

Installation Notes

Set Up Procedures for the NZ-2000 Navigation Computer

When installing a new NZ-2000 Navigation Computer, or sending a NZ-2000 for a software mod, repair or upgrade, it may be necessary to perform the following steps:

- Load the current Navigation Database (NDB). See Section 6 of the FMS Pilot Manual (DATA LOAD)
- Load the Aircraft Database (ACDB). (G-IV's skip this step) See Section 6 of the FMS Pilot Manual (DATA LOAD)

The ACDB's are located on Disk 1 and Disk 2 of the NDB. Software versions 4.1 to 4.5 use V1. (Example: H800A-V1). The exception to this is that 4.1 Mod F uses V2. Software Versions 4.8 and greater use V2.

(Example: H800A-V2)

Disk 1 of the Navigation database contains a document identifying all ACDBs contained in the current cycle and the applicable aircraft/FMS software version. (ACDB.pdf)

- After Loading the ACDB you must enter the aircraft tail number into the FMS. This is done on PERF INIT page one
- Set up the Vspeed labels. After loading or reloading an aircraft database on non-TOLD equipped aircraft, Vspeed label names and their values need to be reset. Once the aircraft database is loaded, the following steps can be taken to ensure these labels are set.

From the NAV IDENT page:

- Push MAINTENANCE (4L),
- NEXT, SETUP (4L),
- VSPD LABELS (2L).
This brings up the T.O. VSPEED LABELS page where the labels are named. After naming, push SAVE (4L).

- The Vspeed label values are then entered in the TAKEOFF and LANDING pages, while performing PERF INIT.

VISION

The Technical Operations Center vision is to provide timely one call resolution of customer technical issues, enabling a 24x7 proactive service approach.

- Technical expert availability
- Knowledge on demand
- Issue ownership and tracking
- Global virtual resources
- Simplified contact options

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option for EMEAI customers

Upcoming FMS Seminars and Briefings

All times are 8:00 a.m. to 12:00 p.m.

Date	Description	Location	City/Country
Sept. 1	FMS v6.1 and v7.1 software/hardware update briefing (all aircraft)	Honeywell Operators Conference Hilton Chicago Northbrook	Chicago, IL, USA
Sept. 9	NZ-2000 FMS Pilot Operating Tips Seminar	CAE Training Center	Burgess Hill, England
Sept. 10	Primus Epic FMS Pilot Operating Tips Seminar	CAE Training Center	Burgess Hill, England
Sept. 16	FMS v6.1 and v7.1 software/hardware update briefing (all aircraft)	Honeywell Operators Conference Embassy Suites, Love Field	Dallas, TX, USA
Nov. 3	Boeing, Airbus, and Embraer FMS Seminar	Honeywell Operators Conference Arizona Grand Resort	Phoenix, AZ, USA
Dec. 7	NZ-2000 FMS Pilot Operating Tips Seminar	CAE Training Center	Dallas, TX, USA
Dec. 9	Primus Epic FMS Pilot Operating Tips Seminar	CAE Training Center	Dallas, TX, USA

Anyone interested in attending a seminar should contact Pam Mannon at (913) 961-1901 or Pamela.mannon@honeywell.com.

More seminars coming in 2010 to a city near you.

Honeywell

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HONEYWELL FMS QUARTERLY UPDATE AND NEWSLETTER

ISSUE 1

FMS 6.1 and 7.1 are Coming Soon

The latest versions of Honeywell software for the FMZ, NZ-2000, and Primus Epic® FMS will be certified this year with additional features enabling higher access to airports and airspace while reducing valuable time in the air, fuel burn, emissions and above all, money. The first anticipated STCs for FMS 6.1 will be on the Challenger 601, Hawker 800 XP, Falcon 900B, Global Express/5000/XRS, and Gulfstream IV/IV-SP. These STCs will enable installations to begin as early as 4Q 2009. Contact your Honeywell dealer for details on a specific model of aircraft. For the Global Express/5000/XRS, please contact Bombardier directly and for the Gulfstream IV, please contact Gulfstream directly.

The FMS 6.1 for Primus 2000 and IC-800 equipped aircraft will certify late 2010 to early 2011 depending upon aircraft type. These include aircraft such as Gulfstream V, Falcon 900EX/C, and Citation X. Please contact your Honeywell dealer for details on specific aircraft model STC.

The FMS 7.1 software upgrade for the Gulfstream PlaneView® cockpits will be available later this year. Version 7.1 software will be included with the Dassault EASy Phase II. Please contact Dassault and Gulfstream directly for further details such as pricing and schedules.

FMS 6.1 and 7.1 value-added features include:

- WAAS-LPV (Wide Area Augmentation System – Localizer Performance Vertical guidance) – enables the new LPV approaches
- Required Navigation Performance (RNP) – uses low RNP (0.3 and <0.3) for departures, arrivals, and approaches under both SAAAR (Special Aircrew and Aircraft Authorization Required) and non-SAAAR guidelines
- Future Air Navigation System (FANS) – data link service providing radar-like surveillance in remote regions and data link communication to reduce need for HF voice reporting when transiting in an oceanic or polar region. NOTE: The first aircraft to receive the FANS upgrade include the Global Express and the Gulfstream PlaneView cockpits. Its introduction on other aircraft will be announced at a later date.
- Other value-added features in the new software versions are navigation database improvements to include circling approaches and multiple approaches to the same runway, temperature compensation, improved database cross load times, vectors to final, automated FMS leg-type sequencing for VAVI, TACAN approaches, and more.

To learn more about FMS 6.1 and 7.1, go to www.flywhatsnext.com or contact your local Honeywell area sales manager.

Give Us Your Feedback

Anyone who emails talkfms@honeywell.com with feedback on our newsletter content and format will automatically be entered to win a NEW Bendix/King AV8OR™ handheld MFD! The sleek, new AV8OR display valued at \$799.99 provides GPS guidance on the ground and in the air as well as airborne weather and multimedia entertainment. You must enter to win, so please email any comments by Nov. 1, 2009. If you wish



to be entered in the drawing, please include your name, email address, phone number and shipping address. We look forward to your comments.

Technical Operations Center Provides Dedicated 365-day, 24-hour Staffing



Feedback on the state-of-the-art Honeywell Aerospace Technical Operations Center (TOC) has been overwhelmingly positive. The TOC houses Customer Operations Engineers and Aircraft-On-Ground representatives within a collaborative environment using the latest technology solutions to support all Aerospace product technical issues.

New technology allows for timely resolution of technical issues through the use of a Virtual Network with searchable fields for product experts, a Knowledge Management System providing quick access to technical solutions, and a ticket entry system which provides for tracking of customer questions from initial contact until resolution.

The TOC was created around reduced time-to-get-fixed (TTGF) and first-call-resolution (FCR) strategies. Our global network of TOC resources allows Honeywell to support our customers worldwide across the Air Transport & Regional and Business & General Aviation markets. The team's results include reducing abandoned call rates from 15 percent to less than 1 percent and maintaining an average TTGF of less than 24 hours for non Aircraft On Ground (AOG), and less than 4 hours for AOG events.

Support is one phone call away, 1-800-601-3099.

Pilot's Update

Honeywell's Customer & Product Support organization employs a group of experienced pilots dedicated to supporting fielded aircraft and the avionics and FMS installed during production or retrofit. Pilots are OEM-focused and can be contacted via email or phone for operational-type questions.

Contact Information:

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Upcoming Pilot Training Events

Training includes Honeywell Operators Conferences as well as full-day FMS and weather radar seminars co-hosted by CAE. These seminars are primarily for pilots, but maintenance personnel and technicians are encouraged to attend as operational tips and new products and upgrades are covered. We are working to establish Engine Operating Tips seminars to enhance performance and cost of ownership. We are interested in hearing from you on other topics you would like to see offered in 2010. Additional information such as location and agendas can be found using the 'Quick Links' at www.honeywelltraining.com.

continued on next page

Pilot's Update

continued

FMS Pilot Operating Tip

Set the 'Bank Factor' in all CDUs to 15° (NAV, NEXT, MAINT, NEXT, SETUP, FLIGHT CONFIG)

The pilot-selectable bank factor setting permits the crew to establish how aggressively the FMS will turn and therefore, how steep the bank angle will be. It is the highest bank angle to be used by the FMS (in the LNAV mode) unless a higher angle is needed to maintain protected airspace. For low settings (such as 7°), the FMS will anticipate course changes further in advance and make shallower turns. For higher values (up to 15°), the turn is initiated closer to the actual

turn point and the bank angle is steeper. For most aircraft, the default factory setting is 7°. Problems arise when a pilot initiates a leg change close to the desired waypoint. When 7° is set, the aircraft will initially roll into a 7° bank which may be too shallow and results in 'S' turns to the waypoint. When the pilot resets the value to 15° and a leg change or sequence is made, the aircraft will immediately roll into a 15° bank toward the desired track or waypoint. This results in much more accurate turning and decreases the risk of 'S' turns.

Note that the pilot-entered Bank Factor setting is ignored when flying a SID, STAR approach, or when the aircraft is within

30nm (Terminal Area) of the departure/arrival airport. In this case, 20° bank is used instead. The bank factor for holding is fixed at 30°. In addition, the bank factor setting is only used for FMS guidance and does not have anything to do with localizer capture rates. For additional questions regarding pilot-entered bank factor, contact: Pam Mannon at Pamela.mannon@honeywell.com or (913) 961-1901.

NAV Database

Make the Change to Web Download

All operators with DL-900's are encouraged to change to web download for database delivery. You will save money and enjoy the freedom of downloading your database wherever there is Internet access. The best solution is to install the DL-950 Data Loader and then download each cycle to a USB memory device to load your aircraft simply and efficiently. Loading time and effort changing diskettes are reduced. Join the many operators who are now using this most simple and efficient method! Or, you may download databases, make your own diskettes, and load them with the original DL-900 data loader if you haven't yet installed the DL-950.

For more details or for changes to your database subscription please contact Account Services at AIS.ACCOUNT.SERVICES@Honeywell.com

DL-950 Data Loader Option

Designed to replace the existing Honeywell DL-800 or DL-900 (SPZ-equipped aircraft), the new DL-950 provides faster, more reliable uploads of the 28-day Navigation Database (NDB) for the FMZ-2000 FMS. Users simply plug the USB memory device into the front of the DL-950, initiate transfer



and the loading becomes hands free. The compact, efficient memory device replaces the 3.5" diskettes used by the DL-800 and DL-900, providing a 90-percent weight-savings. This low-cost technology is used with a personal computer allowing users to easily download the latest NDB from the Internet with faster, more reliable loads. Most importantly, there is no need for new wiring or installation hardware. The DL-950 is a form/fit replacement to the DL-800 and DL-900 and uses the same rear connector.

- Replaces the DL-800 and DL-900 diskette loader
- Uses the latest commercially-available USB memory device technology
- More reliable and faster uploads of the 28-day navigation database (NDB)
- Load the media directly from the Internet via your personal computer
- Fits into and connects to existing DL-900 mount/connector
- No aircraft rewiring required

- Memory device (media) available either from Honeywell every 28 days with NDB loaded or may be purchased separately with NDB download by operator from the Internet

DL-950 Trade In Credit for 2009

Honeywell is offering a \$2,500 trade-in credit for old DL-800s and DL-900s through the end of 2009 when purchasing a new DL-950.

For more details please contact your Honeywell dealer or www.honeywell.com (FMS product family).

Technical Update

Building an Offset Waypoint from a known Fix

Often, operators have questions concerning the building of custom Waypoints (WPTs) in the GNS-XLS. Since a picture is worth a thousand words, here are a few pictures with very few words to assist in the instruction of building an offset waypoint from a known fix.

In this example, we will build an offset WPT based on the WPT coordinates for YYZ.

Using this procedure you create a new WPT with coordinates that are 9 miles out on the 003 radial of YYZ inserted in the active FPL.

Happy Flying!



```

< ACTIVE FPL 1/1
  KIXD
  YYZ*
<
< DEPART
  ARRIVE
< APPROACH          ALT
                          ERASE >
  
```

To build and insert an Offset WPT into the Active Flight Plan (FPL), on the Active FPL page, type in YYZ* (as shown to the left) and push the Enter key

```

  OFFSET WPT 1/1
  WAYPOINT      YYZ*
  RAD           ----->
  DIS           ----->
  POS           ----->
  ----->
  982 WPTS AVAIL
  
```

When ENTER is pushed, the next page display looks like this, with the cursor over the RAD (radial) value field

```

  OFFSET WPT 1/1
  WAYPOINT      YYZ*
  RAD           003.0
  DIS           9.0
  POS           ----->
  ----->
  982 WPTS AVAIL
  
```

Insert the desired radial and distance values for the offset as shown

```

  OFFSET WPT 1/1
  WAYPOINT      YYZ*
  RAD           003.0
  DIS           9.0
  POS           N 43 48.40
                  W079 39.40
  OK? ENTER
  
```

Then push the ENTER key to display the offset coordinates

```

< ACTIVE FPL 1/1
  KIXD - YYZ*
  YYZ*
  *****
<
< DEPART
  ARRIVE
< APPROACH          ALT
                          ERASE >
  
```

Review the radial and distance for the desired values. Pushing the ENTER key again accepts the WPT and displays the active FPL

Technical Ops Center FAQs

Why when making an approach with a suffix, such as RNAV 31L-Y at KJFK, the APPROACH light does not illuminate?

This is an issue with NZ-2000 FMS software below software level 5.2 Mod C. When an approach with a suffix is selected it will be displayed and the system will fly the approach. However, the FMS does not recognize an approach with a suffix as an *approach* and the FMS will not perform the RAIM 0.3 test and will not turn on the approach annunciator light. If you are operating with software level 5.2 Mod C and higher the system will process approaches with a suffix and will illuminate the approach light when the approach logic has been met.

Why are we not able to bring up approaches with a suffix in a Dassault aircraft with a Primus Epic platform?

The Primus Epic FMS in the Dassault aircraft does not recognize approaches with a suffix and therefore are not displayed as selectable approaches. This issue is being addressed with Dassault, and will be fixed with Phase II software.

Platform	Software Version
NZ-2000	5.2 Mod C and higher
IC-800 / IC-615	5.2 Mod C and higher Note: The following aircraft were not certified for software version 5.2 Mod C that process approaches with a suffix. FMS software versions have to be 6.0 or higher to obtain approach light illumination with approaches with a suffix. <ul style="list-style-type: none">• Gulfstream GV• Falcon 900C• Falcon 900EX
Primus Epic	<ul style="list-style-type: none">• Gulfstream – Cert Delta and higher• Embraer – Load 19 and higher• Agusta – Phase 4 and higher• Cessna – Phase 3 and higher• Hawker H4000 – Load 20 and higher• Dassault – Phase II and higher

Table 1: FMS software versions that announce the approach light when an approach with a suffix has been selected.

Honeywell Moving Away from Diskette Delivery Service

Honeywell released a new media pricing bulletin to inform operators with the Honeywell navigation database that support of the diskette delivery service will end in December 2010. Honeywell encourages operators to change to a web download for database delivery. Customers can still download the database and then make diskettes to load the information with the DL-900 data loader. The USB memory device shipping service will still be available for operators to download the database using

Internet access. The document also offers a \$2,500 trade-in credit for DL-800 and DL-900 (Primus or SPZ-equipped aircraft) through the end of 2009 when purchasing a new DL-950.

Questions, please contact:

Honeywell Customer Help Desk
US & Canada: (Toll Free) 1-800-601-3099
International: 1-602-365-3099

New Aircraft Database (ACDB) Files 750 (Citation X), ATA: 34-60

Honeywell released new ACDB files that are available on navigation database disks. In the May 2009 cycle, Citation X databases were replaced with new ones. These new databases provide improved step climb predictions by introducing a residual rate of climb variable.

The changes are as follows:

- ACDB CX-L2 (FMS will indicate FMZ 5.1 or greater)
Affects: 750-0001 thru -0158, and -0160 thru -0172, (not incorporating SB750-71-10)
- ACDB CXIGW-L2 (FMS will indicate FMZ 5.1 or greater)
Affects: 750-0160 thru -0172, (incorporating B750-71-10), and 750-0173 and On

Team X reminds operators to be aware of these changes since technicians periodically have to upload the ACDB into the FMS when an IC-800 Integrated Computer is replaced. The changes may also become apparent to a flight crew if an incorrect performance prediction is noted and the new navigation database disks are utilized.

Questions, please contact:

Team X
1-888-622-4789
citationx@cessna.textron.com

Customer Corner

The Polar Keyhole

Submitted by Val Trent, Seattle Global Express Pilot

What and where is the keyhole and what do we (as pilots) do about it?

In the Honeywell Flight Management System, operations are always computed in "True Course" 100% of the time. If you're one of those pilots who know that, count yourself as one of the relative few.

Transparent to the pilot is a built-in conversion within the software that makes all of our operations appear to us in the cockpit to be magnetic so that we can operate in an environment with which we are familiar almost 100% of the time. The magnetic environment is familiar, common to all aviation and marine navigation, and doesn't change. Right? Well, almost right. Magnetic variation is constantly changing but the adjustments for accurate navigation are transparent to us up front.



As we navigate along, the FMS takes the course you've programmed, looks at its database and checks the course with the magnetic variation along the route and converts back and forth so that we have an accurate route to follow. In the far North however, the lines of variation start to get closer and closer together to the extent that in one particular area, they are so close that the distance between the computed variation changes so rapidly with our groundspeed that the computations can't keep up. When that happens, the FMS, along with the HSI in some aircraft such as the Global Express show a big red "HDG FAIL" upon entering the "keyhole". In fact, above 73° North and below 60° South, it won't compute variation at all because the lines of variation are too close at those latitudes (north and south) and are not even stored in the variation database.

So all navigation above and below those regions is in True all the time.

Ok, so now we can answer the first part of the first question, "What is it?" At the same time we answer the second question, "Where is it?" Basically, it's a box from the ground up, the location of which is fairly specifically located between 90° and 120° West longitude and 70° to 72° North



latitude. Because the FMS cannot keep up with the variation changes, your FMS will annunciate, as you enter the keyhole, "ACTIVE MODE IS MAG HDG" and your HSIs annunciate the red "HDG FAIL" until you manually switch to TRUE. I've flown through it several times and you can see it happen almost to the degree although it

does vary minutely. A flight from Seattle (KBFI) to Stockholm (ESKN) for example, takes you right through the keyhole.

Now, what do you do about it? The answer is, basically nothing. In the Global Express, the HSIs go into "HDG FAIL" mode, but the airplane is still navigating as it always has. Nothing is wrong and nothing changes except what you see on the HSIs and the FMS. If you choose to go into manual "TRUE" mode, simply go into Nav/Maint/Pg 3 and switch manually to Selected Hdg Mode "TRUE" (2R) and your HSIs come back. If you do nothing, it will come out the other side on its own and operations will appear normal. I believe that other types such as the GV series do change to TRUE mode on the HSIs without pilot input.

Bottom line, not a big deal, unless you're not expecting it and don't know what it is. That can be a cause for concern until you either figure it out or you come out the other end wondering what just happened.

