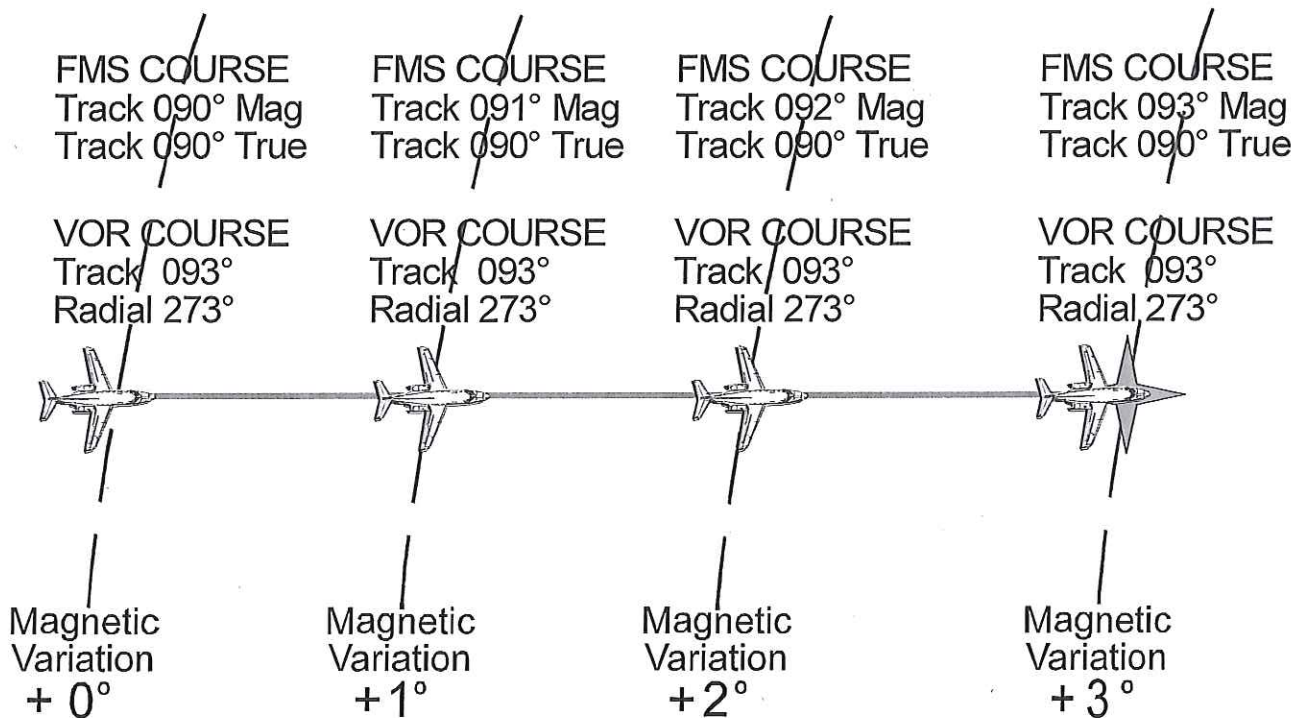


FMS vs VOR NAVIGATION

The FMS navigates by use of true heading and computes a great circle course between lat/long waypoints. Any magnetic input to the FMS is converted to true by use of a magnetic variation model. This model covers latitudes from 73°N to 60°S. FMS navigation in the Polar Regions requires a true heading source (IRS) input to the FMS. FMS output to the aircraft flight instruments uses the same magnetic model for conversion. The magnetic variation model converts the FMS true heading to magnetic heading based on the current lat/long of the aircraft. As the track of the aircraft passes over magnetic variation changes, the FMS magnetic heading, bearing, & track changes although the true heading, bearing, & track remains the same. A VOR extends radials in all directions, it is known as a rhomb line. The magnetic bearing of these radials is based on the magnetic variation or declination of the VOR station and does not change regardless of the distance from the VOR. When a FMS bearing is compared to a VOR bearing, a difference may be observed. This difference is the magnetic variation difference between the lat/long of the aircraft and the lat/long of the VOR and the difference between the types of navigational courses.

RRS VOR
DECL E 1.9
FMS VAR
W 003

HIWAS
2.1G-ANNISTON
WIREGRASS
D 111.6 RRS

ARTCC
JACKSONVILLE
134.3

MAI-054
114.0

CTAF 122.8
CAMILIA GA
-Mitchell Co
KCXU 175.40

2.1G-MACON
MOULTRIE
D 108.8 MGR

AWOS-3 118.92
CTAF 122.8
MOULTRIE GA
-Mun
KMGR 294.51

MAI VOR
DECL 0.0
FMS VAR
W 004

2.1G-GAINESVILLE
MARIANNA
D 114.0 MAI

CTAF 122.9
DONALSONVILLE GA
-Mun
171 160.52

GRAIV

AWOS-3 121.12
GAINESVILLE WX-2.0
CTAF 122.97
BAINBRIDGE GA
Decatur Co Industrial
KBGE 142.55

CTAF 123.0
MARIANNA FLA
-Mun
KMAI 110.49

SAIMI

CTAF 122.7
CAIRO GA
-Grady Co
2.55-MACON
CTAF 123.075
THOMASVILLE GA
Regl
KTVI 264.55

SZW VOR
DECL E 1.9
FMS VAR
W 004

HIWAS
2.1G-2.2.4
GAINESVILLE
SEMINOLE
D 117.5 SZW

TEWUN

GEF VOR
DECL E 1.7
FMS VAR
W 004

2.1G-GAINESVILLE
GREENVILLE
D 109.0 GEF

CHASO
D44 267°

PFN
114.3

BRITS

CLRRK

CRESS
MCA V-521 7000 E

ATIS 119.45
CTAF 118.7
TALLAHASSEE FLA
-Regl
KTLH 81-80

LOC
111.9 IPLO

WOUND

CODYS

CILLA

ARTCC
JACKSONVILLE
135.32

ARTCC
JACKSONVILLE
127.8

Report No. 3044sv100X/110X

APPLICATION OF MAGNETIC VARIATION TO FMS NAVIGATION

Compliance requirements for application of magnetic variation to various navigation leg types of the FMS is dependent upon the type of leg and where in the navigational process it is used. If the leg is part of a database terminal area procedure, the magnetic variation to be used is the value that the system extracts from the database as specified per RTCA DO-201A/EUROCAE ED-77.

The chart below explains the application of magnetic variation to the leg types listed.

Leg Type	MAGVAR Region Reference Point	MAGVAR Source for Procedure Leg
CA, CD, CI, CR, VA, VD, VI, VM, VR	Departure or Arrival Airport as appropriate	Airport MAGVAR if available, else System MAGVAR at airport
CF (not in approach common segment), FA, FC, FD, FM, PI, AF	Reference Fix	Fix Declination if available, else System MAGVAR at Reference Fix
DF, IF, RF (not in approach common segment)	Reference Fix	System MAGVAR at Reference Fix
TF (not in approach common segment)	Prior Fix of leg	System MAGVAR at Prior Fix
IF, TF, CF, RF (in approach common segment)	Airport	Facility declination if available, else Airport MAGVAR if available, else System MAGVAR at Airport