

# A320 HONEYWELL FMS PAGES

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TheAirlinePilots.com

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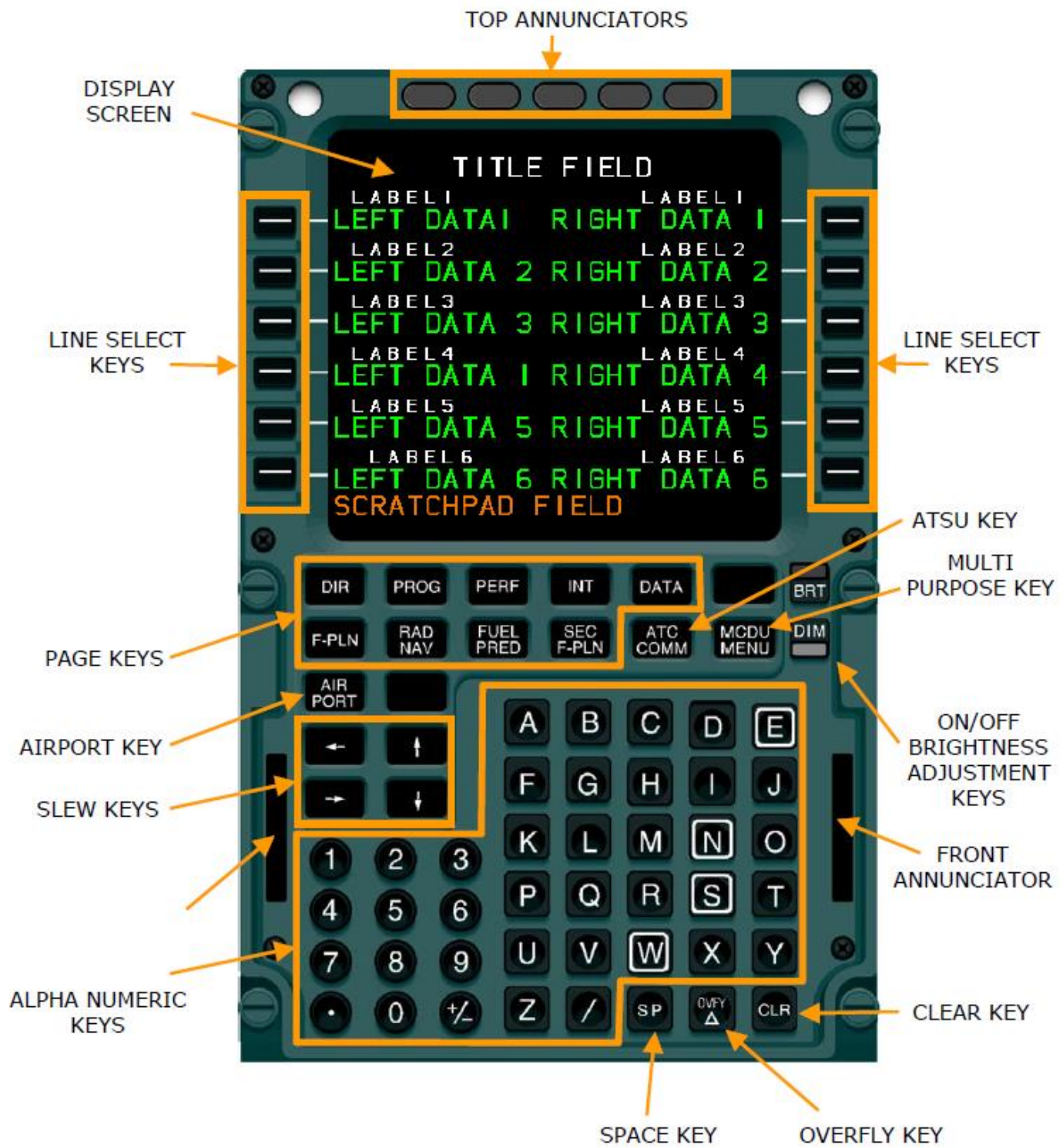
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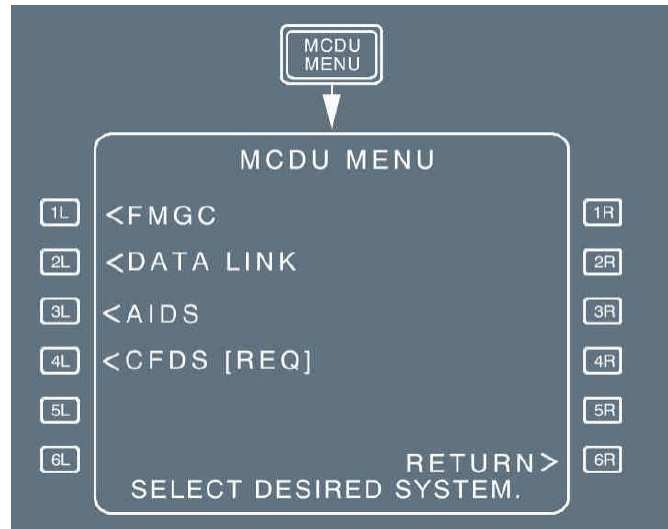
[MCDU MESSAGES AND DATA FORMAT LIST](#)

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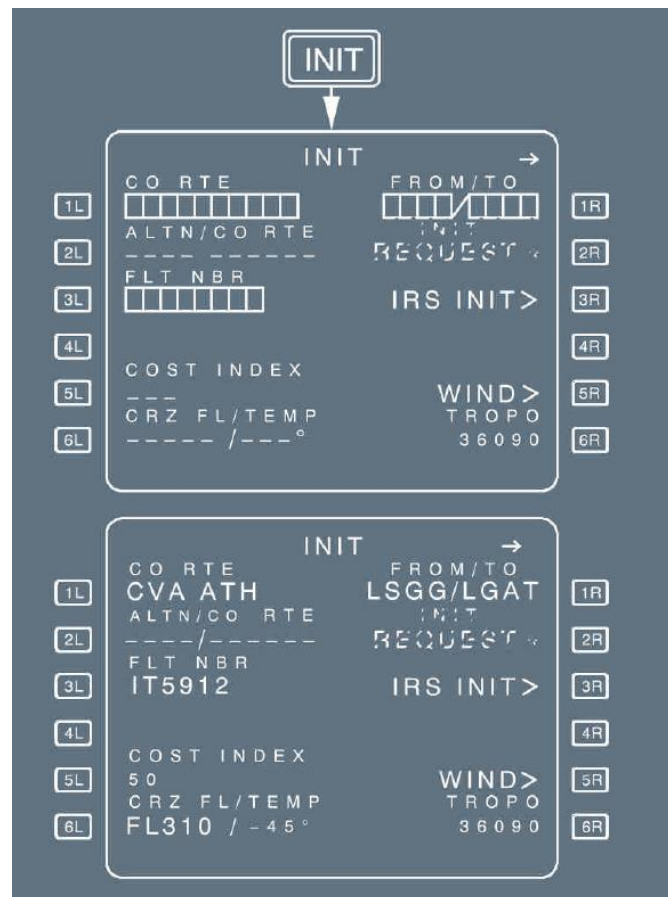
# GENERAL



## MCDU MENU PAGE



## INIT PAGE A



[ 5R ] WIND

The pilot presses this key in order to gain access to the climb wind page, unless a temporary flight plan exists. In this case, the scratchpad displays TEMPORARY F-PLN EXISTS.

[ 6R ] TROPO

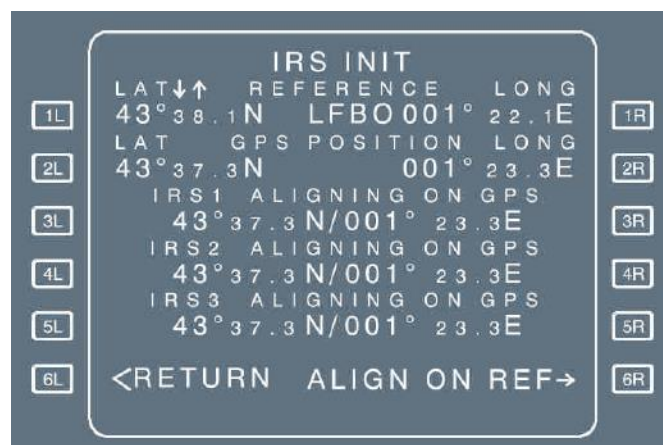
The default tropopause altitude is 36 090 ft. The pilot can use this field to modify it (60 000 ft maximum).

## ROUTE SELECTION PAGE

- Manually : The pilot presses the FROM/TO or ALTN key on the INIT A page when a city pair is displayed.
- Automatically : The system displays it, when the pilot enters a city pair, or defines an alternate on the INIT A page of the active or secondary flight plan.



## IRS INIT PAGE



Line 1  
LAT-REFERENCE-LONG

This line provides the latitude and longitude of the FM reference position. This reference is extracted from the navigation database. The flight crew can modify this reference. Only when the FM reference position matches the origin airport position, the airport identifier is displayed in green. Otherwise, there are dashes at the place of the airport identifier. Latitude and longitude of the FM reference position are displayed in blue. The flight crew can modify the latitude and longitude values using the scroll keys.

Line 3 to 5

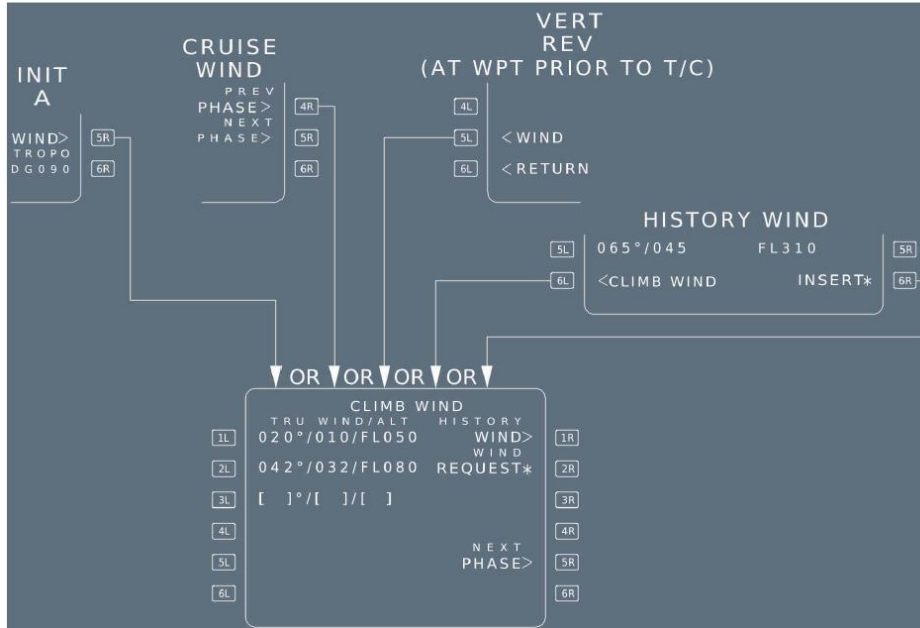
The alignment status can be ALIGNING ON XXX, or ALIGNED ON XXX or IN ATT. XXX is the alignment source and can be GPS or CDU or REF. It is displayed in white font.

[ 6R]

If a reference is available, field displays ALIGN ON REF → in blue which is replaced by CONFIRM ALIGN\* in amber when 6R prompt is pressed. Pressing again the 6R prompt enables the transmission of the FM reference position displayed in line 1.

# WIND PAGES

THE CLIMB WIND PAGE IS ACCESSED FROM:

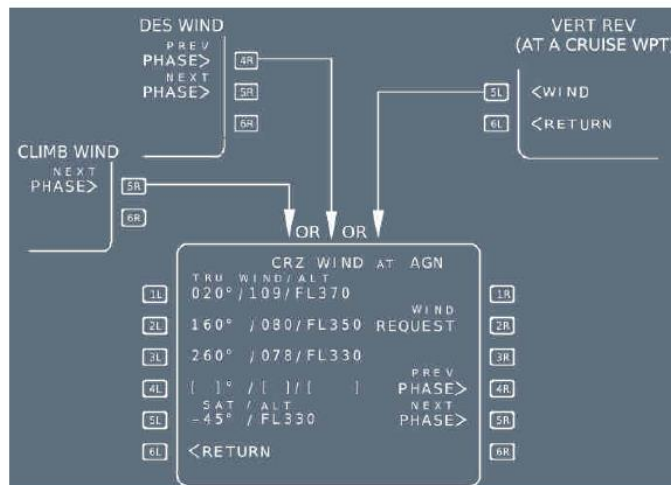


[ 1R ] HISTORY WIND Displayed in preflight phase only. This key calls up the history wind page. This page is not modifiable (small green font), but can be inserted into the CLIMB WIND page by using the 6R key and modified accordingly.

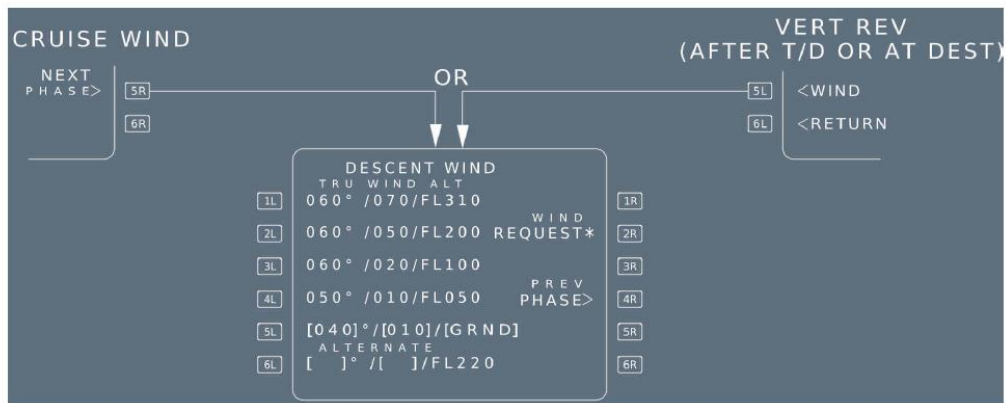
## HISTORY WIND PAGE



## CRZ WIND PAGE



## DESCENT WIND PAGE



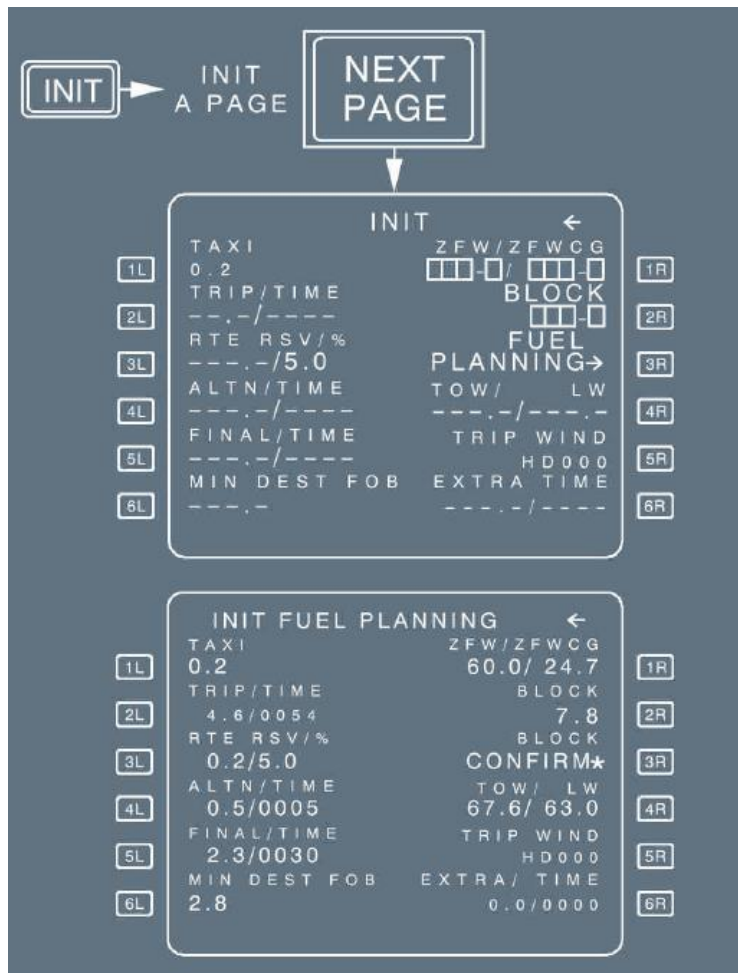
[ 1L ] to [ 5L ]

An entry of "GRND" in the "ALT" field is seen as the wind at ground level. This wind is copied on the PERF APPR page (and corrected for the magnetic variation).

[ 6L ] ALTERNATE

A clear action on one key reverts the line to blue brackets. This field is only displayed when an alternate is defined.

## INIT PAGE B



The pilot can call it up from the INIT A page during preflight phase prior to engine start, by pressing the NEXT PAGE key on the MCDU console, as long as engines have not been started. This page automatically reverts to the FUEL PRED page after the first engine is started. The FMGC will stop using the pilot-entered block fuel and will compute its predictions based on the FOB indicated by the FQI computer (or the FAC as a back up) from that moment on.

[ 4L ] ALTN/TIME (blue/green) Displays alternate trip fuel and time, assuming that the Cost Index = 0 and that the aircraft flies at the default cruise flight level. The flight crew can modify the alternate fuel as required. In this case, alternate time will be dashed.

[ 5L ] FINAL/TIME (blue) Before any crew entry, the FINAL field is dashed and FINAL TIME field is defaulted to the value specified in the AMI file (typically 30 min).  
The system assumes a holding pattern at 1 500 ft AGL, with the aircraft in CONF 1 at maximum endurance speed (racetrack pattern, altitude and selected airport can be modified through the "airline fuel policy" section of the AMI).

[ 6L ] MIN DEST FOB (blue) *Note:* If pilot entry of MIN DEST FOB is lower than ALTN + FINAL fuel, the message "CHECK MIN DEST FOB" is triggered on the MCDU.

[ 3R ] FUEL PLANNING (amber) Initiates an FMGC block fuel computation using current hypothesis and extra = 0. When the pilot selects this function, FUEL PLANNING becomes green, and the BLOCK field is dashed during FMGC computation. The title of the page changes to INIT FUEL PLANNING, and BLOCK CONFIRM\* replaces the FUEL PLANNING prompt, when the block fuel is computed by the FMGC. If the pilot modifies the parameters used to compute prediction before confirmation, the computation automatically restarts and FUEL PLANNING is displayed in green.

[ 5R ] TRIP WIND (blue) This field allows the entry of a mean wind component for the trip from the origin to the destination. Upon entry of a CO RTE or FROM/TO pair, this field defaults to HD 000 in small font.  
An entry preceeded by -, H, HD is considered to be headwind, +, T, TL to be tailwind. The entered speed is displayed in large blue font.  
When the flight crew inserts a wind on the CLIMB, CRUISE or DESCENT WIND page, or on the PERF APP page, the system no longer considers the trip wind, and the corresponding field is dashed.

-----  
SITA DISPATCH MANAGER FLIGHT PLAN  
-----

ORG /DST ACFT/REG PLAN ID GRIB AVGWC/ID  
OPKC/OMDB A320/AP-BLA D2F5Y 130600 M21 /P09

[ 6R ] EXTRA/TIME EXTRA FUEL = BLOCK - (TAXI + TRIP + RSV + MIN DEST FOB).

## FUEL PREDICTION PAGE

All fields are dashed before engines are started.

The screenshot shows the FUEL PRED page with the following data:

	AT	UTC	EFOB
[1L]	LFPG	1230	4.5
[2L]	LFBO	1320	2.0
[3L]	RTE RSV / %		ZFW / ZFWCG
	0.0 / 0.0		50.0 / 23.2
[4L]	ALTN/TIME		FOB
	2.5 / 0050		20.6 / FF + FQ
[5L]	FINAL/TIME		GW / CG
	1.0 / 0030		70.6 / 25.6
[6L]	MIN DEST FOB		EXTRA/TIME
	3.5		1.0 / 0058

[ 3R ] ZFW/ZFWCG (blue)

Displays the Zero Fuel Weight (ZFW) and Zero Fuel Weight Center of Gravity (ZFWCG) values, as entered before engine start on the INIT B page. The flight crew can re-enter or modify these values after engine start on the FUEL PRED page. If at engine start, no ZFW or ZFWCG values have been entered, amber boxes are displayed in the corresponding field. The flight crew must enter the ZFW/ZFWCG values to obtain a speed profile and predictions.

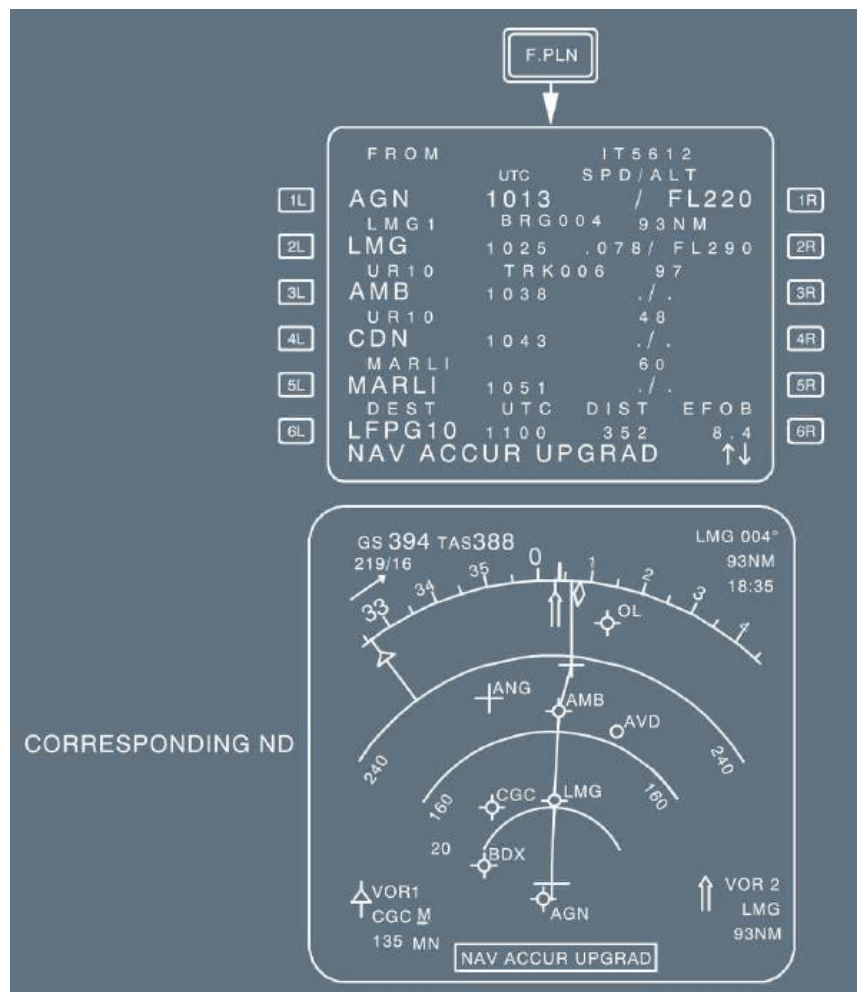
[ 4R ] FOB (blue)

Displays the Fuel On Board (FOB) calculated by the FMGS and the following fuel sensors:

- Fuel flow and fuel quantity sensors (/FF+FQ)
- Fuel flow sensors only (/FF).
- Fuel quantity sensors only (/FQ).

The flight crew can modify the FOB value in flight, or modify the sensors used by entering "/FF", "/FQ" or "/FF+FQ", as required.

## FLIGHT PLAN A PAGE



TITLE

FLIGHT NUMBER (blank, if no flight number has been entered).

This line may display: **TMPI** in yellow if a temporary flight plan exists; **OFST** in white, if a lateral offset is flown; or, **OFST** in yellow, if a lateral offset revision is pending.

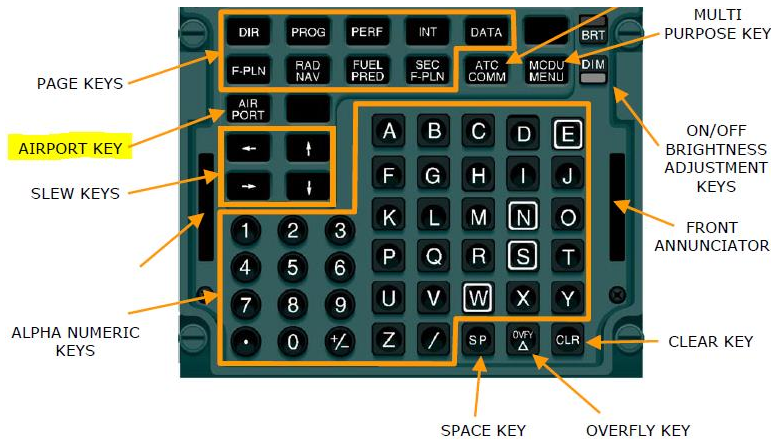
Line 6, DEST UTC/TIME  
DIST, EFOB

DIST is the distance to destination along the displayed flight plan.

EFOB is the estimated fuel on board at destination. The EFOB at destination will turn to amber, if it becomes less than the MIN DEST FOB value.



alternate flight plan. The AIRPORT key serves as a fast slew key. The pilot can press it to call up the next airport (DEST, ALTN, ORIGIN) to be displayed on the flight plan page.



When NAV mode is engaged, the flight crew can only clear or modify the TO waypoint by using the DIR key on the MCDU console.

### CONSTRAINTS

Once predictions are available, constraints are replaced by speed and altitude predictions, preceded by stars. If the star is in magenta, the system predicts that the aircraft will match the constraint (altitude within 250 ft, speed not more than 10 kt above the constraints). If the star is in amber, the system predicts that the aircraft will miss the constraint and the MCDU displays: "SPD ERROR AT WPT".



*Note:* SPD and ALT CSTR may either be entered on the VERT REV page or directly on the F-PLN A page, whereas TIME CSTR may only be entered from the RTA page.

#### If the ALT constraint is predicted as missed:

On ND an amber circle is displayed around the WPT. On MCDU an amber star is displayed with the predicted altitude.



Vertical error can be visualized on VERT REV page at the WPT field [4R].

In the example constraint FL110 at TOU is missed, altitude prediction is FL106.

Tolerance for ALT CSTR is 250 ft in CLB and DES 150 ft in APP.



## APPROACH DISPLAY

During an approach, this in-between line also defines the angle of the final descent path. For example, "2-3<sup>00</sup>" indicates that the leg is two nautical miles long, and the flight path angle is -3<sup>00</sup>.

ILS APPROACH

	A1101				
	TIME	SPD	ALT		
1L	01508	---	---	2500	1R
2L	C 330°	---	---	4 NM	2R
3L	BRAVO	---	---	2500	3R
4L	C 330°	TRK 330°	8-0.0°	1260	4R
5L	OM33R	---	---	90	5R
6L	C 330°	---	---	2	6R
	LGAT33R	---	---	2	
	H 330°	---	---	2	
	600	---	---	---	
	DEST	TIME	DIST	EFOB	
	LGAT33R	0220	990	8.4	

OUTER MARKER → 3L  
DESTINATION → 5L

1R  
2R GLIDESLOPE CROSSING ALTITUDE  
3R  
4R DEST ELEVATION (+50FT IF PREDICTIONS NOT AVAILABLE)  
5R  
6R

## FLIGHT PLAN B PAGE

This page displays fuel predictions and forecast winds at each waypoint. The pilot calls it up by pressing the NEXT PAGE key when the FLIGHT PLAN A page is displayed.

F-PLN → F-PLN A PAGE

NEXT PAGE

	FROM			A1101			
	TOP9C	EFOB	T.WIND				
1L	LSGG23	15.0	060°/005	1R			
2L	PAS	14.7	" /020	2R			
3L	HOLD L	TRK 230°	12	3R			
4L	7000	14.5	" /022	4R			
5L	(SPD)	"	0	5R			
6L	(LIM)	"	"	6R			
	TOP9C	"	5				
	D136E	14.5	066°/025				
	DEST	TIME	DIST	EFOB			
	LGAT33R	0220	990	8.4			

If the flight crew uses a trip wind, it will be displayed for each waypoint. If no other wind entry is made after takeoff, the FROM waypoint will display the actually recorded wind, and the waypoints downpath will still display the trip wind.

-----  
SITA DISPATCH MANAGER FLIGHT PLAN  
-----

ORG /DST ACFT/REG PLAN ID GRIB AVGWC/TD  
OPKC/OMDB A320/AP-BLA D2F5Y 130600 M21 /P09

## LATERAL REVISION PAGES

LAT REV AT THE ORIGIN

LAT REV FROM LSGG  
45°12.0N/007°27.2E

[1L] <DEPARTURE FIX INFO> [1R]

[2L] <OFFSET LL XING/INCR/NO [ ]°/[ ]°/[ ] [2R]

[3L] [ ]°/[ ]°/[ ] [3R]

[4L] ENABLE NEXT WPT [ ] [4R]

[5L] ←ALTN NEW DEST [ ] [5R]

[6L] <RETURN [6R]

LAT REV AT THE DESTINATION

LAT REV FROM LGAT  
37°53.8N/023°43.7E

[1L] ARRIVAL> [1R]

[2L] [2R]

[3L] NEXT WPT [ ] [3R]

[4L] ENABLE ←ALTN [4R]

[5L] <ALTN [5R]

[6L] <RETURN [6R]

LAT REV AT THE FROM WPT

LAT REV FROM PPOS

[1L] FIX INFO> [1R]

[2L] <OFFSET LL XING/INCR/NO [ ]°/[ ]°/[ ] [2R]

[3L] <HOLD [3R]

[4L] [4R]

[5L] [5R]

[6L] <RETURN [6R]

LAT REV AT A WPT

LAT REV FROM FRZ  
44°01.8N/011°00.2E

[1L] [1R]

[2L] <OFFSET LL XING/INCR/NO [ ]°/[ ]°/[ ] [2R]

[3L] <HOLD NEXT WPT [ ] [3R]

[4L] ENABLE NEW DEST [ ] [4R]

[5L] ←ALTN [5R]

[6L] AIRWAYS> [6R]

[6L] <RETURN [6R]

[ 1R ] FIX INFO      FIX INFO is only displayed on the lateral revision page at the **origin or FROM waypoint**. It gives access to the FIX INFO page.

[ 2R ] LLXING/INCR/NO      This prompt allows the pilot to create the **latitude/longitude crossing point**. The increment (INCR) ranges from 1 to 20 °, and the number of crossing points from 1 to 99. This prompt is not displayed for waypoints belonging to the descent procedure.

**Lat/Long Crossing:** W60/1/5 would mean, from the longitude 60° West you want a point after every 1 degree limited to a total of 5 points. Useful in Atlantic crossings.

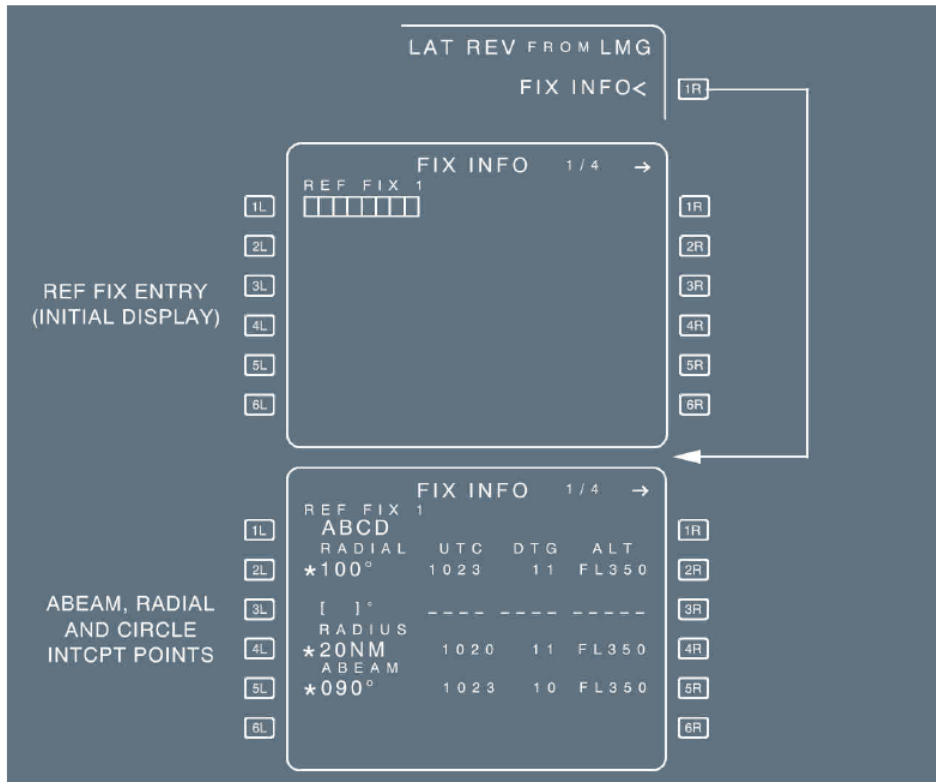
## TEMPORARY REVISION

When the pilot selects a lateral revision, the system creates a "Temporary F-PLN" and displays it in yellow on the MCDU, and as a dashed yellow line on the ND, enabling the pilot to review the data before inserting it. As long as the temporary flight plan is not inserted, the previous flight plan remains active and the system guides the aircraft along it.



## FIX INFO PAGE

The FIX INFO page may be accessed from the LAT REV page at the origin airport, or at FROM.



Four FIX INFO pages, providing the capability to define four different REF FIX elements, are available.

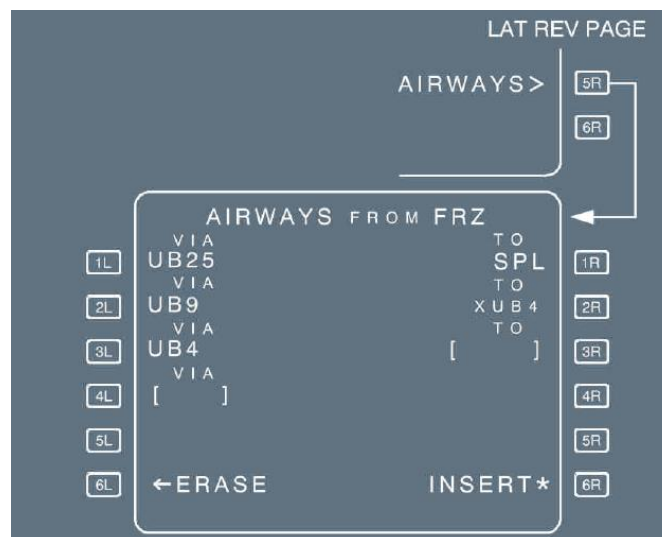
[ 4L ] - [ 4R ] RADIUS (blue) When the circle intercepts the current flight path, the FMGS will compute the time, the along path distance and the altitude at the first intersection point, from the current aircraft position (small green front).

## OFFSET PAGE

The flight crew calls up this page from the LATERAL REVISION page, by pressing [2L] key.

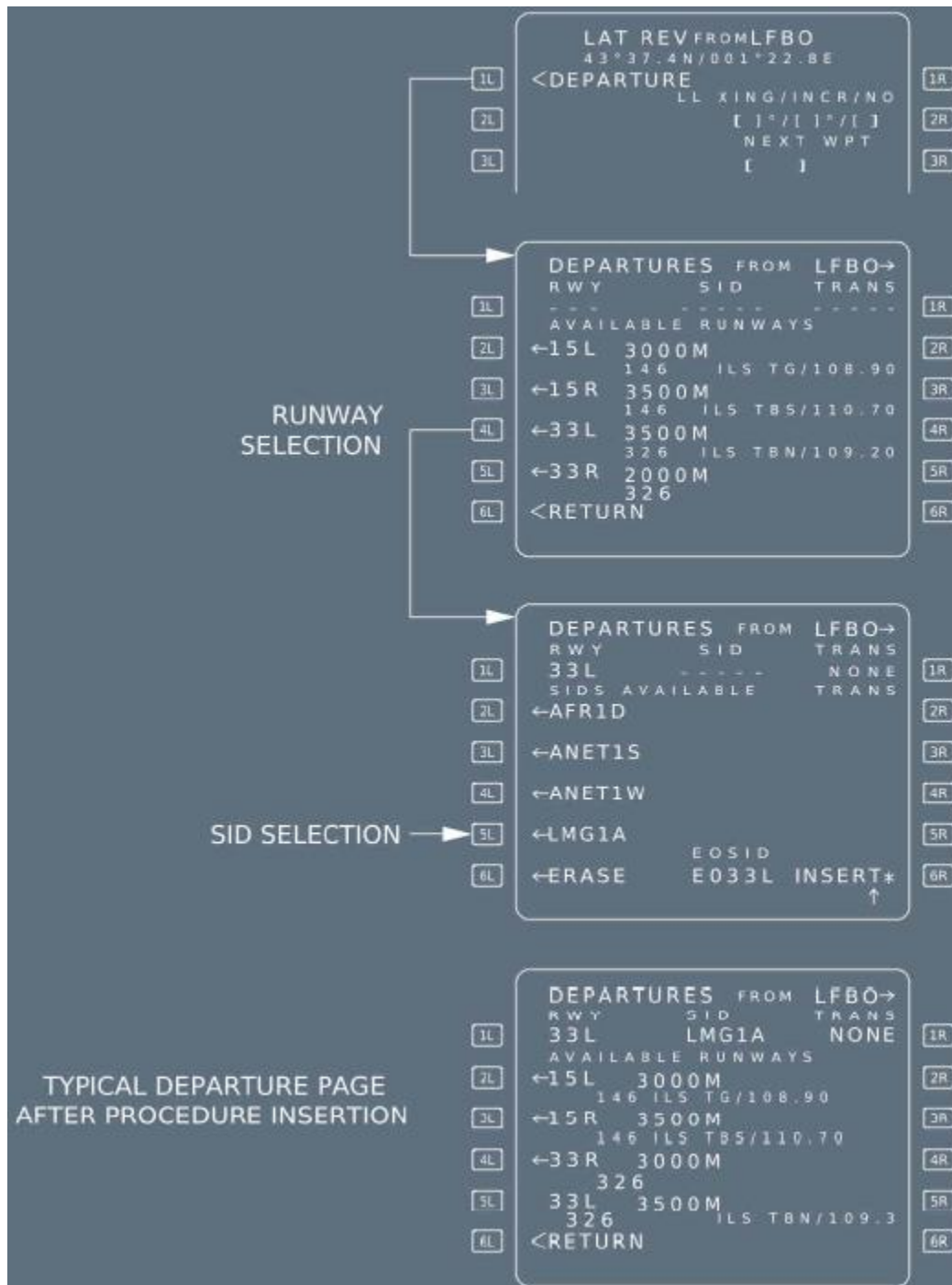


## AIRWAYS PAGE



1. If the entered airway contains at least one fixed radius transition waypoint as defined in the navigation database, and the TO waypoint is defined and, the fixed radius transition waypoint is in the flight plan, then, "FIXED TURN RADIUS AWAY" is displayed between the VIA and TO fields.
2. If the condition for display "FIXED TURN RADIUS AWAY" is satisfied for two consecutive airways lines, the second line displays ("") instead of the whole message.

## DEPARTURE PAGES



These pages allow the pilot to review departure procedures (RWY, SID, TRANS) and enter them into the active flight plan.

When the display shows the lateral revision page for the origin, the pilot calls them up by pressing the 1L key.

Three pages are available: RWY, and SIDS and TRANS (if any).

The pilot sequentially calls up each page by selecting a data item (such as RWY), or by pressing the NEXT PAGE key on the MCDU console.

If you have already selected a runway and a SID and just want to change the SID without changing a runway then press the next page key to go to the next page and select the new SID from there.

# HOLD PAGES

LAT REV FROM VNE  
44°01.8N/011°00.02E

	1L		1R
	2L	LL XING/INCR/NO [     ]°/[     ]°/[     ]	2R
PRESS →	3L	<HOLD	3R
	4L	<ENABLE ALTN	4R
	5L	NEXT WPT [     ] NEW DEST [     ]	5R
	6L	<RETURN	6R

AIRWAYS>

DATABASE HOLD AT VNE

	1L		1R
	2L	INB CRS 103°	2R
	3L	TURN R	3R
	4L	TIME/DIST 1.0/ 7.6	4R
	5L	LAST EXIT UTC     FUEL	5R
	6L	-----	6R

←ERASE
INSERT\*

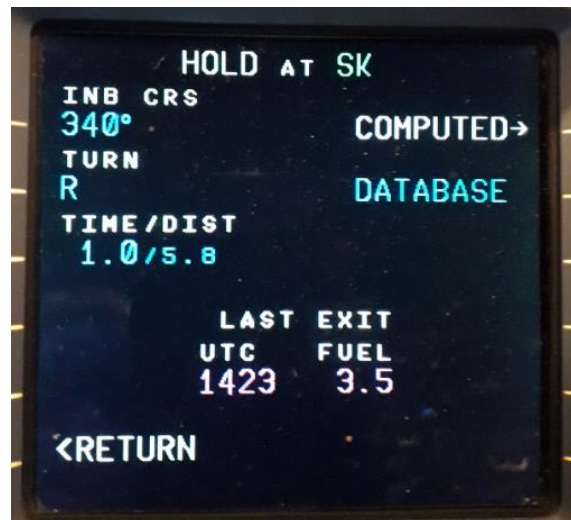
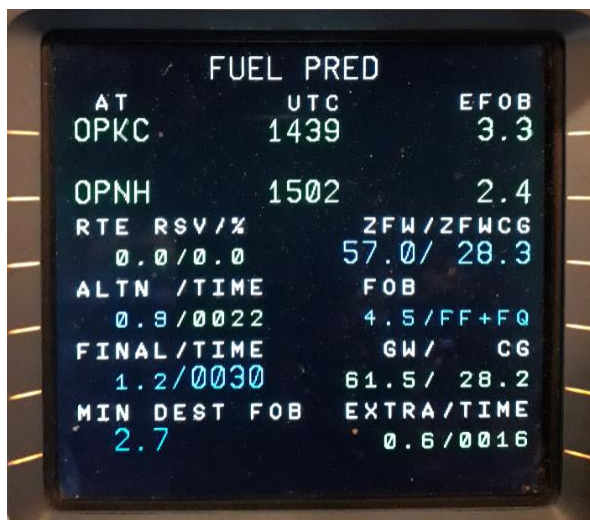
COMPUTED HOLD AT VNE

	1L		1R
	2L	INB CRS 125°	2R
	3L	TURN R	3R
	4L	TIME/DIST 1.5/ 12.0	4R
	5L	LAST EXIT UTC     FUEL	5R
	6L	-----	6R

←ERASE
INSERT\*

### [ 3L ] TIME/DIST

This field shows the time and distance for the outbound leg. The data may be modified, but time and distance cannot be entered simultaneously. Time and distance are dependent values that the system calculates from the predicted true airspeed, which in turn depends upon the holding speed (speed for maximum endurance, ICAO speed limit, or constraint speed, whichever is lower).

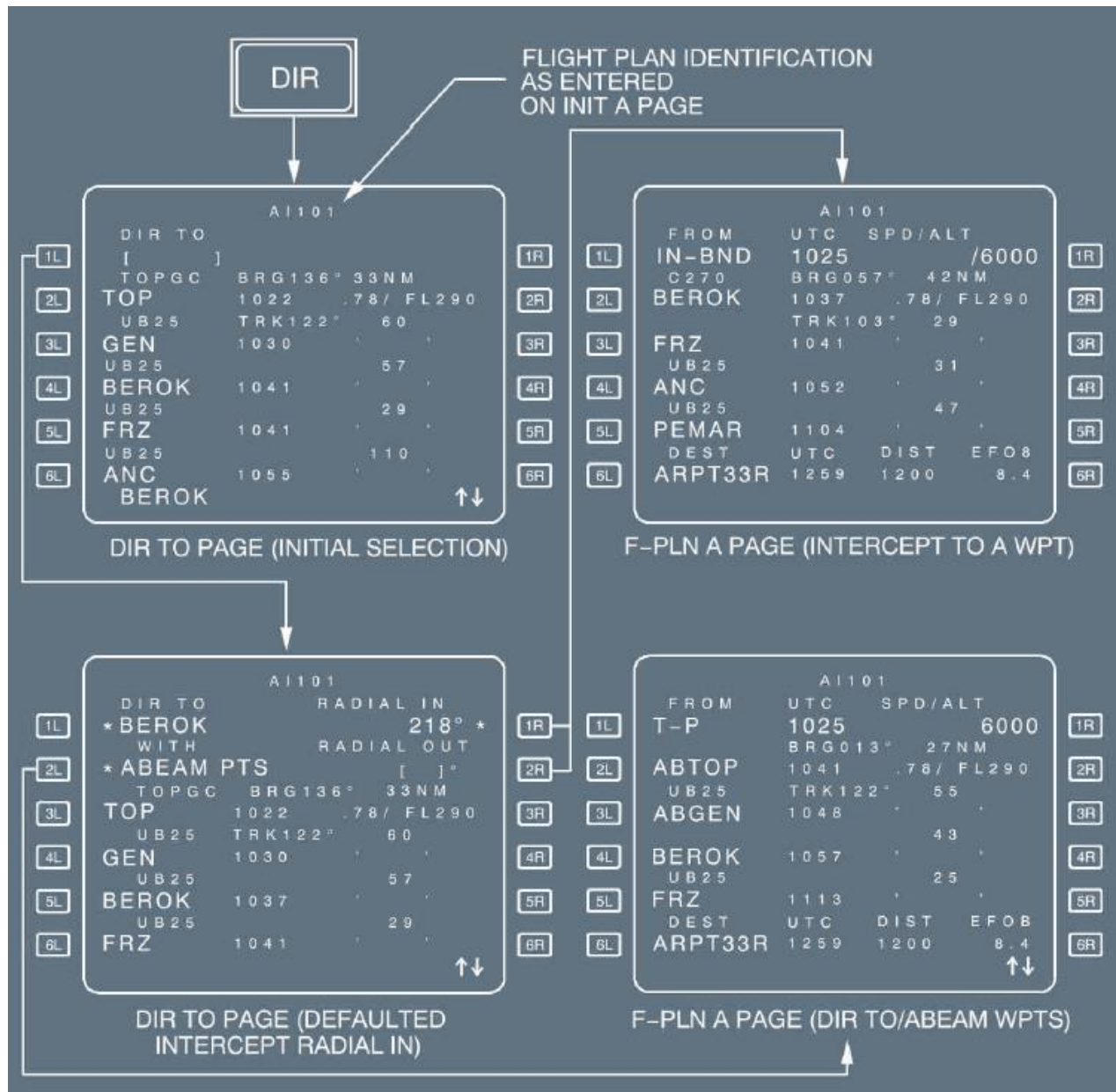


**LAST EXIT UTC FUEL** This field displays the time at which the aircraft must leave the holding pattern in order to meet fuel policy criteria (extra fuel = 0). The system also displays the estimated fuel on board at that time. Always displayed in thousand of kilograms or pounds.

In the above example destination is OPKC and estimated fuel on board at destination is 3.3 tons. Min required (alternate + reserve) at destination is 2.7 (can be manually entered based on your flight plan minimum requirement). That means  $3.3 - 2.7 = 0.6$  is extra and one can use that for holding enroute (at SK in this case). Last exit time in "HOLD at SK" page gives you the time at which you have to leave the hold, otherwise you will be landing at destination with less than your minimum specified fuel (2.7 in this case).



## DIRECT TO PAGE



[ 1R ] RADIAL IN and  
[ 2R ] RADIAL OUT

The pilot fills in these fields to define a radial, associated to the waypoint defined in 1L. These keys respectively activate the DIR TO/INTERCEPT TO and DIR TO/INTERCEPT FROM functions. The pilot enters the radial in, or radial out, as : XXX, XXX being the radial.  
The aircraft intercepts from its current position and tracks the selected waypoint and radial to (or from) this waypoint.

Selecting the INTCP TO (RADIAL IN [ 1R ]) function:

- Activates the intercept radial INTO the WPT.
- Sets the course = radial IN + 180°.
- Reverts the display to the F-PLN A page.

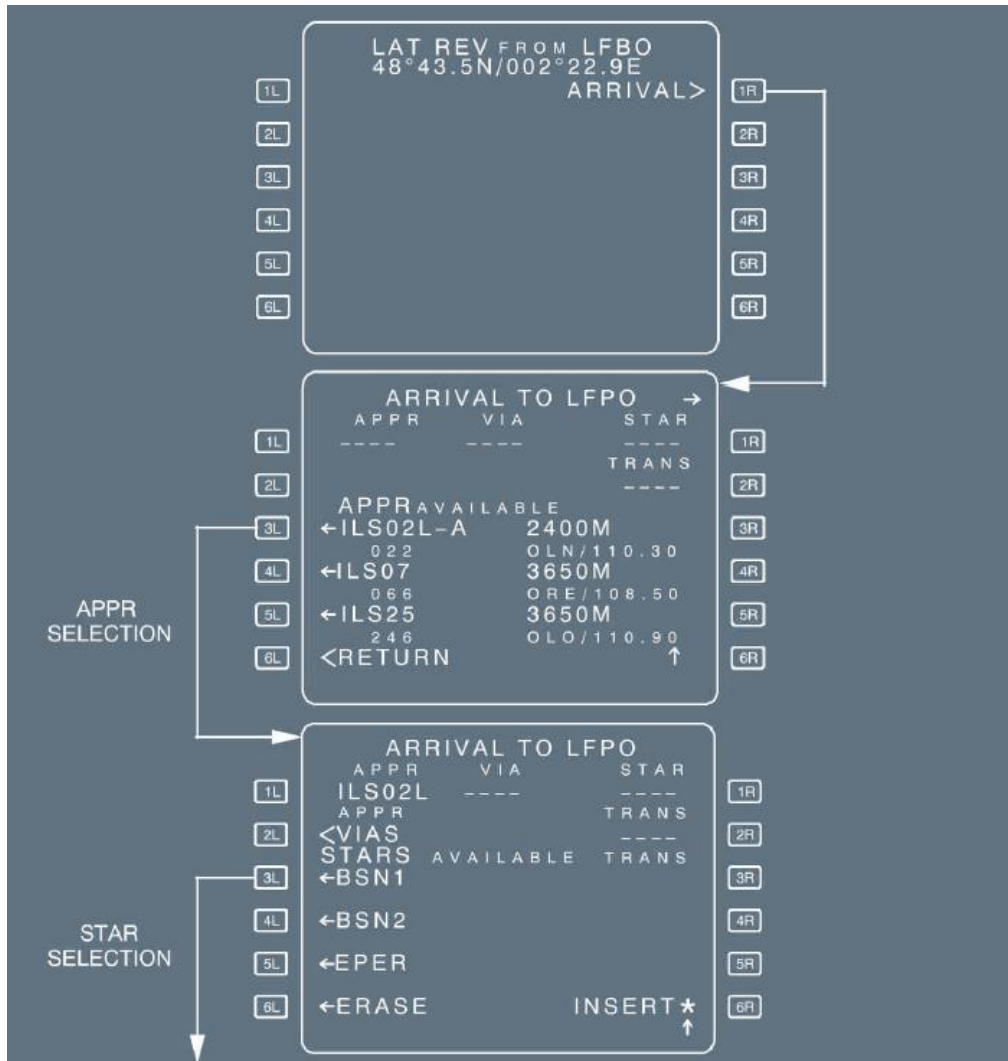
Selecting the INTCP FROM (RADIAL OUT [ 2R ]) function:

- Activates the intercept radial FROM the WPT.
- Sets the course = radial OUT.
- Reverts the display to F-PLN A page.

*It is not recommended to use the DIR TO function when the aircraft is on the ground. The use of the DIR TO function when the aircraft is on the ground may result in the loss of all departure data, that includes both of the following:*

- The takeoff speeds
- The derated level, or the flexible temperature.

## ARRIVAL PAGES



These pages enable the pilot to review arrival procedures (approaches, VIAs, STARs, TRANS) and enter them into the active flight plan.

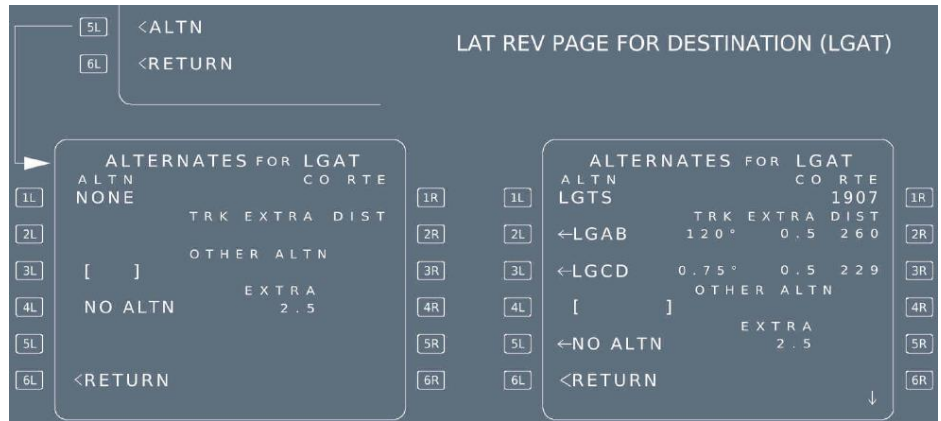
The pilot calls them up from the LAT REV page for the destination by the pressing the 1R key. Three pages, APPR, STAR, and VIA, are available, along with a fourth, TRANS, if there are any transitions.

The pilot calls up each page sequentially, either by selecting a data item (such as APPR), or by pressing the NEXT PAGE key on the MCDU console.

If you have already selected a runway and arrival and just want to change the arrival without changing the runway then press the next page key to go to the next page and select the new arrival from there.

## ALTERNATE PAGES

This page enables the pilot to review, in the NAV database, the alternate airports that are paired with the destination, and define additional alternates, if needed. (Alternate airports are linked to the destination). The pilot calls up this page with the ALTN prompt, from the lateral revision page for the destination.



[ 1L ] ALTN

This field displays the **selected alternate**: In green, if it is active; in yellow, if it is temporary. "NONE" is displayed, if NO ALTN option is selected, or if the destination has no alternate.

Line 2 to line 5

These lines display the identifications of alternates (up to 6), the **extra fuel weight remaining after landing at the alternates**, and the **great-circle track and distances to them from the destination**.

If the database **contains a company route between the destination and the alternate**, the **distance shown is an airway distance**, not a great-circle distance.

When the database defines a preferred alternate, it is displayed on Line 2 (if no scrolling has been performed).

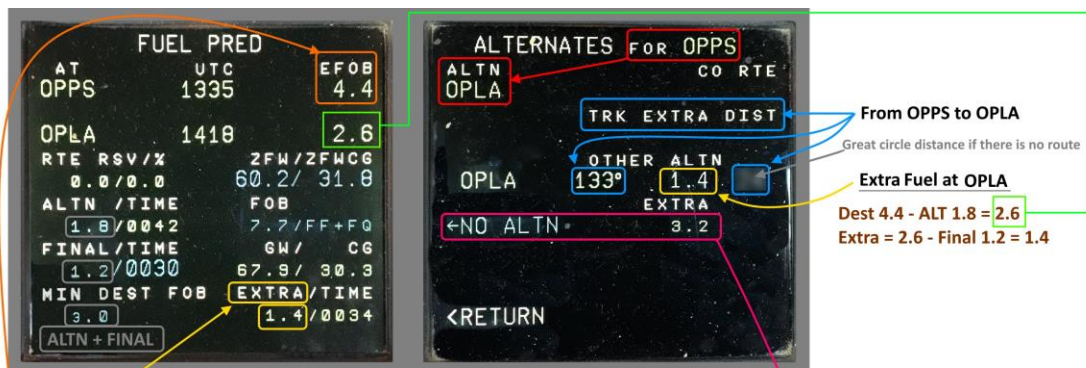
[ 4L ] OTHER ALTN

The pilot can enter an **airport identifier in the brackets** (Line 3). If that airport is **not stored in the database**, the **NEW RUNWAY page** appears for the pilot to use in defining it.

If it is stored in the database, the **ROUTE SELECTION page** appears, and the pilot can use it to select the best route.

The pilot may enter a distance in the DIST field of the OTHER ALTN prompt, in order to **get preliminary fuel predictions**. However, once he has selected the alternate airfield as a temporary alternate and then inserted it, the ALTN distance reverts either to the airway distance, if he has selected a company route, or otherwise to the direct distance to the alternate.

The pilot can use OTHER ALTN to overwrite and replace the previous OTHER ALTN.



Extra is above the MIN DEST FOB  
i.e. EFOB (4.4) - MIN DEST FOB (3) = 1.4

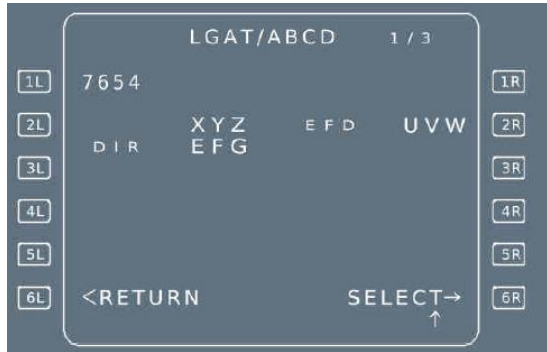
Estimated Fuel on Board at OPPTS

If there is no alternate then MIN DEST FOB will not be ALT + FINAL, it will be FINAL only since you are not going to the alternate. In that case you will have more extra fuel i.e. EFOB - FINAL = 4.4 - 1.2 = 3.2

## ROUTE SELECTION PAGE FOR ALTERNATE

This page enables the pilot to review the company route between the destination and the alternate, and to select a different route, if that seems appropriate.

This page comes up automatically, when the flight crew enters an ident in the OTHER ALTN field.

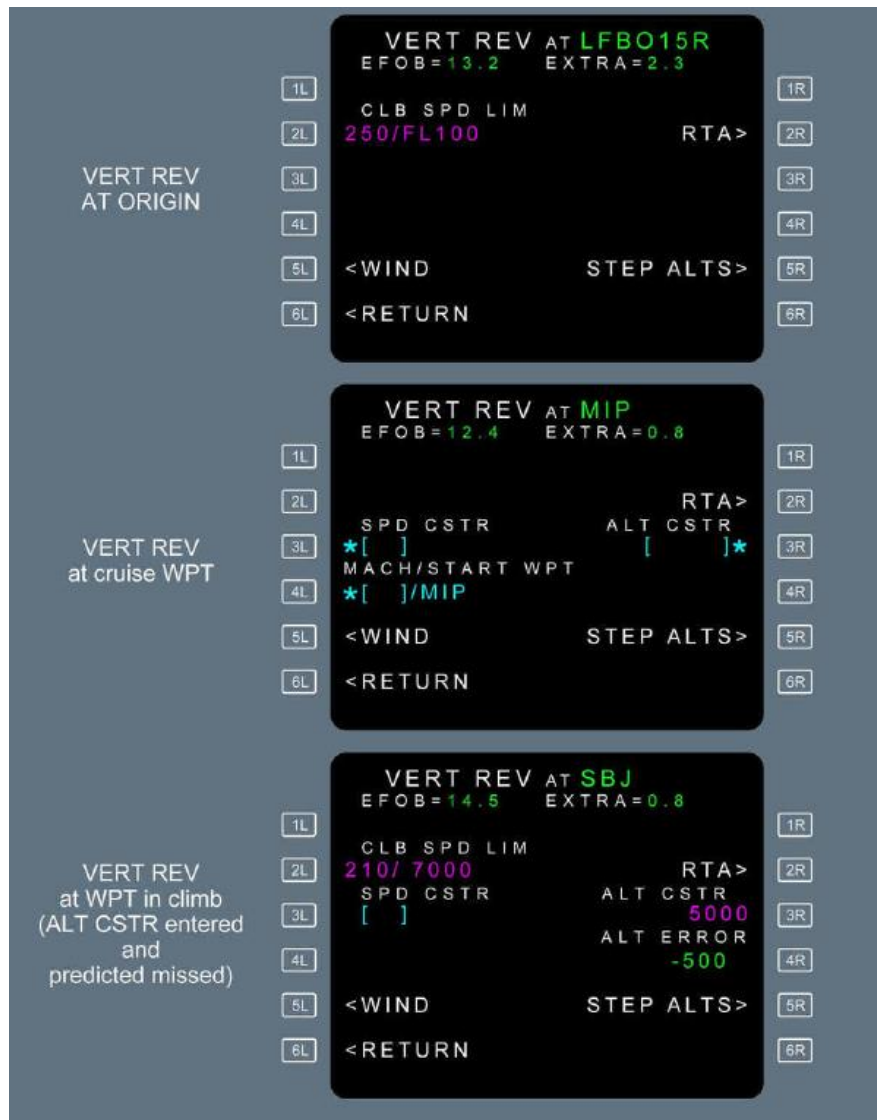


[ 6R ] SELECT

Pressing this key reverts the display to the alternate page. (The distance between the destination and the alternate is then the airway distance).

## VERTICAL REVISION PAGES

The pilot may make several different vertical revisions (although some may not be available at all waypoints): Speed limit, speed constraint, altitude constraint, time constraint, wind page and STEP ALTS page.





[ 3R ] ALT CSTR

The constraint may be:

- "At", entered as XXXXX (Example: FL 180).
- "At or above", entered as + XXXXX or XXXXX + (Example: FL +310).
- "At or below", entered as - XXXXX or XXXXX - (Example: -5 000).
- A "window" constraint.

The altitude window consists of two altitudes between which the aircraft should fly. The crew cannot manually enter a "window" constraint.



Altitude and speed constraints may apply to the climb, descent, or approach phase, but never to the cruise phase. Fields 6L/6R display "CLB/DES" when the revised waypoint is a cruise phase waypoint and the FMGS needs to know if the new constraint is to be applied in climb or descent phase. The FMGS will modify the cruise phase accordingly. These 2 prompts also display "CLB/DES" when the predictions are not computed. (Top of climb and top of descent not yet defined).

## STEP ALTS PAGE

This page allows the pilot to insert up to four geographic step points and one optimal step point into the flight plan. This page also displays the fuel/time savings associated with the optional step. The flight crew calls it up either from the vertical revision page.

The image shows two screenshots of the 'STEP ALTS FROM FL290' page. The top screenshot is the initial input screen, showing a table with columns 'ALT / WPT' and 'DIST TIME'. The bottom screenshot shows the page after one step has been entered, displaying 'TO OPT S/C' (1016NM / 1035) and 'ΔFUEL ΔTIME' (-3.4 +022). The page also includes a 'PAGE FILLED IN WITH ONE STEP, BUT NOT INSERTED' message and a '<RETURN' button.

[ 5L ] OPT STEP:  
ENTER ONLY ALT  
(white) TO OPT S/C  
(green small front)

This field displays the distance and time to an uninserted optimal step point, if one exists. It is displayed to guide the flight crew for the entry format of an optional step.

*Note:* On any flight plan change, an inserted optimal step remains in the flight plan at a fixed distance to destination.

The value is preceded by:

- “-” in case of fuel saving,
- “+” in case of additional fuel cost.

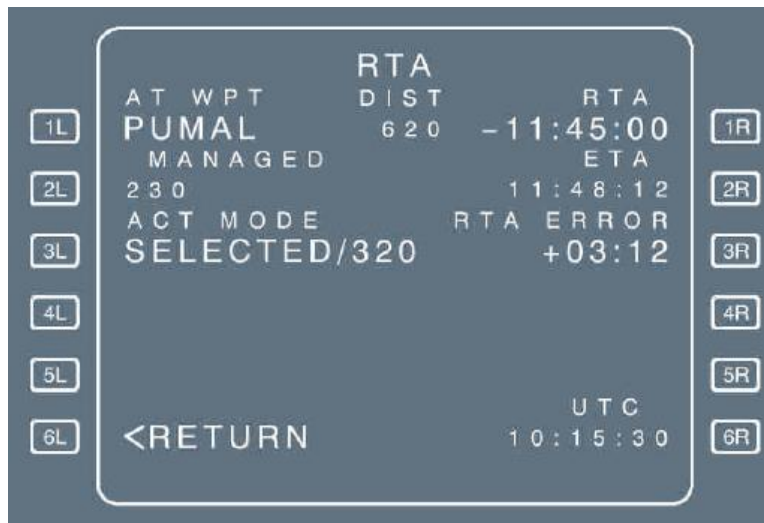
Time savings are displayed in hours and minutes. The value is preceded by

- “-” in case of time saving,
- “+” in case of additional time cost.

The following messages may be displayed in the DIST/TIME field:

- ABOVE MAX, if the step altitude exceeds the MAX altitude.
- "IGNORED", if the step start or end point is less than 50 NM from the top of descent or if the step climb is located prior to the top of climb or after the top of descent.
- "STEP AHEAD", when the aircraft is within 20 NM of the start step point.
- "NO OPTIMAL" if a non inserted optimal step falls in a discontinuity due to a flight plan change, or when no new optimal exists after an UPDATE or when no optimal step point exists for the entered altitude.

## RTA PAGE

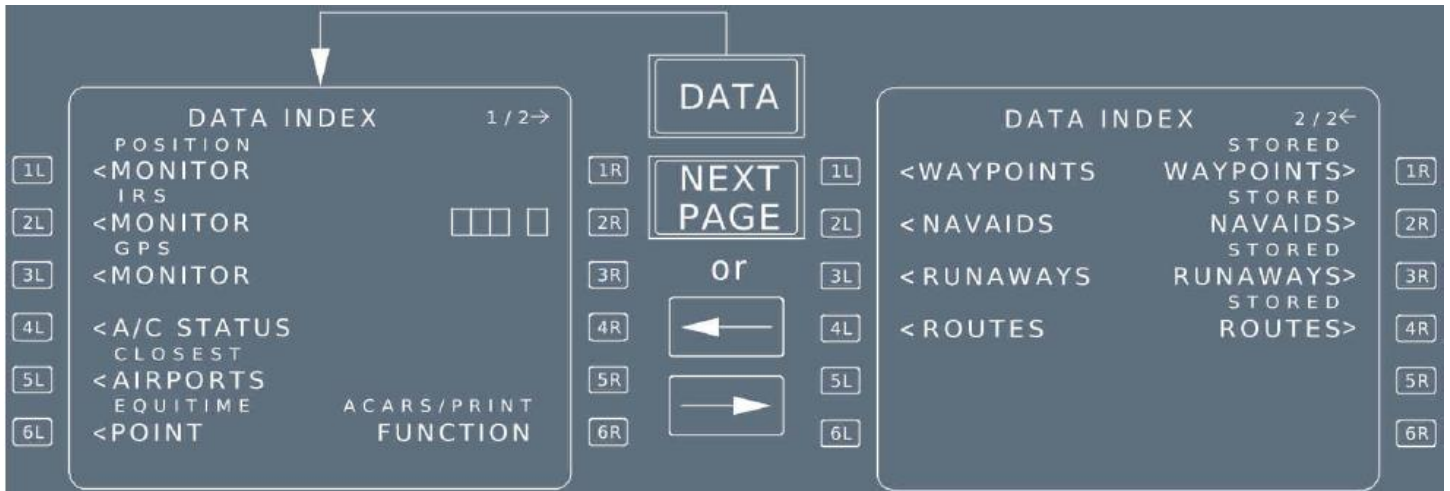


The flight crew enters the time constraint as "HHMMSS", preceded by:

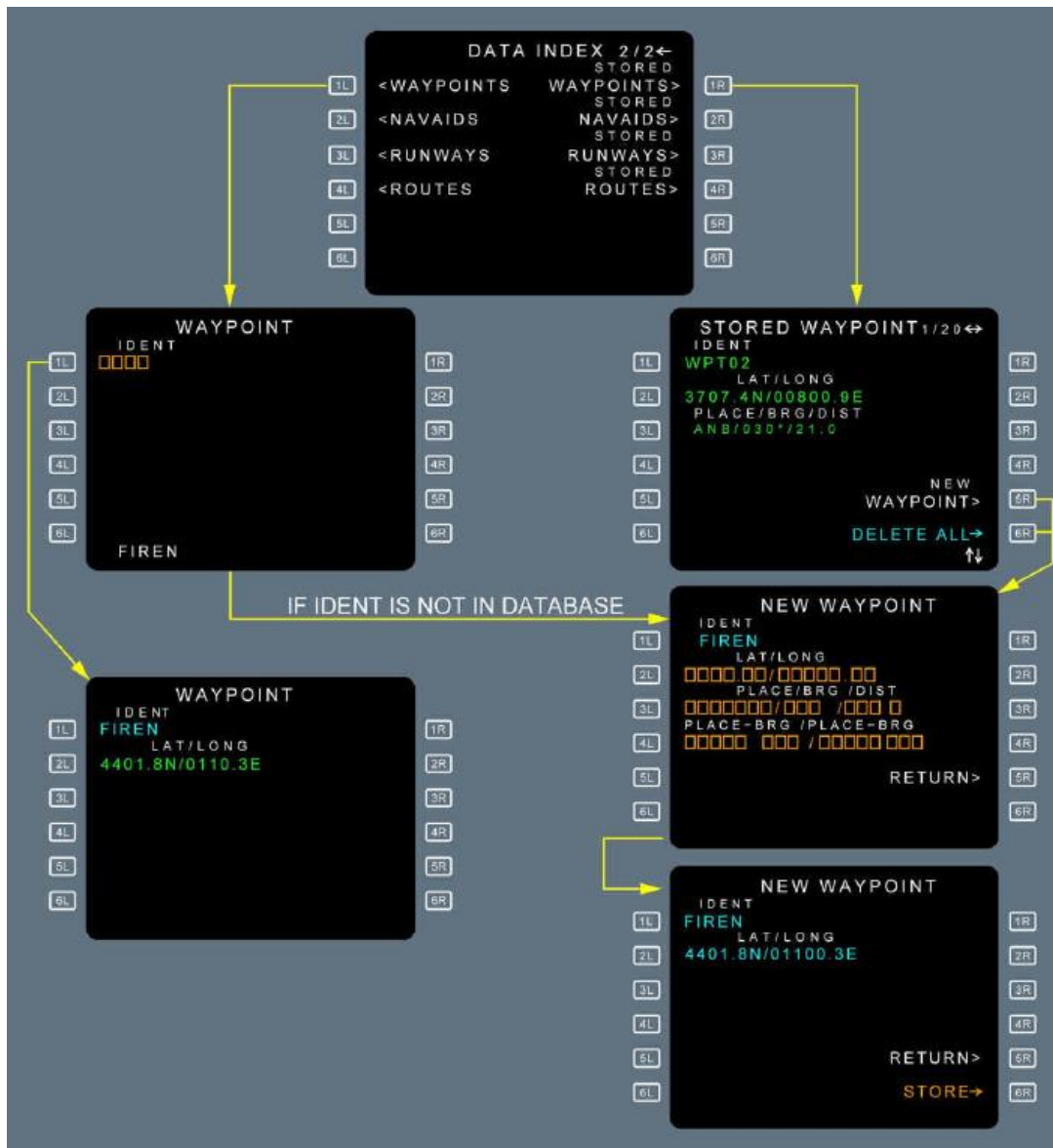
- for at or before;
- + for at or after;
- no sign for at.

- [2L] MANAGED This field displays the FMGS-computed ECON speed/Mach (*Refer to DSC-22\_20-40-10 Optimization*)
- [3L] ACT MODE This field displays the active speed mode : MANAGED or SELECTED/NNN (NNN is the selected target speed).  
The pilot cannot modify it through this field.
- [6R] ETT The Estimated Takeoff Time (ETT) field is available in the preflight phase. If no ETT is available, the 6R field displays blue brackets and a blue star. Once available, the ETT is displayed in magenta.

## DATA INDEX PAGES



## STORED AND NEW WAYPOINT PAGES





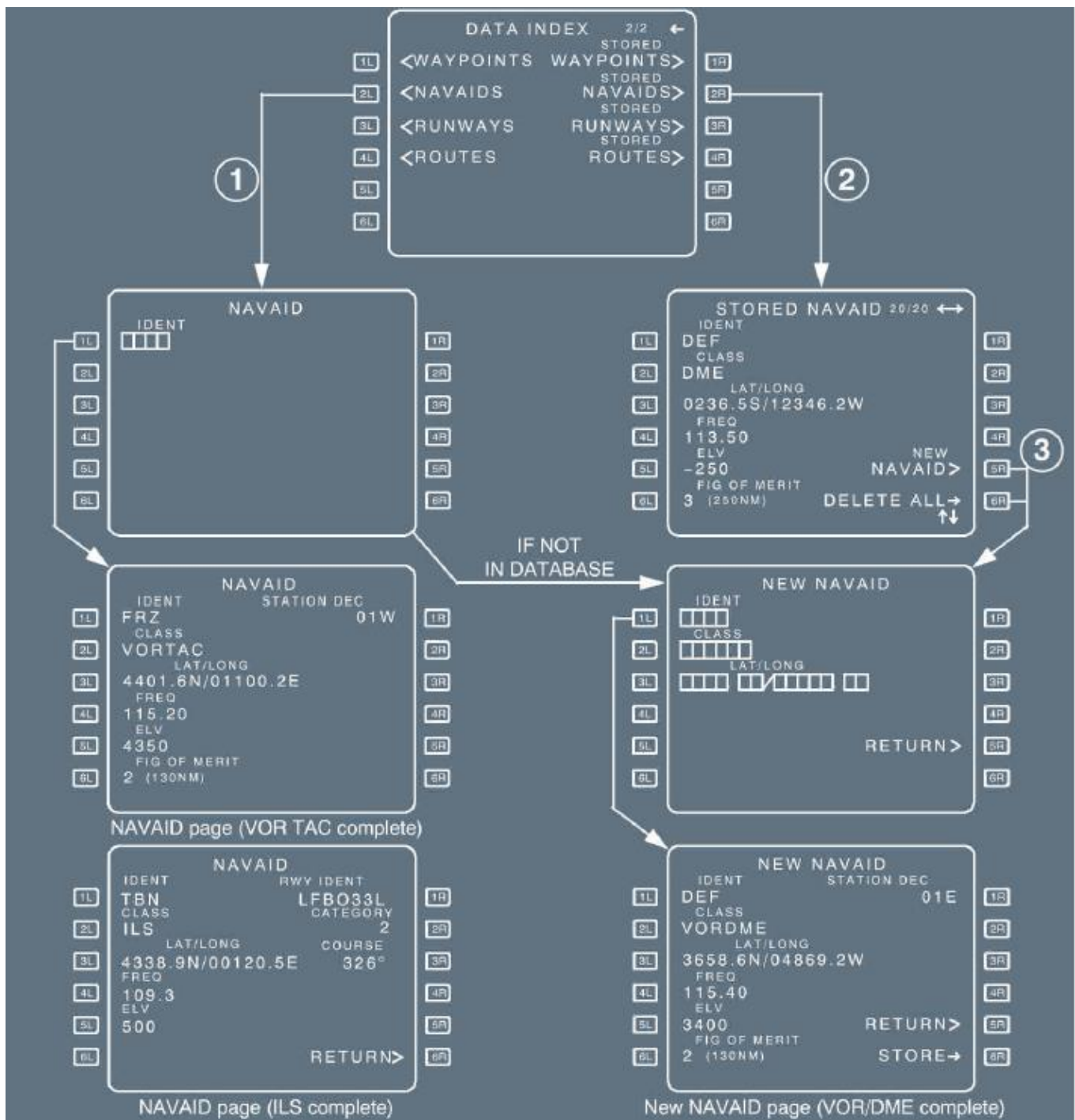
is displayed in the upper righthand corner of the page. For example, "1/20" indicates that the waypoint was the first of 20 stored.

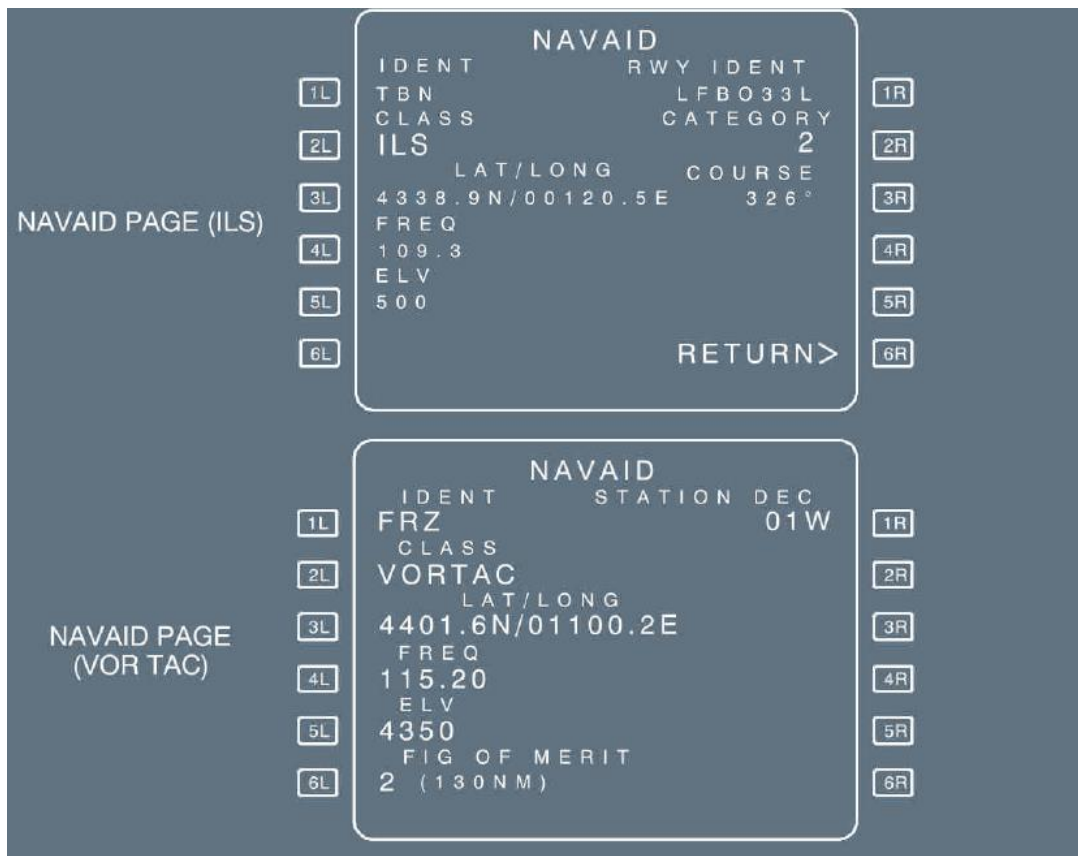
*Note:* Latitude/Longitude crossing points and Abeam/Radial Intercept points are never included in the stored waypoint list.

[ 1L ] IDENT

To delete a waypoint, the pilot clears the 1L ident display.

## STORED AND NEW NAVAID PAGES





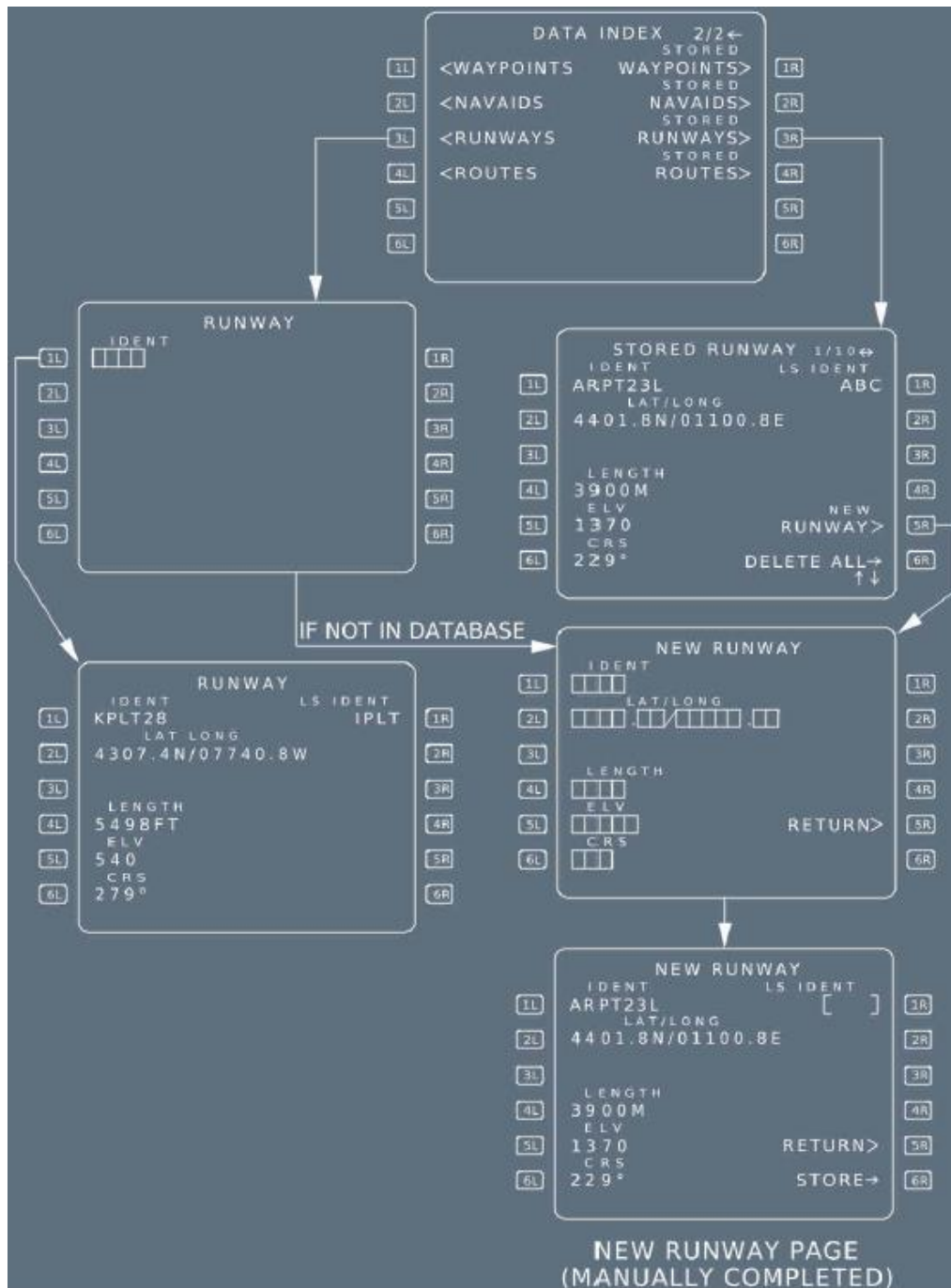
[ 1R ] STATION DEC This is the **magnetic declination** in the NAVAID area (used only for VOR, VOR/DME, and VORTAC).  
The field displays RWY IDENT, if the NAVAID is a LOC, ILS, MLS, ILS/DME, MLS/DME or ILS/TAC.

*Station declination is an alignment variation between the 0 degree radial of a station and True North, determined at the time the station is calibrated.*

[ 6L ] FIG OF MERIT This field shows **how far out the FMGS can autotune** a VOR, VOR/DME, VORTAC, or DME for display or for computing position.  
0 : up to 40 NM  
1 : up to 70 NM  
2 : up to 130 NM  
3 : up to 250 NM

It can be used to define and store up to **20 NAVAIDs**. Entering an additional waypoint deletes the first one. The NAVAID elements must be entered in two steps:

## STORED AND NEW RUNWAY PAGES



### NEW RUNWAY PAGE

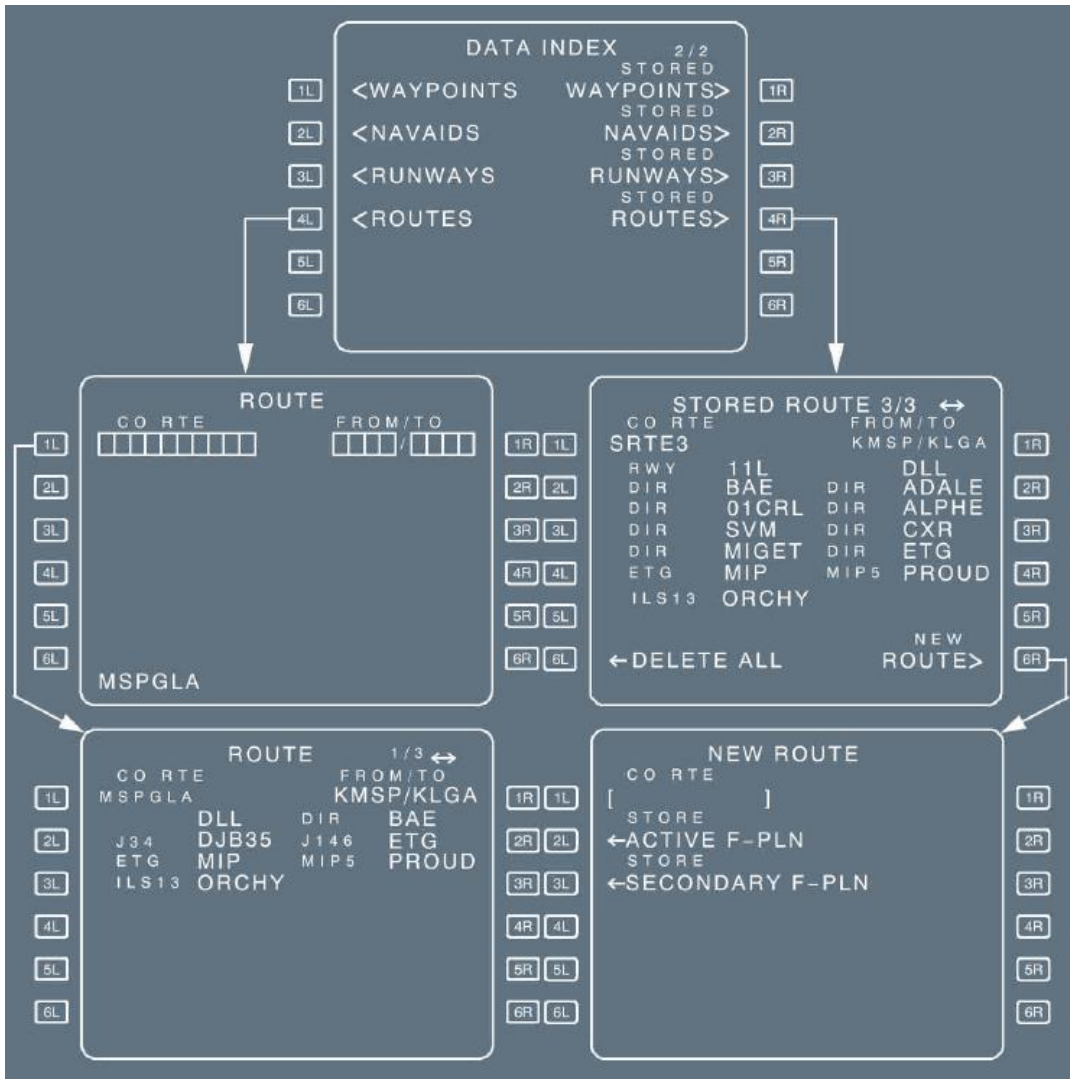
The pilot can use this page to define and store up to 10 runways.

- When the pilot enters an ILS/LOC IDENT in the [ 1R ] field the new NAVAID page comes up. When the pilot has entered and stored the necessary data in the new NAVAID page, the new runway page reappears.

The **NEW RUNWAY** may be used for departure or destination, but no SID or STAR can be associated or stored with this runway. Therefore, the pilot will use it as an "independent" airport.

A new runway is identified by the 4-letter ICAO airport identifier, although all six or seven digits must be entered.

# STORED AND NEW ROUTE PAGES

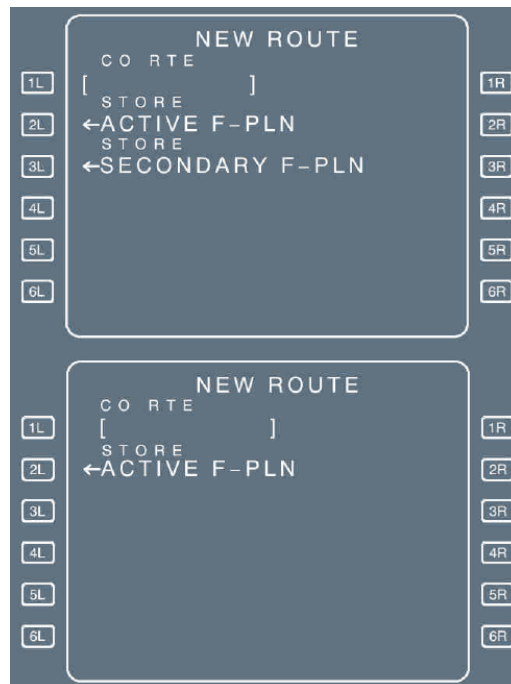


## NEW ROUTE

Pressing 2L or 3L will store the active or secondary flight plan. Therefore, in order to store a new route, it has to be first created in active or secondary flight plan pages. Four letter origin and destination (FROM/TO) is a must as explained on the next page.

[1L] CO RTE field enables the pilot to enter a new company route IDENT. If that IDENT has already been assigned, the entry is rejected.

While storing, if no route ID is defined in 1L then the new route will be stored with a computer-generated ID. If you enter your own route ID in 1L then it will store the new route with that ID.



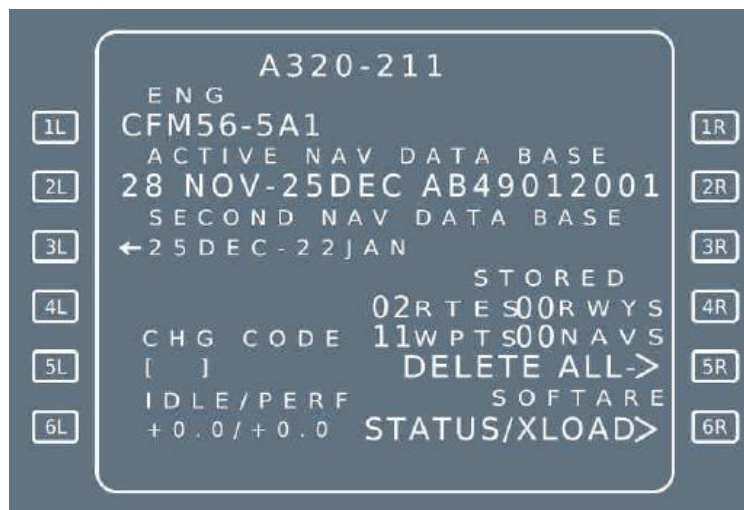
The pilot calls up this page by pressing the NEW ROUTE key on the stored route page. It can be used to store up to five new routes that have already been defined in the active or secondary flight plan.

[ 2L ] STORE ACTIVE F-PLN (blue) Pressing this key stores parameters of the active flight plan as new route. The display shows this prompt when the system contains a FROM/TO, but only during preflight.

[ 3L ] STORE SECONDARY F-PLN (blue) Pressing this key stores parameters of the secondary flight plan as new route. The display shows this prompt when the system contains a FROM/TO and the secondary flight plan has not yet been sequenced.

When 5 routes are already stored, the pilot cannot insert a new stored route. The "STORED ROUTE FULL" message is displayed, and the pilot must manually delete a route in order to store a new one.

## AIRCRAFT STATUS PAGE



**CAUTION** Cycling the database erases the primary and secondary flight plans, as well as the stored data. The flight crew must never do this in flight.

[ 5L ] CHG CODE This field allows the entry of a code to change the IDLE and/or PERF factor, displayed in 6L. It is displayed in the PREFLIGHT and DONE phases.

[ 6L ] IDLE/PERF It is only possible to modify these factors when the aircraft is on ground. When it is necessary to modify the IDLE or the PERF factor:

- ENTER the change code in the CHG CODE field [5L].
- ENTER the new IDLE and/or PERF factor(s) in the scratchpad.
- PRESS the [6L] key to insert the new IDLE and/or PERF factor(s). The new IDLE and/or PERF factor(s) is (are) displayed in large blue font.

The default value for this code is "ARM"

*A possible reason to change the code may be due to a mismatch between the code in FMS and one given in CFP.*

## DUPLICATE NAMES PAGE

This page, which automatically appears, allows the pilot to select a specific waypoint, airport, or NAVAID when the database holds more than one under the same identifier.

**DUPLICATE NAMES**

	DISTANCE	NAME	LAT/LONG	
1L	15 NM	* ECHO	46N/015E	1R
2L	85 NM	* ECHO	48N/010W	2R
3L	360 NM	* ECHO	49N/012W	3R
4L	9999 NM	* ECHO	48N/005E	4R
5L				5R
6L		< RETURN		6R

**DUPLICATE NAMES**

	DISTANCE	NAME	LAT/LONG	FREQ	
1L	15 NM	* ENO	40N/064W	114.80	1R
2L	417 NM	* ENO	44N/101E	112.40	2R
3L	836 NM	* ENO	50N/070W	116.60	3R
4L					4R
5L					5R
6L		< RETURN			6R

### DISTANCE

The direct distance to the aircraft is displayed in green above each name. If this distance is greater than 9 999 NM, 9 999 NM is displayed.

### LAT/LONG COLUMN

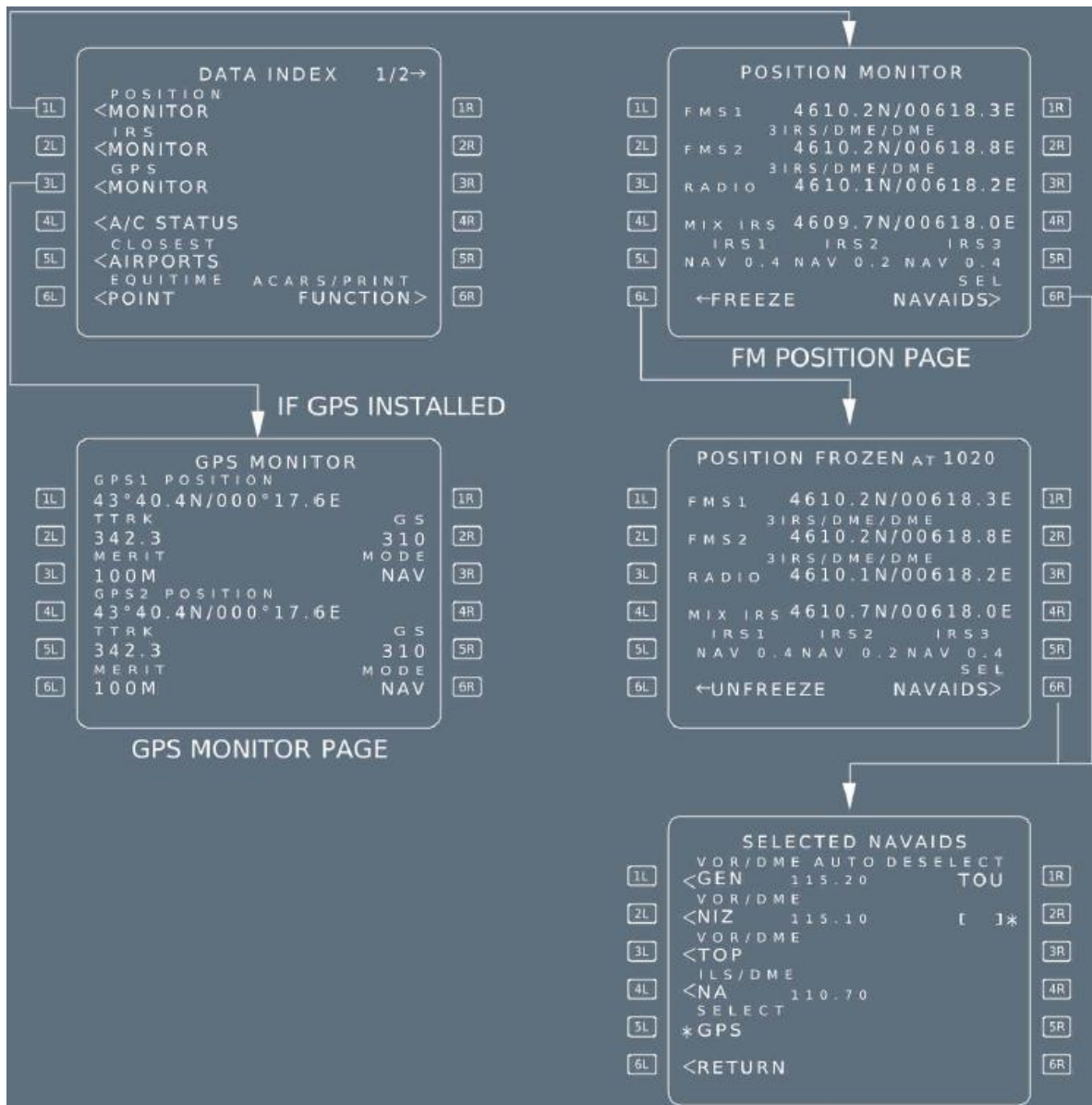
This column lists the rounded off latitudes and longitudes of the different points, using the same identifier.

### FREQ/CHAN COLUMN

This column lists the NAVAIDs frequencies, if any. It displays CHAN for a MLS.

## POSITION MONITOR PAGE

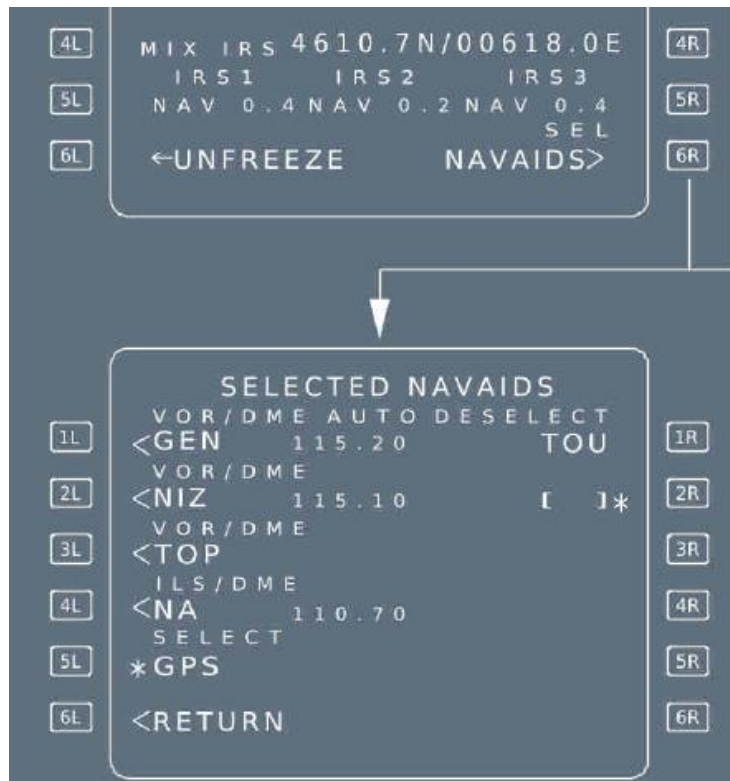
This page displays all the different positions that the FMGC has computed with the various available methods of navigation. It also shows which method obtained each position. (The positions should be almost identical).





- Line 2 FMGC 2 This line shows the latitude and longitude, as calculated by the FMGC 2, and the navigation method used.
- Line 3 RADIO or GPS or GPIRS This line shows the latitude and longitude, calculated by the onside FMGC from selected radio NAVAIDs (Example: DME/DME, VOR/DME, or LOC) or from GPS or GPIRS.
- Line 4 MIX IRS This line shows the latitude and longitude of the weighted mean inertial reference system (IRS) calculated by the onside FMGC from the available IRSs.
- Line 5 IRS 1,2,3 This line shows the deviation in nautical miles of each IRS position from the onside FMGC position. It also displays the IRS mode, which can be INVAL, ALIGN, NAV or ATT.

*Note:* INVAL is displayed when an ADIRS has failed, or the IRS position is not refreshed.

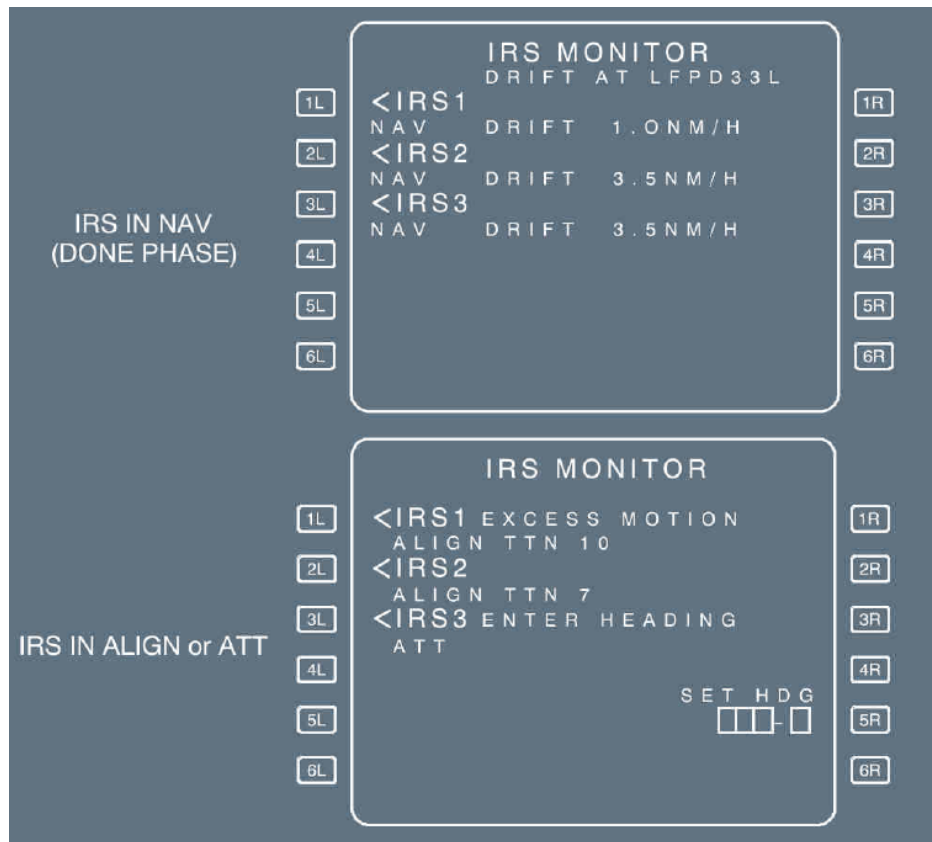
## SELECTED NAVAIDS PAGE



- Line 1 This field displays the NAVAID tuned for display purposes, and the tuning mode (AUTO, MAN, or RMP).
- Line 2 and 3 These fields display the NAVAIDs, if any, tuned for the calculation of radio position by the FMGC.
- [ 4L ] This field displays the tuned ILS, GLS , MLS , if any.
- [ 5L ] DESELECT/SELECT RADIONAV The flight crew presses this key to manually select or deselect the NAVAIDs.  
If the flight crew selects (deselects) the NAVAIDs for position calculation, “RADIONAV SELECTED” (“RADIONAV DESELECTED”) is displayed in the label line in blue small font and “DESELECT” (“SELECT”) is displayed in white large font. By default NAVAIDs are selected.  
The deselection of the RADIONAV inhibits use of radio position (either DME/DME or VOR/DME) for position calculation.
- [ 6L ] DESELECT/SELECT GPS The crew presses this key to manually select or deselect the GPS for position computation. Upon transition to the DONE phase, the prompt returns to DESELECT status.  
If the pilot deselects the GPS, “GPS IS DESELECTED” is displayed when the aircraft is less than 80 NM from the top of descent, or in approach phase.



## IRS MONITOR PAGE



[1L] to [3L] IRS 1(2) (3) These prompts allow access to the associated IRS pages. Each label line displays the mode (NAV, ALIGN, ATT or INVAL), the average drift (upon transition to DONE phase), and the Time To NAV (if IRS in align) for each IRS.

[1R] to [3R] Displays the status message of the associated IRS in small green font.

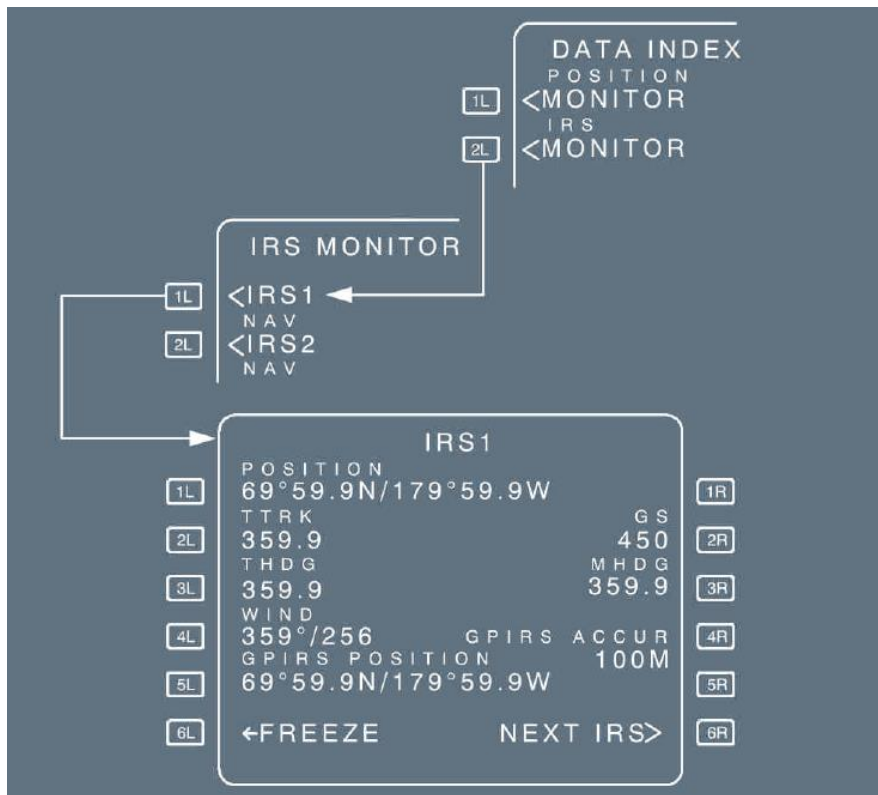
List of available messages:

- IR FAULT
- CHECK C/B
- DELAYED MAINT
- CDU FAULT
- ENTER PPOS
- ENTER HEADING
- SELECT ATT
- REENTER PPOS
- EXCESS MOTION
- SYS BELOW -15 °
- SWITCH ADR

[5R] SET HDG (white) This field is displayed, if at least one IRS is in ATT mode.

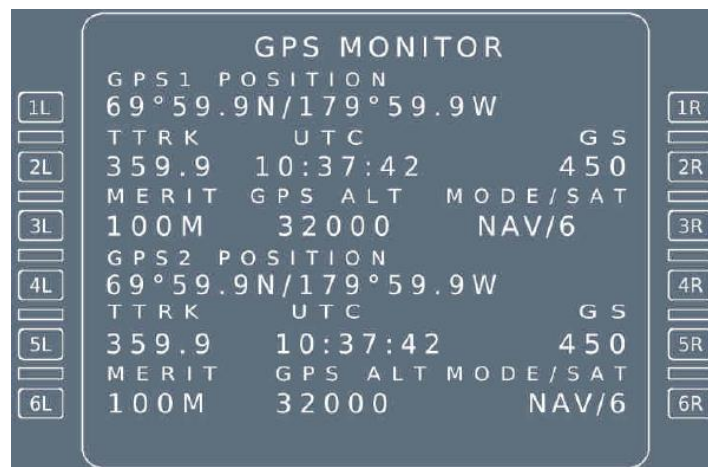
This function allows initialization of a heading for IRS in ATT mode:

- If a heading has been entered in this field, or on the ADIRS panel, the value is displayed in blue.
- If not, amber boxes are displayed.



- [5L] GPIRS GPS/IRS hybrid position of the IRS
- [4R] GPIRS ACCUR GPS/IRS Figure of Merit (meters or feet)

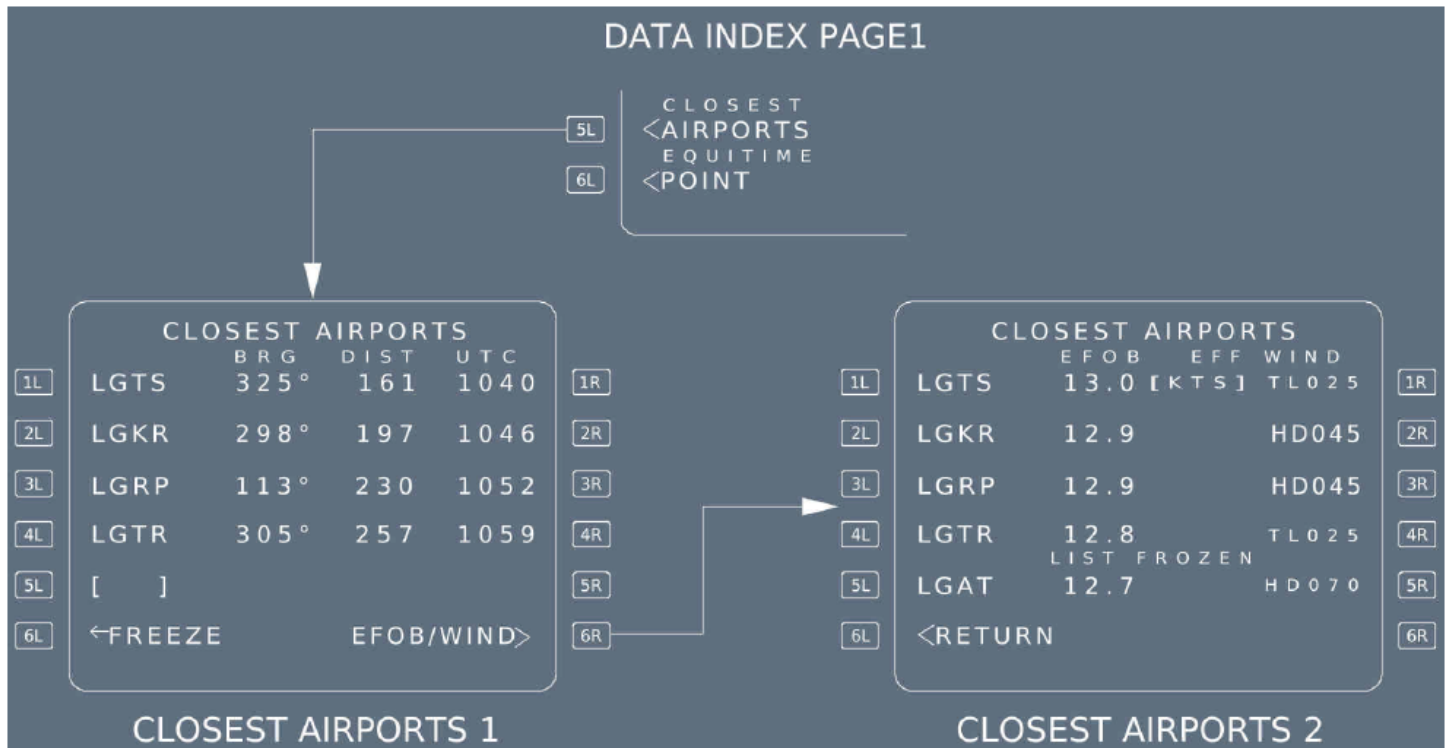
## GPS MONITOR PAGE



- [ 3L ] and [ 6L ] MERIT GPS 1, 2 figure of merit (meters or feet)
  - [ 3R ] and [ 6R ] MODE/SAT GPS 1, 2 mode (INIT, ACQ, NAV, TEST, FAULT, AIDED or ALTAID) and Number of satellites tracked.
- INIT : System initialization  
ACQ : Satellite acquisition  
NAV : Normal mode  
TEST : System test  
FAULT : Invalid system  
ALTAID/AIDED : Degraded modes. GPS uses aircraft inputs for computation purposes.

*Merit is horizontal GPS accuracy (100 meters in this picture).*

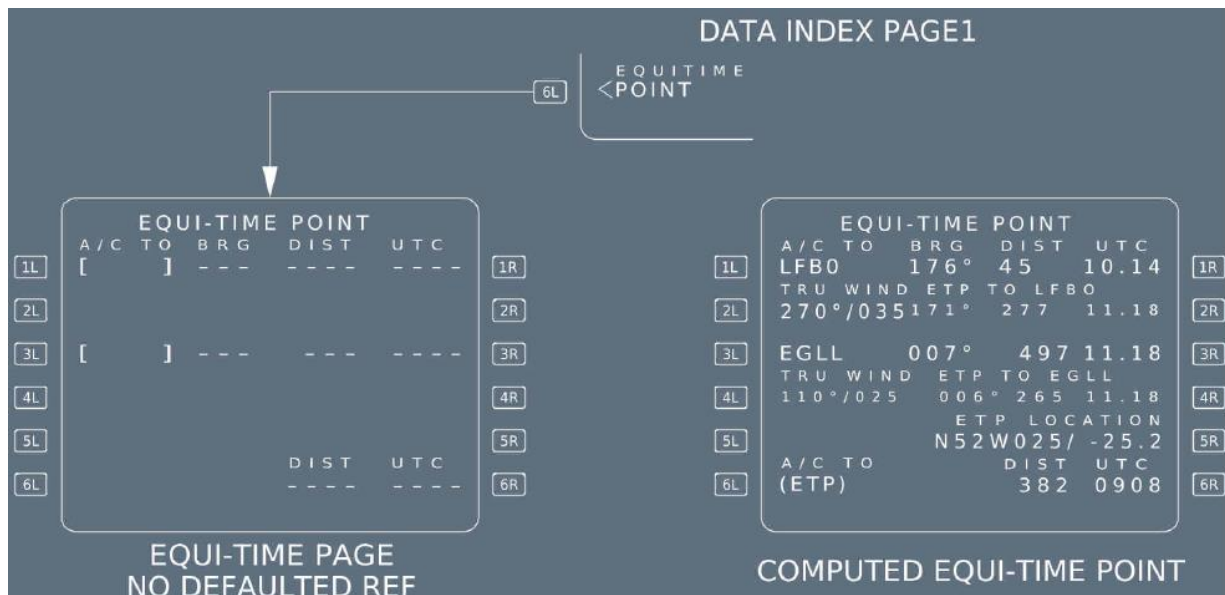
## CLOSEST AIRPORT PAGES



[1L] - [1R] EFOB to [5L] Displays the EFOB at each airport. EFOB is only computed in cruise phase.  
 - [5R] EFF WIND Used to enter an anticipated headwind or tailwind along the bearing to the airport. If the entry is preceded by +, T, or TL, a tailwind is assumed. If the entry is preceded by -, H, or HD, a headwind is assumed. Before pilot entry, a default value may be displayed, based on the current wind.

[6R] EFOB/WIND Gives access to page 2.  
 Pressing this prompt automatically freezes the list of the four closest airports.

## EQUI-TIME POINT PAGE



[2L] and [4L] TRU WIND (blue)      The pilot may enter the wind (direction/velocity) at the reference waypoint and the CRZ FL:

*The wind to be inserted is the wind in the vicinity of the reference point at the CRZ FL.*

[1R] BRG/DIST/UTC and [3R] (green)      Displays the bearing, distance, time, from the aircraft's current position to the reference waypoint 1.

Displays the bearing, distance, time, from the current position of the aircraft to the reference waypoint 2.

[2R] and [4R] EPT TO XXX (green)      This field displays the bearing distance and the time from the equitime point position (ETP) to the reference waypoint.

[5R] ETP LOCATION      This field displays the ident of the next waypoint following the equitime point. It provides the distance along the flight plan from the equitime point to the indicated waypoint.

*The system displays the ETP location with regards to the next waypoint of the active flight plan following the ETP in the [5R] field, and the A/C TO (ETP) predictions in the [6R] field.*

[6L] - [6R] A/C TO (ETP) DIST/UTC (green)      This field displays the distance and time from the aircraft's current position to the equitime point along the flight plan.

*The ETP pseudo-waypoint is not displayed on the MCDU F-PLN page. In order to easily locate it, or when closing the applicable ETP, the TIME MARKER may be used; this allows the crew to visualize it in advance on the F-PLN page or, to prepare the next applicable ETP on the Equi-time Point page*

*The time marker is inserted in the flight plan according to time criteria, irrespective of the key chosen for entry.*

The diagram illustrates the MCDU F-PLN page with the following data:

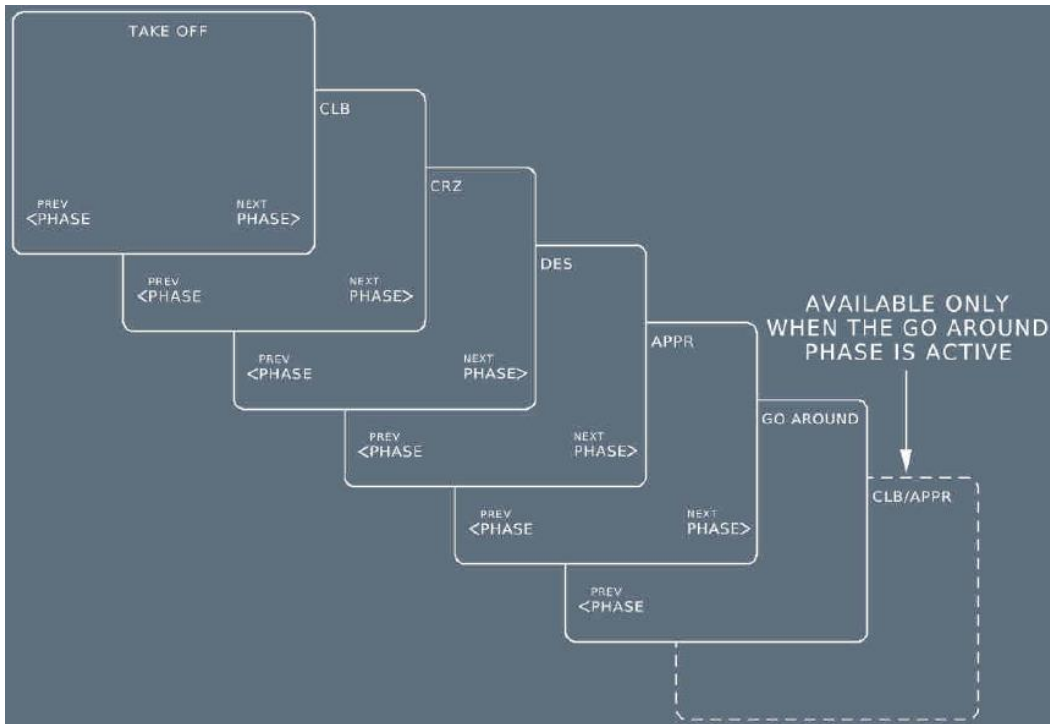
FROM	UTC	SPD/ALT	A1101 →
AGN	1149	/* FL120	
	BRG 006°	24NM	
LACOU	1152	280/*FL205	
	TRK 005	49	
(T/C)	1159	.78/FL330	
		43	
LMG	1205	"/"	
U RIO		96	
AMB	1217	"/"	
DEST	UTC	DIST	EFOB
EGPLL27R	1300	352	6.3
1210			↑↓

Annotations in the diagram:

- 2 ENTER**: Points to the 2L key.
- 1 WRITE TIME MARKER**: Points to the 6L key.
- TIME MARKER PSEUDO-WAYPOINT**: Points to the 5L key.
- Prediction are recomputed. Time marker pseudo-waypoint is inserted along the active F-PLN (MCDU and ND)**: A note on the right side of the diagram.

*Up to four time markers may exist at a time. An attempt to enter a fifth time marker will cause the "TIME MARKER LIST FULL" message to appear on the scratchpad.*

# PERF PAGES



## Engine-out condition

- When the FMGS detects an engine-out condition, the system automatically calls up the performance page for the current flight phase (except when this occurs before the diversion point during takeoff or no EOSID exists in the flight plan) and displays "EO CLR\*" in the [1R] field and EO LRC (engine-out long range cruise) in the [2L] field. On the CLB, CRZ and DES (when the descent phase is not active) PERF pages, the pilot can enter a cost index value and overwrite to "EO LRC". Clearing the cost index reverts to EO LRC. If the pilot presses the [1R] key, the system reverts to the normal processing (with no engine failed) and suppresses the EO information. (Refer to DSC-22\_20-30-10-15 General).
- If the engine-out condition is detected before the diversion point at takeoff, a temporary flight plan is created.

The screenshot shows a performance page for the CLB phase. The page displays various parameters including ACT MODE, SPD, CI, EO LRC, ECON, SPD/MACH, PRED TO FL370, and UTC. The page is titled 'CLB' and 'CLIMB PHASE ACTIVE ENGINE OUT IS DETECTED'. The parameters are as follows:

Field	Value
ACT MODE	CLB
SPD	270
CI	1220
EO CLR *	EO CLR *
EO LRC	PRED TO FL370
ECON	UTC
SPD/MACH	300/.80
	270/.76
	1110
	23
ACTIVATE	NEXT PHASE >
< APPR PHASE	

CLIMB PHASE ACTIVE  
ENGINE OUT IS DETECTED

# PERF TAKEOFF PAGE

**TAKE OFF RWY 33R**

V1 FLP RETR F=157  
 VR SLT RETR TO SHIFT  
 V2 CLEAN FLAPS/THS  
 0=224 [ ]/[ ]  
 TRANS ALT FLEX TO TEMP  
 4800 [ ]  
 THR RED/ACC ENG OUT ACC  
 2000 /3000 2265  
 UPLINK NEXT  
 < TO DATA PHASE >

**TAKE OFF RWY 33R**

V1 FLP RETR F=157  
 VR SLT RETR TO SHIFT  
 V2 CLEAN FLAPS/THS  
 0=224 2/UP 3.4  
 TRANS ALT FLEX TO TEMP  
 4800 35°  
 THR RED/ACC ENG OUT ACC  
 2000 /3000 2865  
 UPLINK NEXT  
 < TO DATA PHASE >

Flaps/Slats retraction speeds and green dot speeds, provided by the FMGC once aircraft GW has been computed

If the takeoff shift, or the flaps/THS, or the runway is changed after V1, VR or V2 insertion, but the origin airport remains the same, the MCDU “CHECK TAKE OFF DATA” message appears. All takeoff parameters are retained except in case of runway change. In case of runway change, the parameters are invalidated, but still displayed adjacent to each field. The “CONFIRM TO DATA” prompt in [6R] allows reverting to the previous values.

When the flight crew selects an altitude on the FCU that is below THR RED, it brings THR RED and ACC down to this altitude. (The 400 ft minimum still applies).

1. If the flight crew does not enter V2, the SRS mode will be unavailable at takeoff.
2. The MCDU “V1/VR/V2 DISAGREE” amber message appears if the inserted V1, VR, V2 speeds do not satisfy the condition:  $V1 \leq VR \leq V2$ .
3. The MCDU “TO SPEED TOO LOW” amber message appears if the inserted V1, VR, V2 speeds do not satisfy the existing regulatory conditions regarding VMCG/VMCA and VS1G speeds.

[2R] TO SHIFT

The takeoff shift is the distance in meters or feet between the beginning of the runway and the aircraft's takeoff position. When taking off from an intersection, the flight crew should insert this value to ensure a correct update of the FM position. The takeoff shift value must be positive, and cannot be greater than the runway length.

[3R] FLAPS/THS

This is a flight crew entry for the positions of the flaps and the trimmable horizontal stabilizer (THS) at takeoff. The flight crew can modify it until takeoff, by entering “UP X.X” or “X.X UP”, or “DN X.X” or “X.X DN” for the THS.

[6R] NEXT PAGE or CONFIRM TO DATA\*

This key calls up the climb performance page, or allows the flight crew to revert to the previously-entered T.O. parameters, in case of runway change with the same origin airport.

## PERF CLIMB PAGE

The image displays two screenshots of the PERF CLIMB PAGE. The top screenshot shows the 'CLIMB PHASE NOT ACTIVE' state. The bottom screenshot shows the 'CLIMB PHASE ACTIVE (speed manually selected 270)' state.

**CLIMB PHASE NOT ACTIVE:**

- 1L: ACT MODE
- 2L: CI
- 3L: MANAGED
- 4L: PRESEL \* [ ]
- 5L: PRED TO FL250
- 6L: <PHASE
- 1R: CLB
- 2R: UTC
- 3R: DIST
- 4R: PRESEL
- 5R: NEXT PHASE
- 6R: >PHASE

**CLIMB PHASE ACTIVE (speed manually selected 270):**

- 1L: ACT MODE
- 2L: CI
- 3L: MANAGED
- 4L: SELECTED
- 5L: EXPEDITE 1012
- 6L: <APPR PHASE
- 1R: CLB
- 2R: UTC
- 3R: DIST
- 4R: PRESEL
- 5R: NEXT PHASE
- 6R: >PHASE

[4L] PRESEL or  
SELECTED

If the climb phase is not active:

This field displays PRESEL as long as the climb phase is not active. The pilot can enter a preselected speed only.

[2R] PRED TO...

This field displays the target altitude for the predictions shown in 3R, 4R, or 5L. It defaults to FCU altitude, but the pilot can modify it to any altitude below CRZ FL.

## PERF CRUISE PAGE

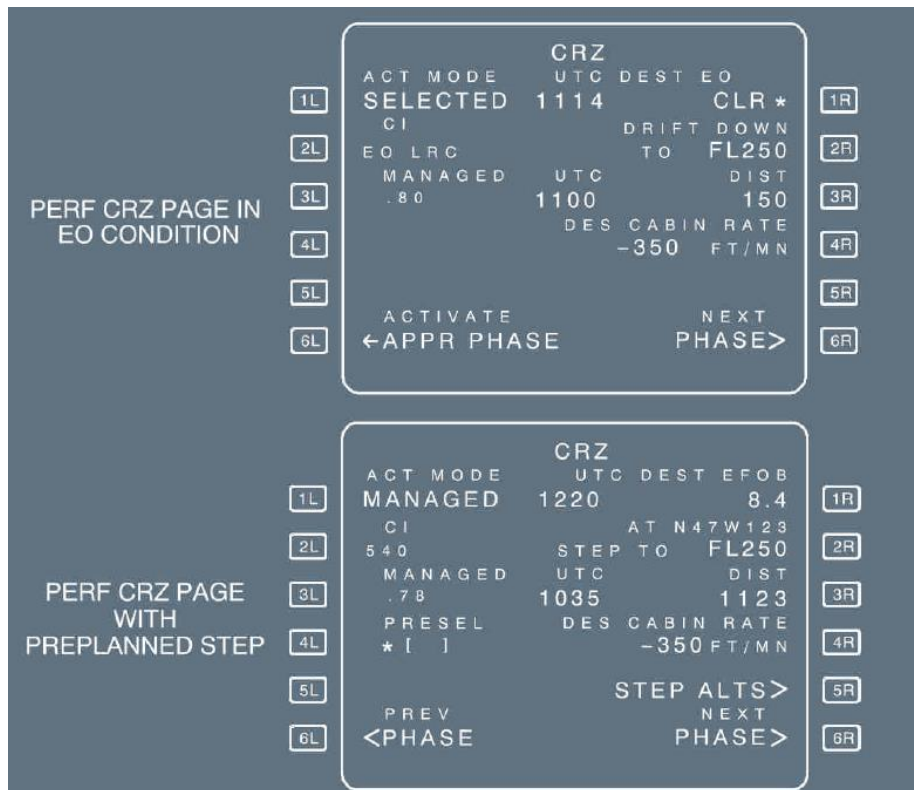
The image displays two screenshots of the PERF CRUISE PAGE. The top screenshot shows the 'CRZ PHASE NOT ACTIVE' state. The bottom screenshot shows the 'CRZ PHASE ACTIVE' state.

**CRZ PHASE NOT ACTIVE:**

- 1L: ACT MODE
- 2L: CI
- 3L: MANAGED
- 4L: PRESEL \* [ ]
- 5L: DES CABIN RATE
- 6L: <PHASE
- 1R: CRZ
- 2R: UTC
- 3R: DEST
- 4R: EFOB
- 5R: STEP ALTS
- 6R: NEXT PHASE

**CRZ PHASE ACTIVE:**

- 1L: ACT MODE
- 2L: CI
- 3L: MANAGED
- 4L: DES CABIN RATE
- 5L: ACTIVATE
- 6L: <APPR PHASE
- 1R: CRZ
- 2R: UTC
- 3R: DEST
- 4R: EFOB
- 5R: STEP ALTS
- 6R: NEXT PHASE



[ 1R ] TIME/UTC DES  
EFOB

After takeoff it displays the predicted arrival time at destination (UTC) and the remaining fuel on board (DEST EFOB) at destination, in green font. The DEST EFOB field will turn to amber, if the EFOB at destination becomes less than the MIN DEST FOB value displayed on the FUEL PRED page. EO CLR is displayed when an engine-out is detected.

[3L] MANAGED

This field displays the FMGS computed ECON speed/Mach

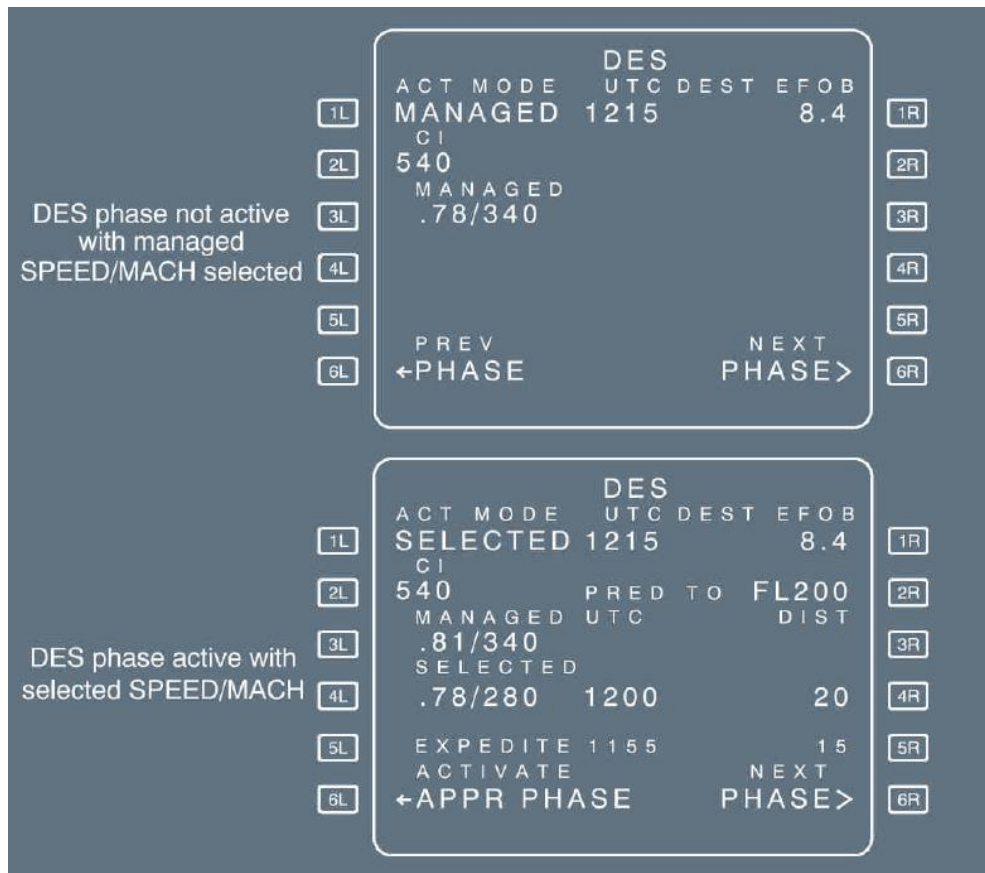
[4L] PRESEL

*If the flight crew enters a value in the PRESEL field during the cruise altitude capture (ALT CRZ\*), the FCU selected speed may revert to M 0.01.*

*If the pilot inadvertently activates the approach phase, he can reselect the cruise flight level from the progress page, in order to reactivate the cruise phase.*



## PERF DESCENT PAGE



[3L] MANAGED

If the descent phase is active:

The flight crew cannot make an entry in this field.

The field displays the ECON speed/Mach or the speed/Mach value previously entered by the pilot.

EXPEDITE

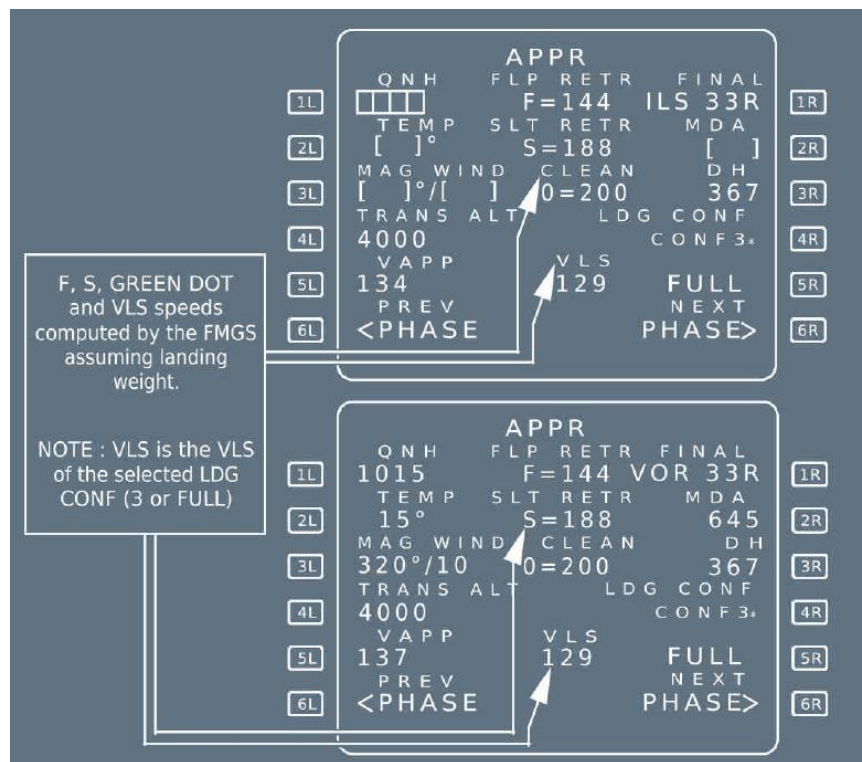
Displays this legend if the descent phase is active.

It indicates the time and distance required to reach the altitude displayed in the 2R field at MMO/VMO speed. The pilot cannot select the EXPEDITE mode through this field.

[2R] PRED TO...

This field displays the target altitude for the predictions in [3R] [4R], or [5R]. The display defaults to the altitude selected on the FCU. The flight crew can modify it to any altitude lower than present altitude.

## PERF APPR PAGE



### PERF APPR Page (with BARO/RADIO option)



[1L] QNH

This field displays brackets, when the aircraft is more than 180 NM from the destination. Inside 180 NM, a mandatory amber box appears. The flight crew must enter the QNH in hectopascals (hPa) or in inches of mercury (inches of Hg). The value is either entered in hPa or inches of Hg:

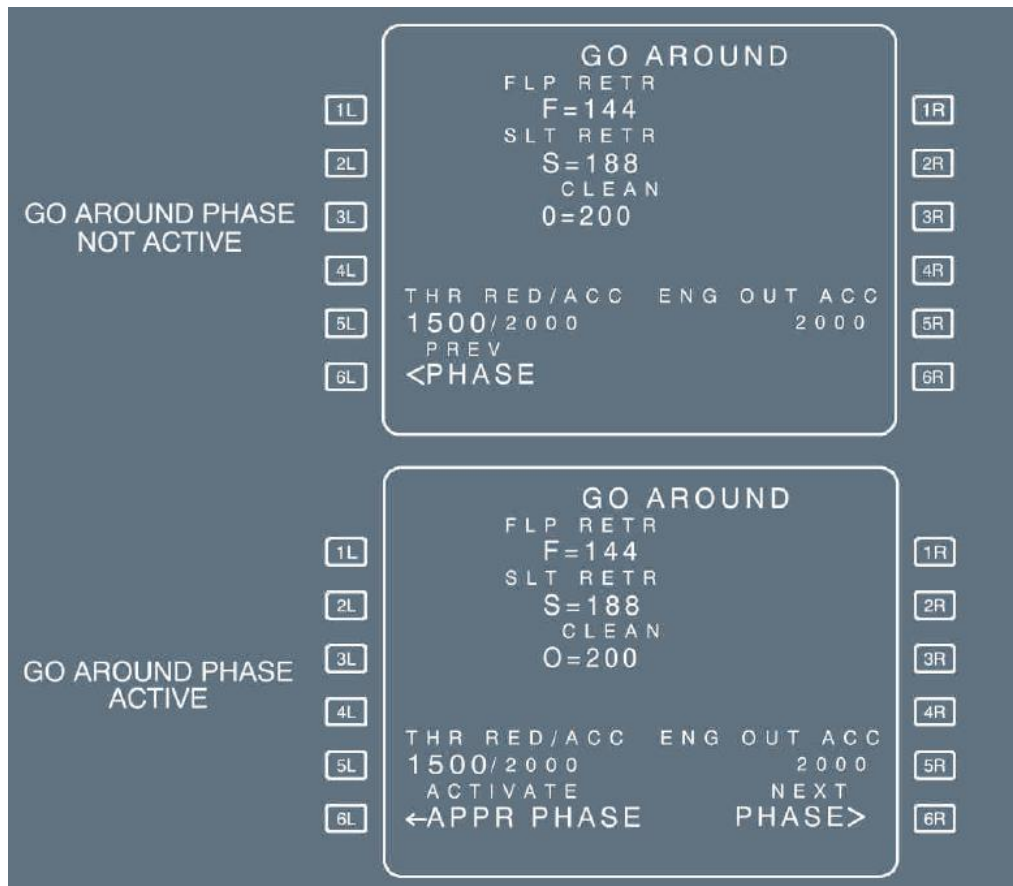
ENTER DEST DATA message appears in amber on the scratchpad when within 180 NM of the destination and data is not entered. The Cabin Pressure Controller uses the QNH to compute the cabin re-pressurization segment. Therefore, an erroneous QNH entry (e.g. OAT entry like 22 etc, which is accepted by the system) may result in a cabin pressurization that is not appropriate.

[5L] VAPP

The FMGC computes this approach speed, using the formula:  
 $VAPP = VLS + 1/3 \text{ of the headwind components (limited to } VLS + 5 \text{ as a minimum and } VLS + 15 \text{ as a maximum).}$   
 The flight crew can modify VAPP. A clear action reverts VAPP to the computed value.

Note:  $VLS = 1.23 VS1G \text{ of the selected landing configuration (full or 3).}$

## PERF GO AROUND PAGE



When the go-around phase is active, if the pilot enables ALTN or if the pilot inserts a new destination in the active flight plan and a new cruise flight level on the progress page, the go-around phase shifts automatically into the climb phase. (The target speed jumps from green dot speed to initial climb speed).

### **Thrust reduction altitude:**

- Altitude at which thrust must be reduced from takeoff/go-around thrust to maximum climb thrust
- "CLB" or "LVR CLB" flashing on flight mode annunciator
- Defaults to 1 500 ft above destination runway elevation, or to the altitude set by the airline
- Can be modified by the crew (minimum 400 ft above destination runway elevation).

### **Acceleration altitude:**

- Altitude at which target speed jumps to green-dot speed (see the note below)
- Defaults to 1 500 ft above destination runway elevation, or to the altitude set by the airline.
- Can be modified by the crew, but is always equal to (or higher than) the thrust reduction altitude.

# PROG PAGES

PROG

TO AI101

CRZ FL290	OPT	REC MAX -----
--------------	-----	------------------

1L 1R

2L <REPORT 2R

3L UPDATE AT 3R

4L \* [ ] 4R

5L BRG/DIST 5R

6L ---°/--- TO [ ] 6R

PREDICTIVE

5L <GPS GPS PRIMARY 5R

6L REQUIRED ACCUR ESTIMATED 6R

1.0 NM HIGH 0.85 NM

TO PHASE

PROG

UP AI101

CRZ FL290	OPT	REC MAX FL350 FL390
--------------	-----	------------------------

1L 1R

2L <REPORT 2R

3L UPDATE AT 3R

4L \* [ ] 4R

5L BRG/DIST 5R

6L ---°/--- TO [ ] 6R

PREDICTIVE

5L <GPS GPS PRIMARY 5R

6L REQUIRED ACCUR ESTIMATED 6R

2.0 NM HIGH 0.16 NM

CLIMB PHASE

PROG

CRZ AI101

CRZ FL290	OPT	REC MAX FL350 FL390
--------------	-----	------------------------

1L 1R

2L <REPORT 2R

3L CONFIRM UPDATE AT 3R

4L 4353.3N/00052.4E AGN\* 4R

5L BRG/DIST 5R

6L ---°/--- TO [ ] 6R

PREDICTIVE

5L <GPS GPS PRIMARY 5R

6L REQUIRED ACCUR ESTIMATED 6R

2.0 NM HIGH 0.16 NM

CRUISE PHASE

PROG

DES AI101

CRZ -----	OPT	REC MAX --- FL390
--------------	-----	----------------------

1L 1R

2L <REPORT VDEV=+750 FT 2R

3L UPDATE AT 3R

4L \* [ ] 4R

5L BRG/DIST 5R

6L ---°/--- TO [ ] 6R

PREDICTIVE

5L <GPS GPS PRIMARY 5R

6L REQUIRED ACCUR ESTIMATED 6R

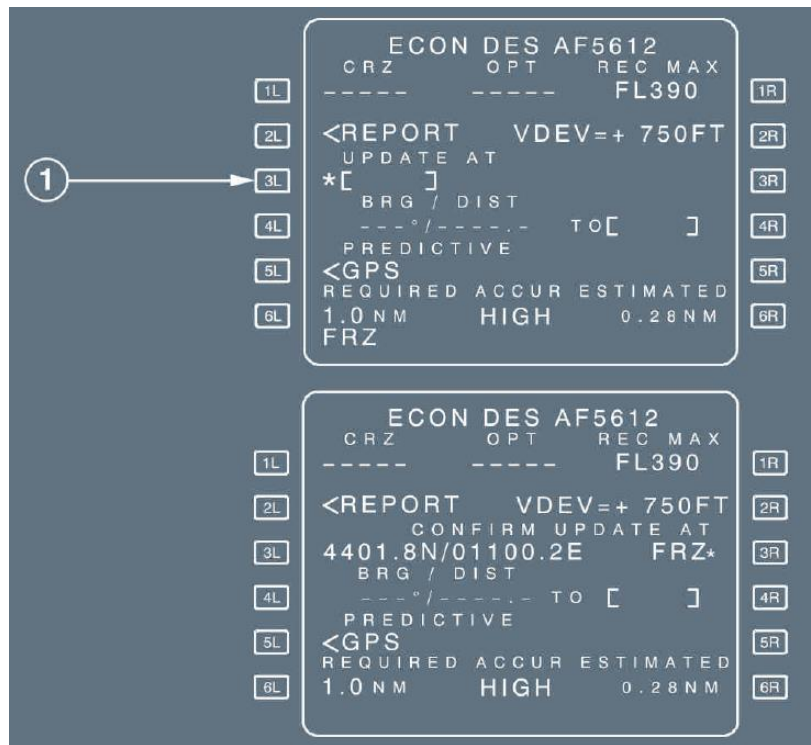
2.0 NM HIGH 0.16 NM


DESCENT PHASE

OPT This field displays the optimum flight level (in green), that is computed based on the current gross weight, cost index, temperature and wind. This flight level requires a 5 min minimum cruise at a minimum cruise flight level of FL 100.

REC MAX This field displays the recommended maximum altitude (in magenta), that is computed based on the current gross weight and temperature, and assuming that the anti-ice is off (if icing conditions are expected, Refer to QRH/PER-M Optimum & Maximum Altitudes (Paper Only) or the performance application of FlySmart with Airbus). It provides the aircraft with a 0.3 g buffet margin, a minimum rate of climb at MAX CL thrust, and level flight at MAX CRZ thrust. This field is limited to FL 398. If one engine is out, this field displays the recommended maximum engine-out altitude, that is computed based on the long-range cruise speed and assuming that anti-ice is off.

[2R] VDEV This field is displayed during the descent and approach phases, when NAV mode is engaged, or in HDG mode, provided that the crosstrack error (XTK) is less than 5 NM. It displays the vertical deviation between the aircraft's current altitude and the FMS-computed vertical profile.



UPDATE AT  the IDENT of a waypoint, a NAVAID, an airport, a latitude and longitude (LL), a place/bearing/distance, or a place-bearing/place-bearing (PBX). When the flight crew has entered this data, this field changes its format to: "CONFIRM UPDATE AT", followed by the latitude/longitude and IDENT of the inserted position with an asterisk. The flight crew presses the right-hand key adjacent to the asterisk to confirm the update, when the aircraft overflies the inserted position.

Note: If no IDENT has been inserted, the field displays "ENTRY" instead of an IDENT.

## PREDICTIVE GPS PAGES

This page displays information relative to theoretical predictive availability of GPS PRIMARY at destination, and at any waypoint selected by the crew.

- Note:
1. This page is only operative with Honeywell ADIRS.
  2. This page cannot be used as a substitute to determine pre-flight planning RAIM availability when required by operational regulations. Refer to PRO-NOR-SOP-02 GPS PRIMARY Availability (If Installed).

[1R] ETA This field is defaulted to the Estimated Arrival Time, as computed by the FMS (small blue font). The pilot may enter a value in this field

Line 2 PRIMARY Y/N Predicted primary status at destination airport, at the following times: Estimated time of arrival  $\pm 5, 10, 15$  min. Availability of GPS PRIMARY at the corresponding time is indicated by Y, when PRIMARY is predicted to be available; and, by N, when GPS PRIMARY is predicted not to be available.

## REPORT PAGE

The pilot calls this page by pressing the [2L] key on the PROG page:

The image shows three sequential screenshots of the REPORT PAGE, each with a 6-line keypad (1L-6L on the left, 1R-6R on the right).

**Top Screenshot:** Shows the initial menu. Line 2L has a highlighted [2L] key. The display shows: <REPORT, UPDATE AT, BRG/DIST, PREDICTIVE, <GPS, REQUIRED ACCUR, 0.36NM HIGH.

**Middle Screenshot:** Shows the 'REPORT PAGE IN PREFLIGHT PHASE'. The display shows: REPORT A1101, OVHD, UTC, ALT, TO, AGN, 1028, 5000, NEXT, AUCH, 1036, FL145, SAT, T.WIND, FOB, DEST, UTC, DIST, EFOB, LFBZ, 1110, 396, 2.0.

**Bottom Screenshot:** Shows the 'REPORT PAGE IN FLIGHT'. The display shows: REPORT A1101, OVHD, UTC, ALT, LMG, 1013, FL380, TO, AGN, 1028, FL380, NEXT, AUCH, 1036, FL380, SAT, T.WIND, FOB, -42°, 145°/063, 18.0, T/D, UTC, DIST, AT FL380, 1055, 302, SEND\*, DEST, UTC, DIST, EFOB, LFBZ, 1110, 396, 2.0.

## RADIO NAV PAGE

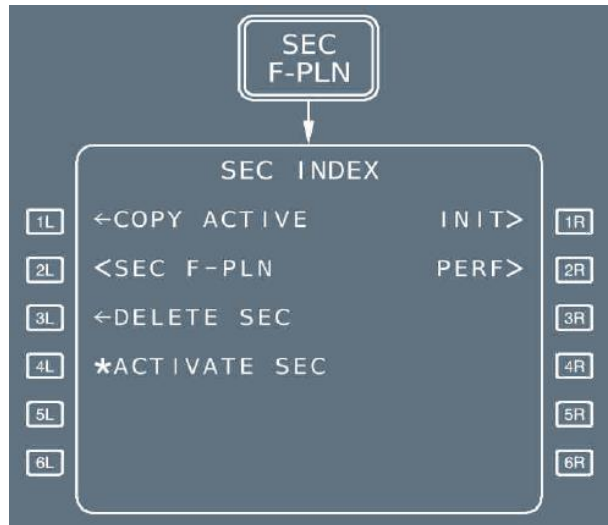
The image shows the RADIO NAV PAGE, accessed via the [RAD NAV] key. The display shows: RADIO NAV, VOR1/FREQ, FREQ/VOR2, STU/113.10, 112.5/ TGO, CRS, CRS, ILS /FREQ, ISW/109.90, CRS SLOPE, 227 -3.0, ADF1/FREQ, FREQ/ADF2, TOE/415.00, ←ADF1 BFO.

This page enables the pilot to select or verify the radio NAVAIDs, tuned for display purposes only. These NAVAIDs include: VOR, VOR/DME, TAC, VORTAC, ILS, and ADF.

Line 6 ADF1/BFO  
BFO/ADF2

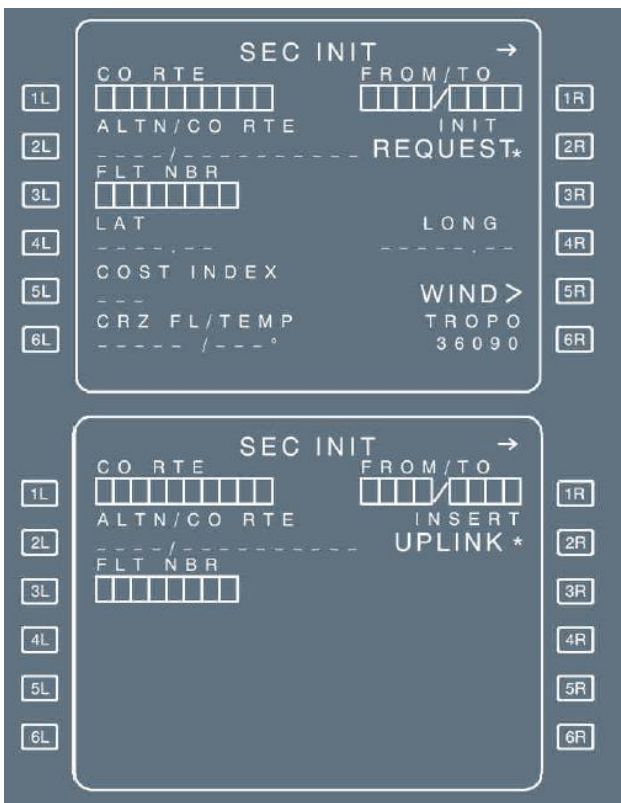
When an ADF is selected, these fields display an ADF/BFO prompt. The flight crew presses the key once to erase the arrow and put the ADF in BFO mode. A clear action brings the arrow back and cancels BFO.

## SECONDARY FLIGHT PLAN PAGES



*“ACTIVATE SEC” routinely appears if the HDG/TRK mode is active. If the NAV mode is active, “ACTIVATE SEC” appears only if the active and secondary flight plans have a common active leg.*

The secondary flight plan pages A and B are identical to those of the active flight plan, but are automatically sequenced, only when the secondary is copied from the primary and their active legs are identical.



A new flight plan can be created inflight through the SEC F-PLN via its INIT and PERF page. The INIT Page B will only appear if the existing SEC F-PLN is first deleted.





## MCDU MESSAGES AND DATA FORMAT LIST

Ref: FCOM > Auto Flight > Flight Management > Controls and Indicators

Example of Messages:

MESSAGE	TYPE/COLOR	CONDITIONS
A/C POSITION INVALID	II/A	The aircraft position has become invalid. If the message has been cleared and the flight crew attempts to call up the HOLD at PPOS or DIR TO page while the aircraft position is still invalid, then the message is displayed again.

[Download the complete message list](#)

Example of Data Format:

DATA NAME	FORMAT	RANGE (X is input)	UNITS	DISPLAY PAGE
THS	AAN.N or N.NAA where AA is UP or DN	max UP 7.0 max DN 5.0 increment 0.1	degrees	PERF TAKEOFF

[Download the complete data format list](#)

## AOC (AIRLINE OPERATIONAL CONTROL) FUNCTIONS

The FMS AOC function gives an interface between a ground station and one onboard FMGC, allowing data transmission between these two computers via the ACARS Management Unit or the ATSU.

Two different sets of message can be exchanged:

UPLINK messages from the ground station. They consist in reception of data requested or directly sent to the crew.

DOWNLINK messages from the FMGC (master). They consist in reports or requests sent to the ground station.

The FMGS/ACARS or FMGS/ATSU interface enables the following AOC capabilities.

- F-PLN initialization (flight plan and performance data)
- Takeoff data
- Wind data
- Flight reports
- Broadcast data

Crews can send message using ACARS FUNCTION pages or relevant MCDU pages. Only one FMGC talks to the ground station. This FMGC is called FMGC "master".

### GENERAL SCRATCHPAD MESSAGES

NOT XMITTED TO ACARS: A crew request or report was sent to the ground but the communication was not established or not acknowledged.

NO ANSWER TO REQUEST : A crew request was previously sent to the ground and no answer (uplink message) was received within 4 min.





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