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FAA APPROVED
AIRPLANE FLIGHT MANUAL SUPPLEMENT
FOR THE
HAWKER BEECHCRAFT CORPORATION B200/B200C, B200GT/B200CGT and B300/B300C
WITH
COLLINS AEROSPACE FMS-3000 LPV UPGRADE

Serial No. _____

Reg. No. _____

The information in this supplement is FAA approved material which, together with the basic Airplane Flight Manual 101-590010-425 or 101-590010-479 (B200/B200C), 101-590168-1 (B200GT/B200CGT) and 130-590031-181, 130-590031-235, 130-590031-245, or 130-590031-499 (B300/B300C) on Collins Aerospace Pro Line 21 equipped aircraft is applicable and must be carried in the basic manual when the airplane is modified in accordance with **STC No. SA10965SC**.

The information contained in this supplement supersedes the basic manual only where covered herein. For Limitations, Normal Procedures, Emergency Procedures, Abnormal Procedures, Performance, Weights and Balance, and Manufacturers Data information not contained in this supplement, consult the basic Airplane Flight Manual and applicable AFM Supplements.

FAA Approved by:

Thomas H Bryant

Digitally signed by Thomas H Bryant
Date: 2022.11.01 14:27:38 -05'00'

for Manager

Southwest Flight Test Section, AIR-713

Federal Aviation Administration

Ft Worth TX. 76177

Date: 11/01/2022

LOG OF REVISIONS

Rev. Letter	Page Number(s)	DESCRIPTION	Date of Revision	FAA Approved*
IR	ALL	Initial Release	Jan 12, 2010	S. Frances Cox
A	1-5 1-6	Added RNP-1 Added RNP-5	Mar 08, 2012	Gary A. Sharon for: S. Frances Cox
B	1-3 1-4 1-10 2-2 2-5	Added “(USA)” to GPS and WAAS Abbreviations Added WAAS “NOTE” Added RNP approach operations Removed SBAS/WAAS only limitation (was number 4). Deleted end of note 3 (U.S. GPS only) Added RNP AR limitation	Nov 14,2012	Rick Ritz for: S. Frances Cox
C	Coversheet	Corrected basic AFM number for B200/B200C.	June 3, 2013	S. Frances Cox
D	Coversheet	Added AFM number for extend range option	March 26,2015	Scott A Horn
E	Coversheet	Deleted revision number from B300/B300C AFM	October 8, 2015	Scott A Horn

Rev. Letter	Page Number(s)	DESCRIPTION	Date of Revision	FAA Approved
F	Title	Updated signature information.	July 16, 2019	G. Roberts Manager Southwest Flight Test Section, AIR-713 Federal Aviation Administration Fort Worth, Texas 76177
	All	Changed barometric VNAV to "Baro-VNAV" on numerous pages. Added VNAV on statements following "NAV." Changed GPS to "GNSS" on numerous pages or removed "GPS."		
	1-1	Updated TOC.		
	1-2	Added numerous acronyms to list.		
	1-4	Shortened section title of FMS Navigation Capabilities. Edited the statement preceding the tables.		
	1-5	Oceanic and Remote, updated the listed TSOs and listed navigation conditions.		
	1-6	North Atlantic (NAT) High Level Airspace (HLA), edited the details under section. Added Barometric VNAV (Baro-VNAV) section.		
	1-8 thru 1-10	Added and updated several sections including RNP 1/2/4/5.		
	1-10 thru 1-12	RNP 10 Airspace (RNAV 10), edited the details under section. P-RNAV (RNAV 1), edited the details under section. Enroute and Terminal, including B-RNAV (RNAV 5) and RNAV (GPS) / RNAV (GNSS) or GPS (GNSS) Overlay Non-Precision Approach, edited the details under sections.		

Rev. Letter	Page Number(s)	DESCRIPTION	Date of Revision	FAA Approved*
F	1-13	Added section Area Navigation on US Conventional Routes or Procedures.	See page iii	See page iii
	1-13	US RNAV/SIDS/STARS, removed the references to the IRS and updated the FAA website. Added new details throughout section. Removed sections RNAV Approach with Barometric VNAV and RNAV RNP Approach (RNP APCH) and added section Radius to Fix (RF) Leg statement.		
	2-2 thru 2-3	Added AHRS section. Flight Management System (FMS), removed numerous bullets and included new bullet 9.		
	2-3	Vertical Navigation, edited the bullets and wording regarding the baro altimeters during VNAV. Added bullets and notes regarding FMS temperature compensation.		
	2-4	Approach, edited numerous details throughout the section, including adding bullets regarding LNAV/VNAV procedures.		
	4-2 thru 4-3	Edited title of section FMS Approach Procedure with Baro-VNAV. Added (LSK) to represent line side key on bullets 2 & 3. Removed L/V from bullet 4. Added notes to the end of bullet 6. Separated bullet 7 into several paragraphs and edited the wording for clarity.		

Rev. Letter	Page Number(s)	DESCRIPTION	Date of Revision	FAA Approved*
F	4-4 thru 4-6	FMS LPV Approach Procedure, removed "L/V" from title. Added notes to beginning of section. Changed the details on bullets 2 & 3. Edited the note following bullet 5. Edited the wording throughout bullet 7 for clarity. Added bullet 8.	See page iii	See page iii
	4-7	Non Precision Approach RAIM Page, changed WAAS to "SBAS" in statement.		
G	SECTION 1 1-1	Updated Table of Contents.	September 01, 2020	Thomas H. Bryant *for* Manager Southwest Flight Test Section, AIR-713 Federal Aviation Administration Fort Worth, Texas 76177
	1-2 thru 1-4	Added foot note for "DA". Revised LPV abbreviation. Added foot note for "LPV", Added abbreviation and foot note for "LNAV", "LNAV/VNAV", "LP" & "MDA". Added foot note for "SBAS" & VGP. Renumbered remaining footnotes.		
	1-13	NPA, separated notes for AC 90-105A & RNP AR, and added note for RNAV to LP MDA.		
	SECTION 2 2-4	Added bullet item 13 for LP MDA, re-numbered remaining items.		
H	Coversheet	Added applicable basic AFM documents with PL21 avionics system for B200/B200C and B300/B300C.		Thomas H. Bryant *for* Manager Southwest Flight Test Section, AIR-713 Federal Aviation Administration Fort Worth, Texas 76177
	1-2 to 1-5	Updated abbreviation table		
	2-3	Change V-MDA to VNAV MDA Removed all Caps on "CONTROL"		
	3A-2	Changed "MS" to "FMS"		
	4-6	Change "AT" to "at"		

NOTE: Revision bars indicate changes incorporated by latest change only

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SECTION I
GENERAL
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Introduction

This supplement is part of, and must be placed in, the basic FAA Approved Airplane Flight Manual for airplanes equipped with the Collins Pro Line 21 Avionics System installed in accordance with STC No. **SA10965SC**. The information contained herein supplements the information of the basic FAA Approved Airplane Flight Manual (AFM) and the approved Pro Line 21 Airplane Flight Manual Supplement (AFMS). For limitations, procedures and performance information not contained in this supplement, consult the basic FAA Approved Airplane Flight Manual.

This airplane is certified in accordance with 14 CFR 23 Commuter Category (B300/B300C) and Normal Category (B200/B200C/B200GT/B200CGT).

Symbols, Abbreviations and Terminology

ABV ..... Above
AC ..... Advisory Circular
ACT ..... Active
ACT FPLN ..... Active Flight Plan
ADI ..... Attitude Direction Indicator
AFM ..... Airplane Flight Manual
AHRS ..... Attitude and Heading Reference System
ALT ..... Attitude
AMC ..... Acceptable Means of Compliance
APPR ..... Approach
ARR ..... Arrival
BARO (Baro) ..... Barometric
BC ..... Back Course
B-RNAV ..... Basic Area Navigation
CAT ..... Category
CCP ..... Cursor Control Panel
CDU ..... Control Display Unit
CPN ..... Collins Part Number
CRS ..... Course
DA ..... Decision Altitude [1]
DEST ..... Destination
DIST ..... Distance
DME ..... Distance Measuring Equipment
EFIS ..... Electronic Flight Instrument System
FAA ..... Federal Aviation Administration

[1] Decision Altitude: A barometric altitude used to determine the lowest Altitude on a CAT 1 Approach (NPA or ILS) prior to taking over visually or going missed approach. A DA can only be used if a glide path is displayed.

FL ..... Flight Level
FMA ..... Flight Mode Annunciator
FMS ..... Flight Management System
FACF ..... Final Approach Course Fix
FAF ..... Final Approach Fix
FGP ..... Flight Guidance Panel
FPLN ..... Flight Plan
GA ..... Go Around
GNSS ..... Global Navigation Satellite System
GP ..... Guidance Panel
GPS ..... Global Positioning System (USA)
GS ..... Glideslope
HDG ..... Heading
HLA ..... High Level Airspace
HT ..... Height
ICAO ..... International Civil Aviation Organization
ILS ..... Instrument Landing System
INTC CRS ..... Intercept Course
IRS ..... Inertial Reference System
LDA ..... Localizer Directional Aid
LOC ..... Localizer
LOI ..... Loss of Integrity
LNAV ..... Lateral Navigation [3]
LNAV/VNAV ..... LNAV/VNAV is an NPA that uses barometric [4]
L/V ..... Lateral/Vertical
LP ..... Localizer Performance [5]

[2] Geometric Altitude: Altitude that is derived from a GNSS using the WGS84 mathematical model of the earth. It is the altitude used in SBAS-VNAV approaches (LPV) to determine glide path (Optional).

[3] Lateral Navigation: A LNAV approach is an NPA that uses barometric altitude to an MDA.

[4] Lateral Navigation / Vertical Navigation: LNAV/VNAV is an NPA that uses barometric altitude to a DA. The VGP computation is based on barometric altitude and therefore is less accurate than SBAS (LPV) approaches.

[5] Localizer Performance: A non-precision approach to a MDA that requires SBAS lateral guidance. On final, angular SBAS lateral deviations are displayed. The vertical path is based on barometric altitude. Published for locations where terrain or obstructions do not allow for vertically-guided LPV procedures.

LPV ..... Localizer Performance with Vertical Guidance [6]
LSK ..... Line Select Keys
MDA ..... Minimum Descent Altitude [7]
MFD ..... Multifunction Display
MOD ..... Modified
MSL ..... Mean Sea Level
NAS ..... National Aerospace System
NAT ..... North Atlantic
NAV ..... Navigation
NDB ..... Non-Directional Beacon
NOTAM ..... Notice to Air Missions
NPA ..... Non Precision Approach
ORIG ..... Origin
P-RNAV ..... Precision-Area Navigation
PA ..... Precision Approach
PFD ..... Primary Flight Display
PPOS ..... Present Position
RAIM ..... Receiver Autonomous Integrity Monitoring
RCPN ..... Rockwell Collins Part Number
RF ..... Radius-to-Fixed
RNAV ..... Area Navigation
RNP ..... Required Navigation Performance
RNP AR ..... Required Navigation Performance Authorization Required
SAAAR ..... Special Aircraft and Aircrew Authorization Required
SBAS ..... Satellite Based Augmentation System [8]

[6] Localizer Performance with Vertical Guidance: A SBAS-based RNP approach capability which computes and displays both horizonal and vertical approach navigation. On final, angular SBAS deviations are displayed for both the lateral and vertical paths. The VGP computation is based on geometric altitude.

[7] Minimum Descent Altitude: Will not normally have a VGP displayed.

[8] Satellite Based Augmentation System: SBAS is the term used for any space based “navigation” augmentation system. In the US it is called WAAS. Approaches that use SBAS data in the US are referred to as LPV.

SCID ..... Software Configuration Index Drawing
SDF ..... Simplified Directional Facility Approach
SEC ..... Secondary
SEC FPLN ..... Secondary Flight Plan
SID ..... Standard Instrument Departure
STAR ..... Standard Terminal Arrival Route
STC ..... Supplemental Type Certificate
TCN ..... Tactical Air Navigation System
TOC ..... Table of Contents
TOD ..... Top of Descent
TRANS ..... Transition
TSO ..... Technical Standard Order
US ..... United States
USA ..... United States of America
VFR ..... Visual Flight Rules
VGP ..... Vertical Glide Path [9]
VNAV-MDA ..... Vertical Navigation Minimum Descent Altitude
VNAV ..... Vertical Navigation
VOR ..... VHF Omnidirectional Range
VORTAC ..... VHF Omnidirectional Range/Tactical Air Navigation
VPATH ..... Vertical Path
WAAS ..... Wide Area Augmentation System (USA)
WMM ..... World Magnetic Model

[9] Vertical Glide Path: The vertical deviation indication and the vertical FMA annunciated when an NPA with vertical guidance is captured.

Flight Management System (FMS) Navigation Capabilities

The Collins FMS-3000 provides centralized control for navigation, flight planning, radio tuning, and fuel management functions.

- For additional information, refer to The Operator's Guide, FMS-3000 v4.0 Flight Management System for King Air Series Aircraft. Publication Number 523-0816977-002117, 2nd Edition, dated 06 February 2009 or later.

NOTE

Use of joystick on Cursor Control Panel (CCP-3000) to enter waypoint should only be done in the PLAN MAP mode. Do not use the joystick waypoint function on the Present Position (PPOS) map.

When FMS is the selected NAV source, lateral and vertical full-scale deviations are listed in the table below. Full scale deviation is 2 dots deviation laterally or vertically from the center of the deviation scale:

SCALE	OCEANIC (**OCEANIC** ANNUNCIATED)	ENROUTE	TERMINAL (**TERM** ANNUNCIATED)	VOR/DME/RNAV APPROACH (**APPR** ANNUNCIATED)	RNAV (GPS) or RNAV (GNSS) APPROACH (**GPS APPR** ANNUNCIATED)
Lateral	4 nm	2 nm	1 nm	1 nm	0.3 nm
Vertical	500 ft	500 ft	500 ft	250 ft	250 ft

SCALE	GPS (GNSS) SBAS APPROACH (**LPV APPR** ANNUNCIATED
Lateral	Angular Deviation
Vertical	Angular Deviation

Although most scale changes occur in a seamless manner, the pilot should expect to occasionally observe "jumps" in the lateral and vertical scale presentations as the aircraft transitions through various phases of the approach.

Laterally - Oceanic to En Route
En Route to Terminal
Terminal to GPS (GNSS) or GPS (GNSS) SBAS Approach

Vertically - En Route VNAV to GPS (GNSS), GPS (GNSS) SBAS or VOR/DME RNAV Approach

NOTE

WAAS is the SBAS service provider for the United States National Airspace System. SBAS will be used throughout this document to refer to the service provider appropriate to the intended area(s) of operation.

Navigation Capabilities

The single or dual Collins FMS (Flight Management System) is approved under Technical Standard Orders (TSO) TSO-C115b and TSO-C146c Class Delta 4.

When the FMS is receiving appropriate navigation signals, it meets the accuracy specifications for the following operations:

Oceanic and Remote

The FMS and Collins GNSS have been demonstrated to comply with the requirements for GNSS primary means of navigation in oceanic and remote airspace in accordance with AC 20-138C, provided that;

- Two FMS units are operating and receiving usable signals from two GNSS sensors and used in conjunction with the Collins Pre-Departure GPS Coverage Predictor Program, CPN 832-3443-008/-009/-012, Rev –, or later revision, or
- For routes approved for single GNSS navigation, a single FMS is operating and receiving usable signals from the single GNSS sensor and used in conjunction with the Collins GPS Coverage Prediction Program listed above.

NOTE

This does not constitute an operational approval.
AC 90-105A and AC 91-70B provide additional operational guidance.

North Atlantic (NAT) High Level Airspace (HLA)

The FMS and Collins GNSS have been demonstrated to meet the performance requirements of the NAT HLA, in accordance with AC 91-70B and NAT Doc 007, provided that:

- Two FMS units are operating and receiving usable signals from two GNSS and used in conjunction with the Collins Pre-Departure GPS Coverage Predictor Program, CPN 832-3443-008/-009/-012, Rev –, or later revision.

NOTE

This does not constitute an operational approval.
AC 90-105A and AC 91-70B provide additional operational guidance.

Barometric VNAV (Baro-VNAV)

In accordance with AC 20-138C, the VNAV system is approved for enroute, terminal, and approach operations.

NOTE

The actual VNAV path may deviate significantly below the intended VNAV path in cold temperatures.

RNP 1

The FMS is capable of operations on RNP-1 Departure Procedures and STARS in accordance with the criteria of AC 20-138D Change 2 and ICAO Doc 9613 Vol II, Part C, provided that:

- The FMS is receiving usable signals from a single Collins GNSS receiver, and
- The operator/pilot has confirmed that a Type 2 Letter of Authorization is valid for the navigation database. This is available from Collins Aerospace by accessing the Collins Aerospace Navigation Database website,
- And the length of each individual flight plan leg does not exceed 200 NM for those legs for which RNP 1 operations are intended, and
- The pilot monitors the lateral deviation and ensures the aircraft does not exceed full scale lateral deviation (2 Dots), and
- None of the following messages are displayed on any PFD or CDU:
  - CHK POS
  - FMS DR
  - VOR/DME ONLY or V/D ONLY
  - VOR/DME DIST > 40 NM
- And for ICAO PBN RNP 1 and other procedures that require GNSS or when GNSS is the only sensor available, none of the following messages are displayed on any PFD or CDU:
  - GNSS NOT AVAILABLE
  - GNSS-FMS DISAGREE
  - LOSS OF INTEGRITY
- And for those RNP 1 procedures within the U.S. National Air Space System that do not require GNSS, confirm proper DME/DME operation when GNSS is not available:
  - the FMS is receiving usable signals from at least one DME with auto-tune selected,
  - The crew has entered unserviceable navaids (check NOTAMs) on the CDU VOR/DME CONTROL page.

The following pre-flight planning only applies when SBAS is not available (check NOTAMs) or the aircraft is outside the SBAS coverage area and the procedure requires GNSS or GNSS is the only available sensor:

The availability of receiver autonomous integrity monitoring (RAIM) for the intended flight (route and time) should be confirmed using all available information. Dispatch should not be made in the event of predicted continuous loss of RAIM of more than 5 minutes for any part of the intended flight. Predictions may be performed using the following tools:

- Collins Pre-Departure GPS Coverage Predictor Program, CPN 832-3443-008/-009/-012, Rev -, or later version.
- The FAA website http://sapt.faa.gov/default.php
- EUROCONTROL , http://augur.ecacnav.com/augur/app/home

NOTE
This does not constitute an operational approval.
AC 90-105A and AC 91-70B provide additional operational guidance.

RNP 2

The FMS is capable of RNP 2 navigation in accordance with AC 20-138D Change 2 and ICAO Doc 9613 Vol II, Part C, provided that:

- For operations in oceanic/remote areas, two FMS systems are operating and receiving usable signals from two operating Collins GNSS sensors, and
- For operations in oceanic/remote areas or if otherwise required by the state authority, Pre-departure GNSS predictions for the intended route of flight have been performed using Collins Pre-Departure GPS Coverage Predictor Program, CPN 832-3443-008/-009/-012, Rev -, or later version, and
- For the segment of route intended as RNP 2, the distance between consecutive waypoints does not exceed 400 NM, and
- Lateral deviation remains within 2 NM, corresponding to:
  - 2 dots when lateral deviation scaling is 2 NM
  - 1 dot when lateral deviation scaling is 4 NM (when OCEANIC is displayed on the PFD) which occurs in the region defined by boundaries:
    - Latitude ranges from N27° to N67°
    - Longitude ranges from W010° to W060°
- And none of the following messages are displayed on any PFD or CDU:
  - CHK POS
  - FMS DR
  - GNSS NOT AVAILABLE
  - GNSS-FMS DISAGREE
  - LOSS OF INTEGRITY or LOI
  - VOR/DME ONLY or V/D ONLY
  - VOR/DME DIST > 40NM

NOTE
This does not constitute an operational approval.
AC 90-105A and AC 91-70B provide additional operational guidance.
Routes designated as RNP 2 may have additional requirements for communication, surveillance and operation.

RNP 4

The FMS is capable of RNP 4 navigation in accordance with AC 20-138D Change 2, and ICAO Doc 9613 Vol II, Part C provided that:

- Two FMS systems are operating and receiving usable signals from two operating Collins GNSS sensors, and
- Pre-departure GNSS predictions for the intended route of flight have been performed using Collins Pre-Departure GPS Coverage Predictor Program, CPN 832-3443-008/-009/-012, Rev -, or later version, and
- For the segment of route intended as RNP 4, the distance between consecutive waypoints does not exceed 800NM, and
- None of the following messages are displayed on any PFD or CDU:
  - CHK POS
  - FMS DR
  - GNSS NOT AVAILABLE
  - GNSS-FMS DISAGREE
  - LOSS OF INTEGRITY or LOI
  - VOR/DME ONLY or V/D ONLY
  - VOR/DME DIST > 40NM

NOTE
This does not constitute an operational approval.
AC 90-105A and AC 91-70B provide additional operational guidance.
Routes designated as RNP 4 may have additional requirements for communication, surveillance and operation.

RNP 5

In accordance with the criteria of ICAO Doc 7030/5 Amendment No. 2, dated 25 August 2009, the FMS is capable of operations on designated RNP 5 routes in Amman; Beirut; Cairo; Damascus; and Tel Aviv FIR's, provided that:

- The FMS is receiving usable signals from at least one of the following:
  - A single Collins GNSS sensor, or
  - A single DME if auto-tune is selected and the crew has entered unserviceable navaids (check NOTAMs) on the CDU VOR/DME CONTROL page.
- The operator/pilot has confirmed that a Type 2 Letter of Authorization is valid for the navigation database. This is available from Collins Aerospace. by accessing the Collins Aerospace Navigation Database website, and
- The pilot monitors the lateral deviation and ensures the aircraft does not exceed full scale lateral deviation (2 Dots), and

- None of the following messages are displayed on any PFD or CDU:
  - CHK POS
  - FMS DR
  - VOR/DME ONLY or V/D ONLY
  - VOR/DME DIST > 40 NM
- And for those RNP 5 routes that require GNSS, or when GNSS is the only sensor available, none of the following messages are displayed on any PFD or CDU:
  - GNSS NOT AVAILABLE
  - GNSS-FMS DISAGREE
  - LOSS OF INTEGRITY OR LOI

NOTE
RNP 5 operations utilizing GNSS as the only nav sensor require the following pre-flight planning:

The availability of receiver autonomous integrity monitoring (RAIM) for the intended flight (route and time) should be confirmed using all available information. Dispatch should not be made in the event of predicted continuous loss of RAIM (fault detection) of more than 5 minutes for any part of the intended flight. Predictions may be performed using the following tools:

- Collins Pre-Departure GPS Coverage Predictor Program, CPN 832-3443-008/-009/-012, Rev -, or later version.
- EUROCONTROL AUGUR, http://augur.ecacnav.com/augur/app/home

NOTE
This does not constitute an operational approval.

RNP 10 Airspace (RNAV 10)

The FMS with Collins GNSS has been demonstrated to meet the criteria of AC 20-138C Required Navigation Performance Type 10 (RNP 10) without time limitations provided that:

- The message “FMS DR” is not displayed on any PFD or CDU, and
- Two FMS systems are operating and receiving usable signals from two operating GNSS sensors and used in conjunction with the Collins Pre-Departure GPS Coverage Predictor Program, CPN 832-3443-008/-009/-012, Rev -, or later version.

NOTE
This does not constitute an operational approval
AC 90-105A and AC 91-70B provide additional operational guidance.

P-RNAV (RNAV 1)

In accordance with the criteria of JAA TGL-10 and AC 90-96A Change 1, the FMS is capable of P-RNAV operations provided that:

- The message “FMS DR” is not displayed on any PFD or CDU, and
- The FMS is receiving usable signals from at least one of the following:
  - A single Collins GNSS sensor, or
  - A single DME if auto-tune is selected and the crew has entered unserviceable navaids (check NOTAMs) on the CDU VOR/DME CONTROL page.
- The operator/pilot has confirmed that a Type 2 Letter of Authorization is valid for the navigation database. This is available from Collins Aeropace by accessing the following website: www.rockwellcollins.com/fms.

The operator/pilot should confirm the requirements of the national, area, or local air traffic control agency for determining the availability of GNSS RAIM for the intended route of flight prior to departure. Some terminal areas may require dual, operating FMS and GNSS equipment.

NOTE
P-RNAV (RNAV 1) operations utilizing GNSS as the only NAV sensor require the following pre-flight planning:

The availability of receiver autonomous integrity monitoring (RAIM) for the intended flight (route and time) should be confirmed using all available information. Dispatch should not be made in the event of predicted continuous loss of RAIM of more than 5 minutes for any part of the intended flight. Predictions may be performed using the following tools:

- Collins Pre-Departure GPS Coverage Predictor Program, CPN 832-3443-008/-009/-012, Rev -, or later version.
- EUROCONTROL AUGUR, http://augur.ecacnav.com/augur/app/home

NOTE
This does not constitute an operational approval.

Enroute and Terminal, including B-RNAV (RNAV 5)

In accordance with AC 90-45A, AC 20-138C, AC 90-96A Change 1, AMC 20-4, and AMC 20-5, the FMS is capable of enroute and terminal operations, including B-RNAV, provided “FMS DR” is not displayed on any PFD or CDU and the FMS is receiving usable signals from at least one of the following:

- A single Collins GNSS sensor, or
- A single DME if auto-tune is selected and the crew has entered unserviceable navaids (check NOTAMs) on the CDU VOR/DME CONTROL page.

NOTE
B-RNAV (RNAV 5) operations utilizing GNSS as the only nav sensor require the following pre-flight planning:

The availability of receiver autonomous integrity monitoring (RAIM) for the intended flight (route and time) should be confirmed using all available information. Dispatch should not be made in the event of predicted continuous loss of RAIM of more than 5 minutes for any part of the intended flight. Predictions may be performed using the following tools:

- Collins Pre-Departure GPS Coverage Predictor Program, CPN 832-3443-008/-009/-012, Rev -, or later version.
- EUROCONTROL AUGUR, http://augur.ecacnav.com/augur/app/home

NOTE

This does not constitute an operational approval.

Non-Precision Approach

RNAV (GPS) / RNAV (GNSS) or GPS (GNSS) Overlay Non-Precision Approach

In accordance with AC 20-130C:

- The FMS is capable of RNP Approach operations to RNP 1 in the Initial, Intermediate and Missed Approach Segments and to RNP 0.3 in the Final Approach Segment provided:
  - The FMS is receiving usable signals from at least one Collins GNSS, and
  - The GPS APPR annunciation is displayed at the final approach fix, and
  - The auto pilot or flight director is engaged.
- The FMS is capable of LPV (ABV SBAS) Approach operations provided:
  - The FMS is receiving usable signals from at least one Collins GNSS, and
  - The LPV APPR annunciation is displayed at the final approach fix, and
  - The auto pilot or flight director is engaged.

A current altimeter setting for the landing airport is required. Where remote altimeter minima are shown, the VNAV function may be used only to the published MDA.

NOTE

AC 90-105A provides additional operational guidance.

NOTE

The FMS is not certified to conduct RNAV approaches to LP Lines of Minima (LP MDA).

NOTE

The FMS is not certified to conduct RNP AR (formerly RNP SAAAR) instrument procedures.

VOR/DME Approach (non-GPS (GNSS) overlay) – In accordance with TSO C115B, and AC 20-130C, the FMS has been demonstrated capable of RNAV (VOR/DME) approaches provided that:

- The FMS is receiving the approach reference VOR/DME station, and
- The GNSS sensors are disabled, and
- The APPR annunciation is displayed at the final approach fix, and
- The auto pilot or flight director is engaged.

VOR, TCN, NDB (non-GPS (GNSS) overlay) – For an approach that does not have a GPS (GNSS) overlay, a white “APPR FOR REF” will be annunciated on the PFD when the aircraft is in

the terminal area. Depending on database coding, the FMS may provide approach guidance (APPR) for some VOR approaches based on a VOR/DME or VORTAC.

NOTE

Some approaches are not included in the database.

Area Navigation on US Conventional Routes or Procedures

The In accordance with AC 90-108 Change 1, the FMS is capable of operating on or transitioning to, conventional routes and procedures within the United States (US) National Airspace System (NAS).

US RNAV/SIDS/STARS

The FMS is capable of operations on U.S. Area Navigation (Q) routes, RNAV 1 or RNAV 2, Departure Procedures and STARS in accordance with the criteria of FAA AC 90-100A, provided that:

- The FMS is receiving usable signals from at least one DME with auto-tune selected or a single Collins GNSS, and
- The crew has entered unserviceable navaids (check NOTAMs) on the CDU VOR/DME CONTROL page, and
- The operator/pilot has confirmed that a Type 2 Letter of Authorization is valid for the navigation database. This is available from Collins Aerospace by accessing the Collins Aerospace Navigation Database website, and
- None of the following messages are displayed on any PFD or CDU:
  - FMR DR
  - VOR/DME ONLY or V/D ONLY
  - VOR/DME DIST > 40 NM
- And for procedures requiring GNSS or when GNSS is the only sensor available, provided none of the following messages are displayed on any PFD or CDU:
  - GNSS NOT AVAILABLE
  - GNSS-FMS DISAGREE
  - LOSS OF INTEGRITY
- And the availability of the navigation infrastructure, required for the intended routes and procedure (including any non-RNP contingencies) is confirmed for the period of intended operations using all available information.

The following condition only applies when SBAS is not available (check NOTAMs) or the aircraft is outside the SBAS coverage area and the procedure requires GNSS or GNSS is the only available sensor:

The availability of receiver autonomous integrity monitoring (RAIM) for the intended flight (route and time) should be confirmed using all available information. Dispatch should not be made in the event of predicted continuous loss of RAIM of more than 5 minutes for any part of the intended flight. Predictions may be performed using the following tools:

- Collins Pre-Departure GPS Coverage Predictor Program, CPN 832-3443-008/-009/-012, Rev -, or later version.
- The FAA website http://sapt.faa.gov/default.php

SECTION II
LIMITATIONS
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AVIONICS

1. The following documents must be carried onboard the airplane at all times:
    - Operator's Guide, FMS-3000 v4.0 Flight Management System for King Air Series Aircraft. Publication Number 523-0816977-002117, 2nd edition, dated 06 February 2009 or later.

Attitude Heading Reference System (AHRS)

For systems based on magnetic heading (no True Heading Source) flight operations are approved:

- At any longitude for the area bounded by 65° North latitude and 55° South latitude.
- To 70° North latitude for the area East of 70° West longitude and West of 125° West longitude.
- To 75° North latitude for the areas:
    - East of 50° West longitude and West of 60° East longitude, and
    - East of 150° East longitude and West of 160° West longitude
- To 80° North latitude for the area East of 10° West longitude and West of 40° East longitude.
- To 75° South latitude for the area East of 165° East longitude and West of 110° East longitude.
- Operations outside of the limits described above must be based on a main Field Horizontal Intensity (H) of 6000 nano Tesla (nT) or greater, providing a margin to the minimum acceptable field strength of 3000 nT.

Sources (WMM calculators) for the current International Geomagnetic Reference Field model for Main Field Horizontal Intensity (H) can be found at the following web sites:

- http://www.ngdc.noaa.gov/geomag/WMM/image.shtml
- http://www.geomag.bgs.ac.uk/data_service/models_compass/home.html
- http://geomag.nrcan.gc.ca/index-en.php

Other acceptable sources for current Main Field Horizontal Intensity (H) may be available.

Flight Management System (FMS)

General

1. The system program displayed on the STATUS page of the FMS must be:
    - SCID 832-4120-063 (without Search and Rescue), or
    - SCID 832-4120-064 with Search and Rescue.
2. IFR en route and terminal navigation is prohibited unless the pilot has verified either the currency of the database or verifies each selected waypoint for accuracy by reference to current approved data.
3. If the Satellite Based Augmentation System (SBAS) is not available or disabled, the aircraft must have additional navigation equipment appropriate to the intended route, and it must be operational.
4. During periods of dead reckoning, indicated by the FMS DR annunciation, the FMS shall not be utilized as the primary source of navigation.

5. The WGS-84 or NAD-83 coordinate reference datum must be used.
6. The display of Geometric Altitude, GNSS HT or GNSS ALT, shall not be referenced for compliance with published or controller-issued altitudes.
7. Fuel management parameters are advisory only and do not replace the primary fuel quantity indications.
8. RNP operations are authorized, as noted in the FMS Navigation Capabilities section.
9. The FMS is not approved for navigation operations at latitudes greater than 89° North or 89° South.

Vertical Navigation

1. The barometric altimeter(s) shall be referenced to assure compliance with altitude restrictions for all flight operations, including departure, any approach and missed approach segment, step-down fix and “climb to” restrictions.

NOTE

Step down fixes may not be available in the navigation database for certain approaches and approach segments.

NOTE

“Climb to” altitudes are those altitudes that must be reached prior to initiating a turn to a subsequent waypoint or vector. These altitudes are shown in parentheses on the CDU and do not define waypoints.

2. Use of VNAV guidance for a VNAV MDA approach that includes a step-down fix between the final approach fix and missed approach point is prohibited.
3. VNAV altitudes must be displayed on the MFD map page or CDU legs page when utilizing VNAV for flight guidance.
4. When conducting an instrument approach using Baro-VNAV to LNAV/VNAV DA minimums, the flight director or autopilot must be used and VGP mode must be active. This limitation does not apply to LPV operations.
5. Editing altitudes on FMS Control Display Unit (CDU) ACT/MOD/SEC LEGS on departure procedures and missed approach procedures is prohibited at all times for all ground and flight operations.
6. Baro-VNAV approach guidance to a DA is not authorized if the reported surface temperature is higher or lower than the Baro-VNAV temperature limitations specified on the applicable approach procedure chart. The final segment of an LPV approach is not subject to temperature restrictions.
7. Manual Temperature Compensation: The use of manual Temperature Compensated VNAV altitude constraints is prohibited unless authorized by Air Traffic Control or required by the appropriate governing authority.
8. Automatic (FMS) Temperature Compensation: Any use of the automatic FMS Temperature Compensation Function is prohibited for all ground and flight operations.

NOTE

To disable the FMS Temperature Compensation Feature refer to Service Information Letter CSU-XX00-18-1 Rev 1 titled, "Instructions for Disabling of Automatic Temperature Compensation Option in Pro Line 4 and Pro Line 21 Systems", RCPN 523-0825521.

9. Temperature compensation may only be accomplished manually, without using the FMS, by entering temperature-corrected altitudes on the altitude preselect on the Flight Guidance Panel and/or using basic altimetry techniques.

NOTE

Operating at uncompensated minimum IFR altitudes will not provide expected terrain and obstacle clearance for temperature below ISA.

Approach

1. FMS instrument approaches must be accomplished in accordance with approved instrument approach procedures that are retrieved from the FMS navigation database. The FMS database must incorporate the current update cycle.
2. The FMS with inputs from the GNSS may only be used for approach guidance if the reference coordinate data system for the instrument approach is WGS-84 or NAD-83.
3. Use of Baro-VNAV Decision Altitude (DA) is not authorized with a remote altimeter setting. A current altimeter setting for the landing airport is required. Where remote altimeter minima are shown, the VNAV function may be used only to the published MDA.
4. LNAV/VNAV must be accomplished using procedures for uncompensated Baro-VNAV systems. If reported airport temperature is outside published limits for the approach, Baro-VNAV operation is permitted only to the LNAV or circling line of minima, as applicable.
5. ILS, LOC, LOC-BC, LDA and SDF approaches using the FMS for approach guidance are prohibited. If an ILS, LOC-BC, LDA or SDF approach is loaded from the database, the pilot must ensure that the active NAV source transitions from FMS to short range NAV prior to the FAF.
6. When the approach at the destination is based on GNSS guidance and the Satellite Based Augmentation System (SBAS) is not available or disabled, an alternate airport required by operating rules must be served by an approach based on other than GNSS navigation. The aircraft must have operational equipment capable of using that navigation aid, and the required navigation aid must be operational.
7. Inserting waypoints on a published approach is prohibited.
8. Approaches copied from the SEC FLPN must be re-entered if previously flown.
9. Use of FMS guidance for conducting instrument approach procedures is prohibited with the FMS annunciation **NO APPR** illuminated.
10. The use of manually inserted runway coordinates of FMS Visual Approaches is limited to VFR operations only.
11. Use of FMS to capture and track a DME arc outside the published end points is prohibited.
12. RF Leg operations are not approved.
13. RNAV approaches to LP Lines of Minima (LP MDA) are prohibited.
14. RNP AR (formerly RNP SAAAR) operations are prohibited.

NOTE

Not all published approaches are in the FMS database. The flight crew must ensure that the planned approach is in the database.

SECTION III
EMERGENCY PROCEDURES
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No Changes to this Section

SECTION IIIA
ABNORMAL PROCEDURES
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AVIONICS

FMS Caution Messages

The yellow MSG displayed on each PFD indicates presence of an FMS message on the CDU that requires pilot awareness and may require pilot action. Refer to the Collins FMS-3000 Flight Management System Pilot's Operating Manual, under Messages and Annunciations, Section 15.

APPR NOT AVAILABLE (CDU MFD)

This message is displayed in the terminal area (31 NM from the origin or destination) when the FMS determines the system does not meet the navigational requirements for approach operations.

- Select an approach not based on GNSS or proceed to the alternate airport if an approach cannot be completed in visual conditions.

CHK SBAS SVC PRVDR (CDU)

This message is displayed when Satellite Based Augmentation System is not available or is not enabled.

- Verify the SBAS provider is enabled.

CRS TO FAF > 45 DEG (CDU)

This message is displayed after executing a direct-to the FAF with an INTC CRS greater than 45 degrees from the final approach course. The FMS will not transition to the approach mode and SEQ INHB will be displayed on the PFD in yellow. If the approach is flown with this message displayed, the FMS will not provide guidance beyond the FAF to track the final approach course.

- Perform a direct-to the FAF with an INTC CRS within 45 degrees of the final approach course.

HALF BANK SELECTED (CDU)

This message is displayed when the autopilot/flight director 1/2 BANK and NAV modes are active, an approach is in the flight plan and the aircraft is within 31 NM of the approach airport. The message is also displayed within 1 minute of entering a holding pattern.

- Deselect 1/2 BANK mode prior to commencing the approach or entering a holding pattern.

GNSS NOT AVAILABLE (CDU)

This message is displayed when the FMS cannot use any of the enabled GNSS sensors or the crew has disabled all GNSS sensors via the GNSS CTL page.

- Continue FMS navigation with remaining valid sensors appropriate for the route of flight.

LOI (PFD) and LOSS OF INTEGRITY (CDU MFD)

This message is displayed when the FMS detects that the GNSS position does not meet the requirements for navigational use in the current phase of flight.

1. Select a navigation source other than FMS.

   OR

2. Deselect the GNSS receivers and continue FMS navigation with remaining valid sensors in accordance with airspace requirements.

NO APPR (PFD)

This message is displayed when the FMS is in approach mode and the FMS determines the system does not meet the navigational requirements for approach operations.

- Execute a go-around if the approach cannot be completed in visual conditions.

USE LNAV MINIMUM (CDU MFD)

This message is displayed when the GNSS vertical signal is inadequate for operating to the LPV minimums. This message will be accompanied with the “LPV NOT AVAILABLE” message.

Select BARO via the ARR DATA page and fly the approach utilizing BARO VNAV to LNAV/VNAV minimums or LNAV minimums. The selection of BARO must be executed prior to the FAF.

SECTION IV
NORMAL PROCEDURES
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AVIONICS

FMS Message

The white MSG displayed on each PFD indicates presence of an FMS white message that requires pilot awareness and may require pilot action. Refer to the Collins FMS-3000 Flight Management System Pilot's Operating Manual, under Messages and Annunciations section 15.

MFD FMS map source data is controlled by the menu button on the CCP, when a map is displayed on the MFD.

The EFIS transition altitude FL alert caution setting is controlled from the FMS VNAV setup page.

FMS Approach Procedure with Baro-VNAV (LNAV/VNAV or LNAV)

CAUTION

Use of the autopilot/flight director 1/2 BANK mode may result in excessive deviation from the course during an approach or holding pattern due to the limits these modes place on autopilot command authority.

1. On the CDU, press the DEP ARR function key to show the ARRIVAL page.

NOTE

Either an origin (ORIG) or a destination (DEST) airport must be specified in the flight plan for approach selections to be available on the ARRIVAL page. When the DEP ARR key is pressed, one of three pages is shown: DEPART, ARRIVAL, or DEP/ARR INDEX. If the aircraft is on the ground, or airborne less than 50 NM from the origin airport, or less than halfway to the destination airport, the DEPART page for the ORIGIN airport shows. If the aircraft is airborne and more than halfway to the destination airport, the ARRIVAL page for the destination airport is shown.

2. Press the line select key (LSK) adjacent to the desired approach.
3. Press the line select key (LSK) adjacent to the desired transition.

NOTE

If the desired approach or transition is not visible under the APPROACHES or TRANS list, press the NEXT or PREV function keys to scroll through additional selections.

4. Via the ARR DATA page, select BARO if the approach is a LPV as set by the database.

5. Once the approach, approach transition and BARO (if required) have been selected, press the EXEC function key to add the approach to the flight plan.

NOTE

When an approach is added to a flight plan from the ARRIVAL page, a discontinuity may be added immediately before the approach procedure in the flight plan.

6. To intercept the final approach course via vectors, select the flight director NAV or APPR mode. When flying an approach via a transition other than vectors and APPR is the desired vertical mode to complete the approach, verify APPR mode is selected prior to 2NM from the final approach fix.

NOTE

Approach guidance is no longer valid when an amber NO APPR annunciation is displayed in the status field, below and to the left of the ADI. When approach guidance is no longer valid, execute a missed approach unless the approach can be continued visually. In this situation the green APPR FMS# Flight Mode message will still be displayed above the ADI.

NOTE

Flying temperature compensated altitudes without approval of Air Traffic Control or the appropriated governing authority can lead to a loss of traffic separation.

7. If VNAV path guidance is desired for a non-precision approach, select VNAV mode prior to the final approach fix. The FMS will provide a vertical path for those approaches with a vertical angle displayed on the CDU LEGS page to the altitude at the runway or missed approach point.

   Approaches without a vertical angle will display V-MDA above the missed approach point altitude on the CDU LEGS page.

   If the **APPR** and **VNAV** modes are selected on the FGP, a white GP annunciation will be displayed no later than 2 nm from the final approach fix. This indicates the system is armed to capture and track a VNAV glidepath past the final approach fix. After glidepath capture, the annunciation will change to VGP in green. In VGP mode, the VNAV system will not level at the preselected altitude. Set the preselector to the missed approach altitude. Operation in VGP mode is similar to GS mode for an ILS approach and is appropriate when operating to a DA.

   If the **NAV** and **VNAV** modes are is selected on the FGP, a white PATH annunciation will be displayed no later than 2 nm from the final approach fix. This indicates the system is armed to capture and track a VNAV path past the final approach fix. After path capture, the annunciation will change to VPATH in green. In VPATH mode, the VNAV system will level at the preselected altitude or VNAV reference altitude whichever is higher. There may be subsequent step-down fixes after the FAF that require pilot action to continue the descent to the MDA.

   VNAV path guidance after the FAF is not available for those approaches with V-MDA displayed above the missed approach point altitude on the CDU. If flying level to the FAF, the aircraft will remain in an altitude hold mode past the FAF unless another flight director vertical mode is selected for descent to the desired MDA. If descending to the FAF via a VNAV defined path the flight director will revert to PTCH mode at the FAF and the aircraft will continue the descent at the aircraft pitch value present at the transition to PTCH mode. There may be subsequent step-down fixes after the FAF that requires pilot action to continue the descent to the MDA.

FMS LPV Approach Procedure

CAUTION

Use of the autopilot/flight director 1/2 BANK mode may result in excessive deviation from the course during an approach or holding pattern due to the limits these modes place on autopilot command authority.

CAUTION

Approach guidance is no longer valid when an amber NO APPR annunciation is displayed in the status field, below and to the left of the ADI. When approach guidance is no longer valid, execute a missed approach unless the approach can be continued visually. In this situation the green APPR FMS# Flight Mode message will still be displayed above the ADI.

NOTE

On hot days when performing LPV approaches and while transitioning from barometric altitude to LPV glidepath, the glidepath can possibly jump. The airplane can possibly be high and pilot action can be required to capture the glidepath. Early activation of the approach mode after being cleared for the approach and established on a published portion of the approach will help to minimize the glidepath movement.

NOTE

Use barometric altitude (MSL) for the Decision Altitude (DA) minimums.

NOTE

Check with local authorities to determine if temperature compensation is required prior to the FAF when performing LPV approach operations outside of the U.S.A.

1. On the CDU, press the DEP ARR function key to show the ARRIVAL page.

NOTE

Either an origin (ORIG) or a destination (DEST) airport must be specified in the flight plan for approach selections to be available on the ARRIVAL page. When the DEP ARR key is pressed, one of three pages is shown: DEPART ARRIVAL, or DEP/ARR INDEX. If the aircraft is on the ground, or airborne less than 50 NM from the origin airport, or less than halfway to the destination airport, the DEPART page for the ORIGIN airport shows. If the aircraft is airborne and more than halfway to the destination airport, the ARRIVAL page for the destination airport is shown.

2. Press the line select key (LSK) adjacent to the desired LPV approach.
3. Press the line select key (LSK) adjacent to the desired transition.

NOTE

If the desired approach or transition is not visible under the APPROACHES or TRANS list, press the NEXT or PREV function keys to scroll through additional selections.

4. Once the approach and transition have been selected, press the EXEC function key to add the approach to the flight plan. The FMS annunciates “LPV TERM” on the PFD when the aircraft is within the terminal area (31 NM) of the selected airport.

NOTE

When an approach is added to a flight plan from the ARRIVAL page, a discontinuity may be added immediately before the approach procedure in the flight plan.

5. To intercept the final approach course via vectors, select the flight director APPR mode. When flying an approach via a transition other than vectors, verify APPR mode is selected prior to 2NM from the final approach fix.

NOTE

The final segment of an LPV approach is not subject to temperature limitations.

6. Select VNAV mode prior to the final approach fix (FAF). RWY is annunciated on the PFD when within 500 ft (approximately 2 dots) of the LPV vertical path. If APPR mode is selected on the FGP, a white GP annunciation will be displayed no later than 2 nm from the final approach fix. This indicates the system is armed to capture and track a glidepath past the final approach fix. After glidepath capture, the annunciation will change to VGP in green. In VGP mode, the VNAV system will not level at the preselected altitude. The preselector can be set to the missed approach altitude. Operation in VGP mode is similar to GS mode for an ILS approach and is appropriate for operations to a DA.
7. When the flight plan leg after the Final Approach Course Fix (FACF) becomes active and the aircraft meets the lateral capture criteria, the PFD annunciates LPV APPR and displays angular lateral and vertical deviation for the LPV approach. RWY will be annunciated on the PFD in the VNAV target altitude field after LPV is annunciated and the aircraft is within 500 ft of the SBAS vertical path.

NOTE

The TOD displayed past the FACF is based on a Baro-VNAV path to the final approach fix altitude until the FMS transitions to LPV APPR mode. After transition to FMS approach mode, the TOD represents the intercept point of the SBAS vertical path.

The FMS transitions to LPV APPR mode under any of the following conditions:

- The FACF is sequenced and flying on the published procedure.
- Intercepting inside the FACF via HDG mode and within 0.2nm of the lateral path.
- If a direct-to the FAF was selected with an INTC course within 45 degrees of the final approach course, LPV APPR will be annunciated 2nm prior to the FAF.
- If a vertical direct-to to FAF was selected, LPV APPR will be annunciated 2 nm prior to FAF.

- If the FACF is deleted, LPV APPR will be annunciated after sequencing the next step down fix or in absence of any step down fixes 2 nm prior to the FAF. If the last step down altitude is less than 2 nm from the FAF, the FMS approach mode activates 2 nm prior to the FAF.
- If step down altitudes between the FACF and FAF have been modified with an at constraint altitude, LPV APPR will activate after the last modified step down altitude. If the last step down altitude is less than 2 nm from the FAF, the FMS approach mode activates 2 nm prior to the FAF.
- When flying parallel to the final approach course in heading mode, LPV APPR will activate crossing the 2 nm radius circle around the FAF.

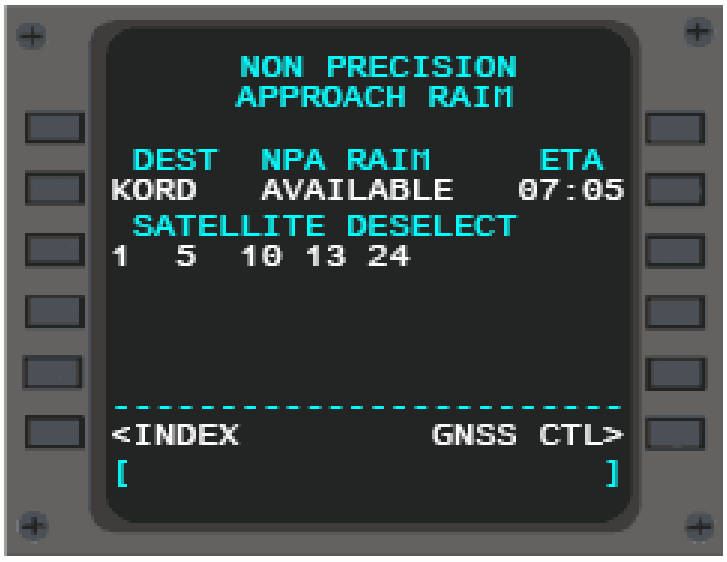
8. During LPV APPR operations:
   - Engage the flight director and/or autopilot, and check that the active flight director vertical mode is “VGP” or “VPATH”,
   - Select the Present Position (PPOS) map such that lateral path deviations are evident, recommended to be an outer range of 25 NM or less, and
   - Execute the missed approach and do not use the LPV vertical deviation if:
     - Lateral deviation is at or beyond full scale deflection, or
     - The vertical flight director mode is not VGP or VPATH.

Missed Approach Procedure

Missed approach procedures are automatically added to the flight plan with the selection of an approach. The missed approach procedure begins on the LEGS page with the leg immediately following the MISSED APPR label. It will also display on the ACT/MOD FPLN page as MISSED APPROACH. A missed approach is activated by pressing the GA button.

1. If a missed approach is required from a localizer based approach:
   a. Select the GA button to initiate the go-around and missed approach procedure.
   b. Set power, configure, and climb on course as required.
   c. On the LEGS page, verify AUTO sequence is selected.
   d. Select FMS as the active NAV source.
   e. Set the appropriate lateral and vertical flight director modes.
   f. Engage the autopilot (if desired).
2. If a missed approach is required from an FMS based approach:
   a. Select the GA button to initiate the go-around and missed approach procedure.
   b. Set power, configure, and climb on course as required.
   c. On the LEGS page, verify AUTO sequence is selected.
   d. Set the appropriate lateral and vertical flight director modes.
   e. Engage the autopilot (if desired).

NON Precision Approach RAIM Page



This function is only required when conducting a GNSS based approach outside of SBAS coverage or when SBAS is not available (check NOTAMs). Verification of Non Precision Approach RAIM availability is not required when conducting SBAS based approaches.

FMS NAV TO NAV Operation

FMS NAV-to-NAV operation did not change as a result of this installation. The following explanation provides additional information for the white “NO APPR” message on the PFD.

The white “NO APPR” message is displayed on the PFD within 31 NM of the destination airport and a localizer based approach is in the flight plan when a condition exists that will inhibit the automatic transition from FMS to LOC navigation source. These conditions include:

- The NO APPR indication is displayed on the PFD when APPR is selected more than 31 nm from the airport. When within the 31 nm radius of the airport, selecting NAV and then APPR will clear the NO APPR indication.
- The NO APPR indication is displayed on the PFD when the localizer is not tuned to the proper frequency.

The crew must select APPR (on the Flight Guidance Panel) after the FMS completes the NAV-to-NAV set-up for the automatic transition from FMS to LOC navigation to occur. The crew can confirm that the FMS has completed the NAV-to-NAV set-up for the selected approach by observing the following on the PFD displays when the aircraft is in the terminal area:

- Localizer is tuned to the ILS frequency corresponding to the selected approach
- Localizer course is set
- LOC is the preselected navigation source

SECTION V
PERFORMANCE

No changes to this section

SECTION VI
WEIGHT & BALANCE/EQUIPMENT LIST

No Changes to this Section.

SECTION VII
SYSTEMS DESCRIPTION

No Changes to this Section

SECTION VIII
HANDLING, SERVICING AND MAINTENANCE

No Changes to this Section

SECTION IX
SUPPLEMENTS

No Changes to this Section

SECTION X
SAFETY INFORMATION

No Changes to this Section