A Data Driven Avionics Review of the 2007 – 2015 Eclipse 500 and 550 Aircraft

Eclipse 500 Avionics Reference Guide
For Eclipse Owners, Pilots, Prospects & Enthusiasts

AVIO 1.0 – IFMS PLUS 2.7 and the Eclipse 550

- Cockpit and Panel photos of each version with identifying features
- Avionics Upgrade and Functionality Updates
- Mission specific Capability Overview
- 2015 Factory Upgrade Program

Prepared by the Light Jet Specialists at JetStream Aircraft

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Greetings Eclipse Owners, Pilots, Prospects & Enthusiasts!

The Eclipse 500 & 550 have a storied history since FAA certification in 2006. The rebirth of the company under Eclipse Aerospace in 2009 paved the way for avionics and hardware upgrades, plus the evolution of the original AVIO system conceptualized by Eclipse Aviation. While the latest versions now feature an integrated avionics platform and flight management system, a variety of versions and software iterations still exist in the approximately 280 aircraft fleet today. This guide provides panel images for all versions detailing the various Eclipse 500 and 550 avionics capabilities and features.

AVIO 1.0 | AVIO NG1.3 | AVIO NG1.5 & 1.7 | IFMS 2.06 & 2.08 | TOTAL ECLIPSE | SEP 2.5 | 500 PLUS 2.7

ECLIPSE 550

About JetStream Aircraft

Founder Nate Metzler served in sales and marketing operations at the original Eclipse Aviation factory in Albuquerque during FAA certification and customer deliveries. Following the production line shutdown in 2008, a consistent market demand remained for the pre-owned Eclipse 500s. JetStream Aircraft was created as an independent resource for Buyers and Owners and in the Light Jet marketplace, specializing in the Citation Mustang, Embraer Phenom, and Eclipse 500/550 models.

We’d love to hear from you as you utilize this guide for your next aircraft acquisition!

Warm Regards,

Nate Metzler  ➔ JetStream Aircraft
Eclipse 500 AVIO 1.0 AVIDYNE

2007-2008 Production SN1 - SN120

The original Eclipse Aviation design utilized Avidyne PFD/MFDs. These 1.0 models still provide basic utility for the seasoned jet pilot. Aftermarket G400WAAS units were installed in many AVIO Aircraft providing GPS Direct-2 and GPS Approach capability (non-coupled to A/P). Almost all versions have incorporated the large tip-tank mod increasing fuel capacity to 250 gallons. The original Flight-Into-Known-Icing (FIKI) system consisting of heated windshield, leading edge inflatable boots, and heated engine inlet is installed and functional, but not FAA certified for FIKI.

Single-Pilot and RVSM Certified: Yes
Coupled A/P: No
Flight-into-Known-Icing (FIKI) Certified: No
WAAS GPS: No, unless aftermarket G400WAAS unit installed
SkyWatch TAS, Weather Radar or TAWS: No
Moving Map: No
Auto-Pilot Capability: Basic Heading, Altitude Capture and Hold
Upgradable to IFMS: Yes for a limited time in 2015

OEM Support Messaging: Eclipse Aerospace continues to support the legacy fleet of Eclipse aircraft. For those aircraft owners with V1.5 and V1.7 configurations, EAI continues to provide existing parts and service support for the aircraft in its current configuration. For those aircraft owners with V1.3 and prior, EAI will make a best efforts basis in supplying parts and support, however, several parts are no longer in production and uninterrupted support is becoming increasingly difficult.

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Eclipse 500 AVIO NG 1.3

2007 – 2008 Production SN120 - SN260

AVIO NG 1.3 upgraded to the IS&S PFDs/MFD, and activated optional features including SkyWatch TAS (Traffic Alert System) and TAWS (Terrain Awareness Warning System). In some aircraft a JRC Color Weather Radar was installed and activated. Pictured above is an aftermarket G400WAAS unit installed below the pilot PFD, plus a removable visor mounted Garmin 696. AVIO NG 1.3 still featured basic autopilot functions, but without an FMS coupled precision and non-precision approaches are not enabled. ILS may be dialed in via NAV1 or NAV2 and hand flown to landing.

The original Flight-Into-Known-Icing (FIKI) system consisting of heated windshield, leading edge inflatable boots, and heated engine inlet is installed and functional, but not FAA certified for FIKI.

Single-Pilot and RVSM Certified: Yes
Coupled A/P: No
Flight-into-Known-Icing (FIKI) Certified: No
WAAS GPS: Yes
TAS, Weather Radar or TAWS: Yes, on some selected SN
Moving Map: No
Auto-Pilot: Basic Heading, Vertical Speed, Altitude Capture and Hold
Upgradable to IFMS: Yes for a limited time in 2015
Eclipse 500 AVIO NG 1.5 & 1.7

AVIO NG1.5 and 1.7 versions were the first upgrades to emerge from the revamped Eclipse in 2010. Coupled A/P functions, moving map, and E-charts (inset below for NG1.7 only), and an upgraded and FAA certified FIKI system are the major improvements over NG1.3. Dual Garmin GPS400 units are mounted in place of the keyboard below the PFDs. Commercial Package equipped 1.5 and 1.7 versions qualify for Part 135 Charter use. Note the windshield Diverter strips are not pictured above, although this is a mandatory feature of the Acrylic windshields for certified FIKI. Owner Pilots with prior Garmin flying experience reported a positive transition to the GPS400 units.

Single-Pilot and RVSM Certified: Yes
Coupled A/P: Yes
Flight-Into-Known-Icing (FIKI) Certified: Yes
WAAS GPS: Yes
TAS, Weather Radar and TAWS: Yes
Moving Map: Only 1.7 version
XM Weather and Jeff E-charts: Displayed only on 1.7
Upgradable to IFMS: Yes for a limited time in 2015
Auto-Pilot: All G400GPS features: Vertical Speed, Roll Steering, Altitude Capture and Hold, ILS Capture
A/P Servo and GPS Receiver parts compatibility to IFMS: Yes
Optional Equipment: Dual Diversity Mode-S Transponders, StormScope WX-500
EASA Certification: AVIO NG1.5 only
AVIO iFMS (Flight Management System) emerged in 2011 from years of avionics development for a fully integrated AVIO platform. A full Auto-Pilot allows Enroute, Terminal & Approach GPS navigation with vertical and lateral guidance. The Garmin GPS400 units are replaced with sliding keyboards. The majority of the Eclipse fleet are in IFMS version, with the option to upgrade to a PLUS package. Upgraded Eclipse Jets including IFMS are identified from the exterior by the round or square isophobic paint area on the nose of the aircraft surrounding the static ports.

All previous features and capabilities of AVIO NG1.7 including:

- Satellite weather overlaid on MFD moving map with multiple graphic viewing options including NexRad, Lightning, Storm Cell, Sigmet, Airmet, TFR, Icing, METARS, and Cloud Tops. Airship position overlaid on Jeppesen charts and maps, including enroute, approach plates, taxi ways and other geo-referenced charts.

- Airways and Victor Routes
- Coupled LPV Approach
- Vector to Final
- OBS Mode
- RNP (Auto / Manual)
- Easy Insertion of Waypoints
- Easy Insertion of Holding Patterns
- Parallel Offsets
- Procedure Turns and Holding Patterns
- Active Waypoint, Missed Approach, and Destination Waypoint Information
- Nearest / On-Route Airports
- Ability to Store 99 Flight Plans
Eclipse 500 IFMS 2.08

IFMS 2.08 is a software upgrade allowing the installation of glass PPG windshields. In addition to improving the heater element functionality in the previous acrylic versions, the optics are crystal clear and FIKI diverter strips removed. Version 2.08 is compatible with the factory mandatory Pitot Tube Service Bulletin upgrade, including the latest BIO 6.0+ and ACS 5.5.06+ software, priced at $5,695.

- Improved Flight Management Approach functionality, allowing early arming of RNAV approach once in terminal area and improved transitions from FMS to FMS Approach.
- Improved Flight Plan modifications and activations, such as Direct-to operations to IAF and FP activation from the route tab ensuring smooth transitions and eliminating discontinuities in the flight plan.
- Improved GPS interface to prevent loss of NAV for Pseudo Range errors and almanac updates, also improved interface to FMS for approach selections.
- Improved OBS - increased Magnetic Variation accuracy when in Track or North up modes.
- Improved Flight Planning for published procedures, including adding the ability to delete waypoints from a published arrival.
- Updated Magnetic Variation Tables
- Corrected issue with insufficient WAAS satellites causing loss of all NAV during approach.
- Fuel gauge display modified to have a red line at zero fuel.
- GPS Status page updates to include correcting altitude value to use EGM height and display APPROACH for all approach modes
- Added direction arrows to Holding pattern MAP display to help with pilot directional awareness.
- GPS enhancement to improve SBAS availability at higher latitudes
- GPS Improved Horizontal Protection Limit calculations when working with EGNOS satellite constellations.

Diverter Strip Windshields pictured right. New Glass PPG Windshields pictured above retail for $63,000 from the Eclipse factory, and require IFMS 2.08 installed. (not eligible for install on IFMS 2.06 and earlier versions).
TOTAL ECLIPSE 500

The Total Eclipse (TE) line features IFMS 2.06 or 2.08 avionics, and were initially offered from the factory with a limited warranty. Many TE’s were conversions from early Avidyne aircraft Eclipse Aerospace acquired with the company asset purchase in 2009. Custom interior and exterior paint are the primary differences to the base IFMS fleet, along with a high degree of recommended Service Bulletin compliance. About 10% of the fleet received the TE upgrade, with interiors and paint completed by outside vendor HillAero of Omaha, NE.
ECLIPSE 500 PLUS and TOTAL ECLIPSE PLUS

The Eclipse 500 PLUS features IFMS software 2.7, and is the latest iteration of avionics and hardware upgrades. Auto-Throttles (A/T), Anti-Skid Brakes (ASB) and a pilot Standby Display Unit (SDU) accompany new a PFD/MFD package featuring a dual IFMS system. Future expandability to Synthetic Vision, Enhanced Vision, Radar Altimeter, and ADS-B OUT are on the certification schedule. Improved PFD/MFD microprocessors handle the additional data workload for the forthcoming EVS, SVT and mapping options. Retail factory pricing is $499,950 for PLUS 2.7 upgrade from IFMS 2.06. A limited number of Owners upgraded in 2013 to the Safety Enhancement Package (SEP) 2.5 version including A/T, ASB and SDUs with IFMS 2.06 avionics, however this package is no longer offered.

(Above) Eclipse PLUS 2.7 and 550 panel. Note dual PLUS 2.7 Standby Displays mounted left and right of the PFDs.


ECLIPSE 550

Factory New Retail Price $2,895,000. The Eclipse 550 standard features include: Dual IFMS Avionics, pilot Standby Display Unit (SDU), Anti-Skid Brakes (ASB), ADS-B OUT, Diversity Mode-S Transponders, and a 3-year factory warranty. Optional equipment: TAWS, TAS, StormScope, Iridium Cabin Phone, Co-Pilot SBD, PPG Glass Windshields, ADF/DME, 6th Seat, Commercial Operations Package, Auto-Throttles, SVT, EVS and Radar Altimeter.