

HSB 2009-02 (o) Rev A

ATTENTION OPERATOR

**FMZ-2000 FLIGHT MANAGEMENT SYSTEM
SOFTWARE VERSION 6.1**

This revised Sales Bulletin provides updated information and pricing on our latest software upgrade to our FMZ-2000 Flight Management System.

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Quick Reference Table

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|-------------------------------|---|
| Effective Dates: | 5/11/2008 through 12/31/2009 |
| Scheduled Delivery By: | 12/31/2009 |
| Trade In: | For GNSSU HG2021GD02 and prior when upgrading to –GD04 WAAS GNSSU |
| Pricing: | Valid until 12/31/2009 |
| Rev A Changes: | <ol style="list-style-type: none"> 1. Updates on TSO and STC dates in paragraph 1 2. Deletes sales information on FANS (multiple paragraphs) 3. Notes clarification on RNP and RNP-SAAAR 4. Deletion of WAAS-LPV annunciator schematic in paragraph 3.5 |

FMZ-2000 FLIGHT MANAGEMENT SYSTEM

SOFTWARE VERSION 6.1

1. Introduction

Honeywell is pleased to provide information and pricing on our latest software upgrade to our FMZ-2000 Flight Management System. Software Version 6.1 contains many improvements to the FMS and other aircraft systems that bring operational benefits and regulatory compliance for the latest navigation functionality to meet today and tomorrow's changing airspace requirements. The key v6.1 features that add value to the FMZ-2000 are:

- Wide Area Augmentation System – Localizer Performance with Vertical Guidance – WAAS-LPV – adds latest LPV approach capability with this GPS enhancement
- Required Navigation Performance (RNP) Approaches – meets the RNP requirements to fly the new RNP-SAAAR and non-SAAAR approaches
- Future Air Navigation System (FANS) – latest in oceanic surveillance and data link reporting. Limited availability on 6.1 platforms (see paragraph 2 and 3.3 for more information)
- Basic improvements such as circling approaches, en route hold procedures, VNAV temperature compensation and much more (see paragraph 2 for full description)

2. Program Description

- **WAAS-LPV** - allows for aircraft to receive and process the GPS-WAAS signal and to fly the new LPV approaches (and growth to the new APV approaches in Europe under EGNOS)
- **RNP Approaches** - software improvements to the FMS to allow for certification under the new AC 90-101 RNP SAAAR guidelines. Enables RNP approaches in the SAAAR and non-SAAAR environment.
- **FANS** - Future Air Navigation System – allows the aircraft to be upgraded (with all the proper equipment) to fly the oceanic FANS 1/A routes. Includes Automatic Dependant Surveillance (ADS-C) and CPDLC software to meet the FANS 1/A requirements. This feature will not be certified on the initial 6.1 NZ-2000 airframes in 2009/2010. Only Global Express Batch 3 plans to certify FANS with 6.1 at the time of this bulletin. See paragraph 3.3 for more information.
- **Vectors to Final Approach** - this operation is used when transitioning from LNAV to HDG mode. It allows the flight crew to comply with ATC-directed vectoring in the terminal area by removing unneeded approach waypoints from the flight plan. (GEX Batch 3 only)
- **Seconds added to GPS display** – previously minutes only
- **Updated Magnetic Variation (Mag Var) Table** - new Mag Var table based on the 2005 – 2010 model

- **Automatic setting of LOC course** – when criteria is met during approach phase
- **VNAV temperature compensation** - adds temperature calculation to compensate for altitude variation during non-ISA (cold) conditions
- **Navigation database enhancements for:**
 - Circling to land procedures
 - TACAN approaches
 - Multi-RNAV runways – now allows “GPS Y and GPS Z Rwy 31L” (example) procedures to be accessed.
- **Reduced load and transfer times for custom database**
- **VGP approach procedure** - VGP is an extension of VPATH mode for final descent to a runway. In VGP mode, the altitude preselector input is ignored by the FMS thus allowing the flight crew to set the preselector to the missed approach altitude without affecting the descent path to the runway. This feature is limited to aircraft with a previously certified autopilot interface.
- **Automated HA-leg sequencing** - removes the need to manually sequence an HA leg when the aircraft achieves an HA altitude constraint. Adds to the streamlining of auto sequencing for all FMS leg types.
- **En route holding procedures** - allow the database to select a published holding procedure or insert a manual hold into the flight plan at any waypoint.
- **TAP records** - allows the FMS to support Terminal Area Procedures (TAP) on the ASCB and A-429 data bus for the purpose of displaying aircraft position on electronic charts.

3. Pricing

3.1 FMZ-2000 Version 6.1 Software (per computer)

| Description | New Part Number (NZ-2000 only) | QTY | List (ea.) |
|-----------------|--------------------------------|-----|-----------------|
| NZ 6.1 software | 7018879-03032 | 1 | \$10,000 |
| Total | | | \$10,000 |

Table 1

Note – pricing above is a software upgrade per NZ-2000 computer. If an aircraft has dual NZ-2000, the price is x2. If an aircraft has triple NZ-2000s, the price is x3. Price above is for upgrading any version of 5.X or 6.0 to 6.1. When upgrading from 4.X to 6.1, the service bulletin to upgrade to version 5.X is required and is additive to the price above.

3.2 WAAS-LPV

For operators with GNSSU part number HG2021GD02 or prior

| Description | Part Number | QTY | List (ea.) |
|--------------|--------------------|-----|-----------------|
| GPS antenna | 26002806-401 | 1 | \$ 2,320 |
| GNSSU | HG2021GD04 | 1 | \$43,333 |
| Trade-In | HG2021GD02 and sub | 1 | -\$5,000 |
| Total | | | \$40,653 |

Table 2

For operators with GNSSU part number HG2021GD03

| Description | Part Number | QTY | List (ea.) |
|--------------|----------------|-----|-----------------|
| GPS antenna | 26002806-401 | 1 | \$ 2,320 |
| GNSSU s/w | HG2021GD04 | 1 | \$13,333 |
| Trade-In | Not applicable | | |
| Total | | | \$15,653 |

Table 3

Note – pricing above is per GNSSU and per antenna. Most installations will require dual GPS and therefore pricing is x2. Table 2 shows the price and trade-in credit for aircraft with an existing HG2021GD02 or prior. Table 3 shows the price for the software-only upgrade to convert an HG2021GD03 to an HG2021GD04.

3.3 FANS (Future Air Navigation System)

FANS software has been developed as part of the FMZ-2000 v6.1 program. Enabling of FANS functionality also requires an on-board communications router or Communications Management Unit (CMU) capable of managing the A-623 message traffic. To date, only the Global Express Batch 3 program will offer the full system solution (including communications router) that will enable FANS to be certified.

3.4 RNP (Required Navigation Performance) Approaches

| Description | Part Number | QTY | List per a/c |
|--------------------|----------------|-----------------------|-----------------|
| RNP SAAAR Database | Not applicable | Per aircraft per year | \$ 6,000 |
| Total | | | \$ 6,000 |

Table 4

Note – once the v6.1 software is loaded, the NZ-2000 will meet the equipage standard of AC 90-101 and AC 90-105. However, it is up to the STC applicant or OEM to gain full AC 90-101 or -105 Appendix 2 approval and the flight department to gain the FAA Letter of Authorization (LOA) if RNP-SAAAR operations are required. Honeywell will provide the Navigation Database (NDB) service by supplying a fully validated RNP-SAAAR NDB at the price shown above. Also, Honeywell can provide, as part of our consultancy agreement with the FAA, the ability to obtain the RNP-SAAAR LOA for the flight department as part of our *Go Direct* service. See paragraph 4 for Navigation Database Services contact information for RNP-SAAAR database ordering and information.

3.5 Additional Hardware

WAAS-LPV requires hardware to either be updated or changed as shown in paragraph 3.2. This includes the GPS receivers and antennas. The GPS receivers are ordered by the dealer from Honeywell. The GPS antennas may also be ordered from Honeywell or directly with the GPS antenna supplier. The two additional non-Honeywell items are needed to support WAAS-LPV and must be ordered by the dealer/installer directly from the supplier. They are:

| Description | Qty | Supplier | Part Number |
|--------------------------------|--------|----------|--|
| Digital Discrete Adapter (DDA) | 2 | Skylight | 08090021 |
| Annunciator Lights | 2 pair | Vivisun | LR3-40-17-CC-E040N LR3-40-17-BB-E040M |

4. Ordering Information

To place an order for our latest software upgrade to our FMZ-2000 Flight Management System, please contact a Honeywell dealer of your choice for a quotation.

5. Terms and Conditions

Standard Terms and Conditions outlined in the General Information section of the current year Price Catalog apply.

6. Contact Information

Please feel free to contact your local Honeywell Area Sales Manager if you have any questions regarding this Bulletin or if you need assistance. Included with this bulletin is the contact information for the Sales Managers.

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7. Glossary of Terms

| | |
|--------|---|
| AR | Authorization Required |
| AT | Auto Throttle |
| ATC | Air Traffic Control |
| CMU | Communications Management Unit |
| DDA | Digital Discreet Adapter |
| DMU | Data Management Unit |
| EGNOS | European Geostationary Navigation Overlay Service |
| FANS | Future Air Navigation System |
| FMS | Flight Management System |
| GBAS | Ground-Based Augmentation System |
| GNSSU | Global Navigation System Sensor Unit |
| GPS | Global Positioning System |
| GS | Glide Slope |
| HA-leg | Hold-to-Altitude-leg |
| HAT | Honeywell Aerospace Trading |
| HF | High Frequency (radio) |
| IAC | Integrated Avionics Computer |
| ILS | Instrument Landing System |
| LNAV | Lateral Navigation |
| LOC | Localizer |
| LPV | Localizer Performance (with) Vertical (Guidance) |
| MagVar | Magnetic Variation |
| RF-leg | Radius-to-Fix-leg |
| RNAV | Area Navigation |
| RNP | Required Navigation Performance |
| SAAAR | Special Aircraft and Aircrew Authorization Required |
| SBAS | Space-Based Augmentation System |
| TACAN | TACTical Aid to Navigation |
| TAP | Terminal Area Procedure |
| TSO | Technical Service Order |
| VGP | Vertical Glide Path |
| VNAV | Vertical Navigation |
| VPATH | Vertical Path |
| WAAS | Wide Area Augmentation System |