procedures: FAR Part 121 and FAR Part 135 operators should submit training syllabi and other appropriate material to the FAA to show that the operating practices and procedures and training items related to RVSM operations are incorporated in initial and, where warranted, recurrent training programs. (Training for dispatchers should be included, where appropriate). FAR Part 91 operators should demonstrate to the FAA through oral or written tests that their knowledge of RVSM operating practices and procedures is equivalent to FAR Part 121 and FAR Part 135 operators and is sufficient to warrant granting of approval to conduct RVSM operations. Practices and procedures in the following areas should be standardized using the guidelines of appendix 4: flight planning, preflight procedures at the aircraft for each flight, procedures prior to RVSM airspace entry, in-flight procedures, and flight crew training procedures. Appendix X presents procedures that are unique to Pacific airspace.

CHANGE. PILOT TRAINING RELATED TO TCAS OPERATION IN RVSM. Part 121, 125, and 135 125 operators must include pilot training on TCAS operation in RVSM in their application for RVSM authority/approval. Part 91 operators/aircraft equipped with TCAS operator are encouraged to provide information to their pilots.

Airline XYZ Response:

Initial training: RVSM will be introduced to Airline XYZ aircraft dispatchers and flight crewmembers during the 1996 recurrent training classes, commencing in January, 1996, using the enclosed training syllabi. These same syllabi will be added to, and become a standard part of, the initial flight training for flight crewmembers, and the international initial class curriculum for new aircraft dispatchers.

Recurrent Training: In 1996 and subsequent international recurrent classes, a review of RVSM operations and any new or changed procedures will become a standard part of the curriculum.

Our operating practices and procedures will be standardized in accordance with the enclosed syllabi.

Requirement:

11. OPERATIONAL APPROVAL

d. Content of Operator RVSM Application: The following paragraphs describe the material which an operator applying for RVSM authority should provide to the FAA for review and evaluation at least 60 days prior to the intended start of RVSM operations.

(4) Operations Manuals and Checklists: The appropriate manuals and checklists should be revised to include information/guidance on standard operating procedures detailed in appendix 4. Appropriate manuals should include a statement of the airspeeds, altitudes, and weights considered in RVSM aircraft approval to include identification of any operating restrictions established for that aircraft group. (See paragraph 7c(4)(iii)). Manuals and checklists should be submitted for authority review as part of the application process.

Airline XYZ Response:

Four (4) manuals will need to be updated with information about RVSM: the Flight Department Manual (FDM), the Dispatcher's Training Manual (DTM), the Airline XYZ Airway Manual (AM), and the Aircraft ABC Pilot's Manual (PM).

Flight Department Manual: The long-range operations section will be revised to include background and general guidance information for RVSM operations. Additionally, there exists a separate section within the FDM for aircraft dispatchers, called the dispatcher's supplement (DS). In this section, a brief description of RVSM will be inserted, following the general outlines of the aircraft dispatcher's RVSM training syllabus.

Dispatcher's Training Manual: In this new manual, the description of the international initial and recurrent classes will include references to RVSM training, down to the level of detail on aircraft dispatcher's RVSM training syllabus, if appropriate.

Airline XYZ Airway Manual: The route information section will be revised to include specific RVSM operational procedures applicable to NAT/MNPS.

Aircraft ABC Pilot's Manual: The abnormal procedures section will be revised to include appropriate contingency procedures outlined on the flight crewmembers initial training syllabus.

Note: Copies of the aircraft dispatchers and flight crewmember RVSM training syllabi referred to on this page can be found enclosed with Page 13-1 of this application (reference FAA 91-RVSM Interim Guidance Material, Paragraph 11.d.(3): "Operational Approval - Content of Operator RVSM Application - Operations Training Programs and Operating Practices and Procedures").

Requirement:

11. OPERATIONAL APPROVAL

d. Content of Operator RVSM Application: The following paragraphs describe the material which an operator applying for RVSM authority should provide to the FAA for review and evaluation at least 60 days prior to the intended start of RVSM operations.

(5) Past Performance: An operating history should be included in the application. The applicant should show any events or incidents related to poor height keeping performance which may indicate weaknesses in training, procedures, maintenance, or the aircraft group intended to be used.

Airline XYZ Response:

The flight crew operating report system was reviewed for the previous 12 months. No incidents of height-keeping performance errors were noted for the aircraft ABC fleet.

A review of the Equipment Removal History will be conducted for the previous 12 months, to determine if any failures have been detected on RVSM equipment. This review will examine the RVSM equipment identified on Page 12-1 of this application (reference FAA 91-RVSM Interim Guidance Material, Paragraph 11.d.(2): "Operational Approval - Content of Operator RVSM Application - Aircraft Equipment").

Requirement:

11. OPERATIONAL APPROVAL

d. Content of Operator RVSM Application: The following paragraphs describe the material which an operator applying for RVSM authority should provide to the FAA for review and evaluation at least 60 days prior to the intended start of RVSM operations.

(6) Minimum Equipment List: A minimum equipment list (MEL), adopted from the master minimum equipment list (MMEL), should include items pertinent to operating in RVSM airspace.

CHANGE. Operators are expected to revise their MEL's in accordance with the guidance published in GLOBAL CHANGE (GC)-33. GC-33 is published on the ARINC bulletin board.

Airline XYZ Response:

The aircraft manufacturer has stated that no MMEL revisions specific to RVSM are planned.

The current Airline XYZ aircraft ABC Minimum Equipment List (MEL) requires the primary altimeter, flight control computer, TCAS, and altitude hold systems to be operational. The Airline XYZ aircraft ABC MEL will be revised to require the Altitude Alert System (AAS) to be operative for flights in RVSM airspace.

Requirement:

11. OPERATIONAL APPROVAL

d. Content of Operator RVSM Application: The following paragraphs describe the material which an operator applying for RVSM authority should provide to the FAA for review and evaluation at least 60 days prior to the intended start of RVSM operations.

(7) Maintenance: The operator should submit a maintenance program for approval in accordance with paragraph 10 at the time the operator applies for operational approval.

Airline XYZ Response:

No RVSM-specific maintenance program changes will be required. Please refer to Page 3-1 of this application for details (reference FAA 91-RVSM Interim Guidance Material, Paragraph 10.c: "Continued Airworthiness (Maintenance Requirements) - Maintenance Program Approval Requirements").

Pitot-static tubes must be replaced after three years in service. Please refer to Page 12-1 of this application for details (reference FAA 91-RVSM Interim Guidance Material, Paragraph 11.d.(2): "Operational Approval - Content of Operator RVSM Application - Aircraft Equipment").

Requirement:

11. OPERATIONAL APPROVAL

d. Content of Operator RVSM Application: The following paragraphs describe the material which an operator applying for RVSM authority should provide to the FAA for review and evaluation at least 60 days prior to the intended start of RVSM operations.

(8) Plan for Participation in Verifications/Monitoring Programs: The operator should provide a plan for participation in the verification/monitoring program. This program should normally entail a check of at least a portion of the operator's aircraft by an independent height-monitoring system. (See paragraph 11h for further discussion of verification/monitoring programs).

Airline XYZ Response:

Background

In order to help assess the continuing operational and mathematical integrity of the airspace system in an RVSM environment, operators are required to participate in both a pre-operational verification of aircraft height keeping performance and a post-operational monitoring of same. To perform the verification/monitoring of aircraft altitude-keeping performance, the Asia-Pacific Registry and Monitoring Organization (APARMO) is planning to use the Global Positioning System (GPS)-based Monitoring System (GMS). The GMS is administered by the APARMO. The APARMO processes the data to estimate altimetry system error (ASE) and total vertical error (TVE). An operator without RVSM experience should plan to have three of each of its aircraft types monitored within three months of approval. Operators with RVSM experience should have two aircraft of each type monitored. The APARMO will notify the operator when the monitoring data is sufficient.

RVSM Aircraft Monitoring

The monitoring of an approved RVSM fleet will be carried out through the GPS-based Monitoring System (GMS). Therefore, Airline XYZ proposes the following plan for each fleet of aircraft which it intends to operate in RVSM airspace.

- ➔ A member of the aircraft ABC Fleet Team from Airline XYZ will contact the APARMO support contractor when aircraft have been inspected and modified as per the manufacturer's RVSM Service Bulletin.

- ➔ Airline XYZ will arrange with the GMS support contractor to operate a GPS-based monitoring Unit (GMU) on one leg of a revenue flight, most likely a domestic one. While initial flights may require GMS support contractor participation in the installation and removal of the GMU, it is intended that the majority of verification flights will have the GMU installed and removed by licensed Airline XYZ line maintenance personnel.

- ➔ When the verification flight has terminated, the GMU and collected data will be returned to GMS support contractor for post-processing.

- ➔ ASE and TVE for the flight will be derived by the APARMO. ASE and TVE may be obtained by sending a fax request to the APARMO at (+1 609 485 5117). A successful flight will also be

annotated on the APARMO website: www.tc.faa.gov/act500/rvms/aparmo-intro.html. The APARMO will contact the operator when a flight is unsuccessful and arrange for a repeat measurement.

➔ RVSM Aircraft Monitoring Following Trials Period

The requirements for aircraft altitude-keeping performance monitoring after implementation have not yet been established. The APANPIRG RVSM Task Force will establish those requirements

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11. OPERATIONAL APPROVAL

e. Authority Review and Evaluation of Applications

(1) Once the application has been submitted, the FAA will begin the process of review and evaluation. If the content of the application is insufficient, the FAA will request additional information from the operator.

(2) When all the airworthiness and operational requirements of the application are met, the authority will proceed with the approval process.

Airline XYZ Response:

Airline XYZ requests review, evaluation, and approval of this application for aircraft ABC RVSM operations.

Airline XYZ believes the content of this application is sufficient. However, if additional information is requested from FAA, Airline XYZ will provide it in a timely manner.

Airline XYZ RVSM Points of Contact are:

Airline XYZ RVSM Coordinators

NAME	TITLE	Phone Number
NAME	TITLE	Phone Number

Requirement:

11. OPERATIONAL APPROVAL

f. Validation Flight(s): In some cases, the review of the RVSM application and programs may suffice for validation purposes. However, the final step of the approval process may be the completion of a validation flight. The FAA may accompany the operator on a flight through airspace where RVSM is applied to verify that operations and maintenance procedures and practices are applied effectively. If the performance is adequate, operational approval for RVSM airspace should be granted. If performance is not adequate, then approval should be delayed.

Airline XYZ Response:

Airline XYZ does not believe a validation flight should be required, for the following reasons:

- As noted previously, aircraft ABC RVSM operations will not require any maintenance program changes or use of any new, specialized maintenance procedures;
- Airline XYZ operates in accordance with an FAA-approved continuous airworthiness maintenance program (CAMP) in accordance with FAR 121 and FAR 43, and in accordance with FAA-approved Operations Specifications, Part D, "Aircraft Maintenance";
- Airline XYZ has operated and maintained ABC aircraft since [date];
- Airline XYZ's crew training and operational programs are FAA-approved, and;
- A review of the Airline XYZ flight crew operating report system for the previous 12 months revealed no height-keeping performance errors.

Accordingly, we do not believe a validation flight is necessary.

If FAA requires a validation flight, we propose to accomplish such a flight in conjunction with a scheduled Airline XYZ revenue operation (i.e., a revenue validation flight).

Requirement:

11. OPERATIONAL APPROVAL

g. Form of Authorizing Document

(1) FAR Part 121, Part 125, and Part 135 Operators: Approval to operate in RVSM airspace should be granted through the issuance of an operations specifications paragraph from Part B (En route Authorizations, Limitation, and Procedures). Each aircraft type group for which the operator is granted authority should be listed in Operational Specifications.

(2) FAR Part 91 Operators: These operators should be issued a letter of authorization (LOA) when the approval process has been completed. This LOA should be reissued on a biennial basis.

Airline XYZ Response:

The above requirement states, "Approval to operate in RVSM should be granted through the issuance of an operations specifications paragraph from Part B ..." However, FSIB/FSAT 95-22 stipulates, "Interim approval can be granted through a letter to the operator stating that RVSM approval has been given, and that OPSPECS will be issued only after the FAR pertaining to RVSM is published."

Airline XYZ requests appropriate authorizing documents be issued to authorize aircraft ABC RVSM operations, based upon the data contained in this application.

Note that requirements 11.g.(1) and 11.g.(2), above, are mutually exclusive, and the latter does not apply to Airline XYZ.

Requirement:

11. OPERATIONAL APPROVAL

h. Verification/Monitoring Programs: A program to monitor or verify aircraft height-keeping performance is considered a necessary element of RVSM implementation for at least the initial area where RVSM is implemented. Verification/Monitoring programs have the primary objective of observing and evaluating aircraft height-keeping performance to gain confidence that airspace users are applying the airplane/operator approval process in an effective manner and that an equivalent level of safety will be maintained when RVSM is implemented. It is anticipated that the necessity for such programs may be diminished or possibly eliminated after confidence is gained that RVSM programs are working as planned.

Note: A height-monitoring system based on Global Positioning Satellites or an earth-based system may fulfill this function.

Airline XYZ Response:

Please refer to Page 18-1 of this application for details on Airline XYZ' Verification/Monitoring Programs for RVSM (reference FAA 91-RVSM Interim Guidance Material, Paragraph 11.d.(8): "Operational Approval - Content of Operator RVSM Application - Plan for Participation in Verification/Monitoring Programs").

Requirement:

11. OPERATIONAL APPROVAL

i. Conditions for Removal of RVSM Authority

(1) The incidence of height-keeping errors which can be tolerated in an RVSM environment is very small. It is incumbent upon each operator to take immediate action to rectify the conditions which caused the error. The operator should also report the event to the FAA within 72 hours with initial analysis of causal factors and measures to prevent further events. The requirement for follow-up reports should be determined by the FAA. Errors which should be reported and investigated are: TVE equal to or greater than +300 ft (+90 m), ASE equal to or greater than +245 ft (+75 m), and AAD equal to or greater than +300 ft (+90 m).

(2) Height-keeping errors fall into two broad categories: errors caused by malfunction of aircraft equipment and operational errors. An operator which consistently commits errors of either variety may be required to forfeit authority for RVSM operations. If a problem is identified which is related to one specific aircraft type, then RVSM authority may be removed for the operator for that specific type.

(3) The operator should make an effective, timely response to each height-keeping error. The FAA may consider removing RVSM operational approval if the operator response to a height-keeping error is not effective or timely. The FAA should also consider the operator's past performance record in determining the action to be taken. If an operator shows a history of operational and/or airworthiness errors, then approval may be removed until the root causes of these errors are shown to be eliminated and RVSM programs and procedures are shown to be effective. The FAA will review each situation on a case-by-case basis.

Airline XYZ Response:

An Airline XYZ Standard Practice manual section will outline the responsibilities for monitoring Airline XYZ's RVSM program. A draft copy of this manual is enclosed with Page 4-1 of this application (reference FAA 91-RVSM Interim Guidance Material, Paragraph 10.c: "Continued Airworthiness (Maintenance Requirements) - Maintenance Documents Requirements").

A revision to the Airline XYZ Airway Manual will describe flight crewmember reporting functions for any suspected RVSM height-keeping performance errors. The Aircraft ABC program manager will be responsible for monitoring the flight crew operating report system, and notifying appropriate departments (Aircraft ABC Fleet Team, Maintenance Coordination Center (MCC), etc.) of any height-keeping errors. The MCC and fleet team will coordinate appropriate action, including:

- adding flight plan remarks to prevent aircraft operation in RVSM airspace until corrective action is accomplished;
- implementing corrective action, and ;
- advising Airline XYZ's FAA Liaison section to report the height-keeping performance error to FAA within 72 hours, along with initial analysis of causal factors and measures to prevent further events.

APPENDIX I

Aircraft ABC Service Bulletin XXXX, dated 1-1-11

"Initial Qualification of Aircraft ABC Airplanes for
Reduced Vertical Separation Minimum (RVSM) Operation"

APPENDIX II

Airline XYZ's Engineering Authorization (EA) 1-11111-11, dated MM/DD/YY

"Structural Inspection to Allow
Reduced Vertical Separation Minimum (RVSM) Operation"