POLITECNICO DI MILANO



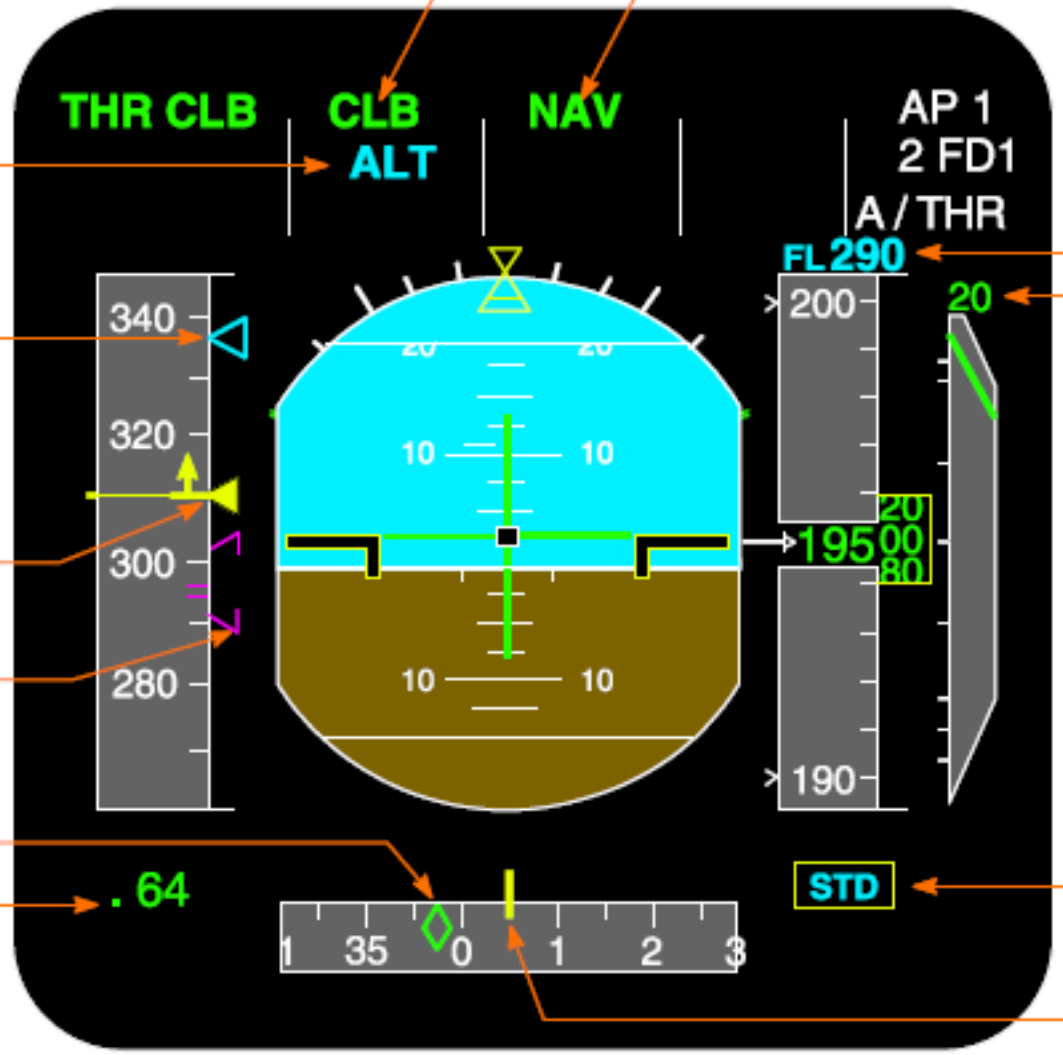


USE OF AUTOPILOT, FLIGHT DIRECTOR & FLIGHT MANAGEMENT SYSTEM

Course of: *Aircraft Instrumentation & Integrated Systems*
Professor: *Alberto Rolando*

April 11th, 2022

PRIMARY FLIGHT DISPLAY (PFD)
CLIMB PHASE



Normal AFS operational configuration

ALT acquire armed

Selected altitude

Speed select index from FMGS or FCU

Vertical speed 2000 ft minute

Actual airspeed and speed trend

ECON speed range

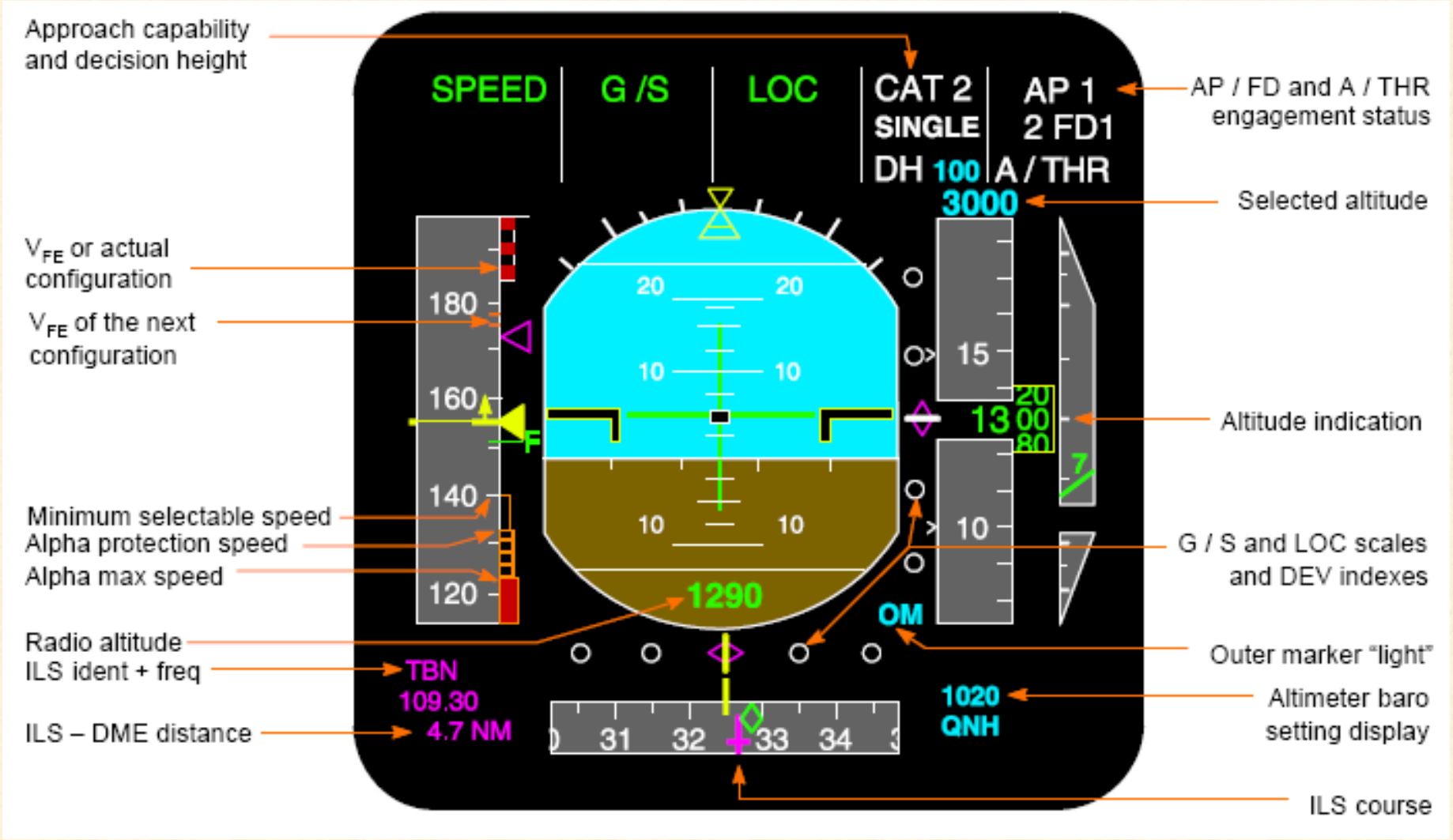
Aircraft track

Mach number

Altimeter baro/STD setting display

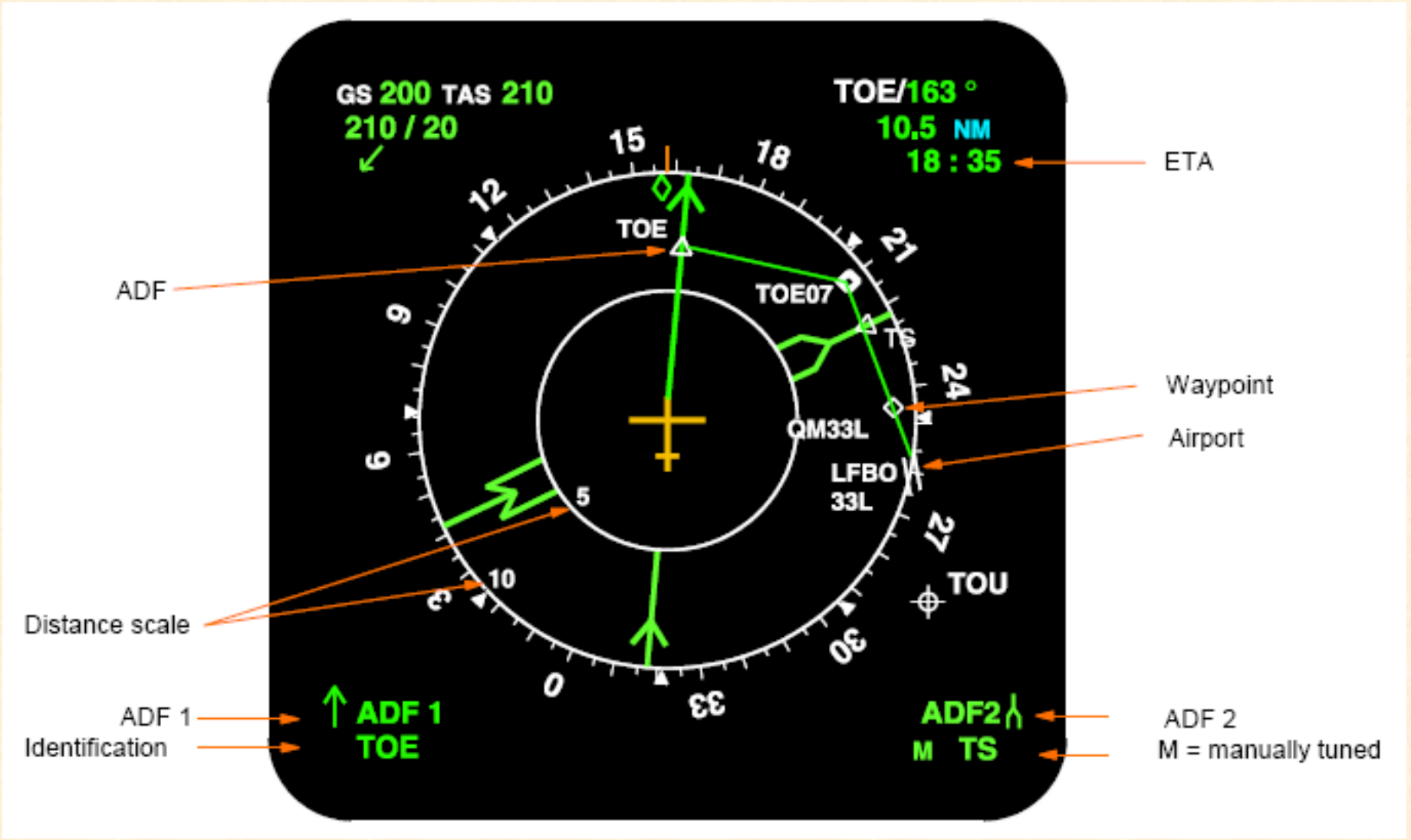
Magnetic heading reference

PRIMARY FLIGHT DISPLAY (PFD)
ILS APPROACH PHASE



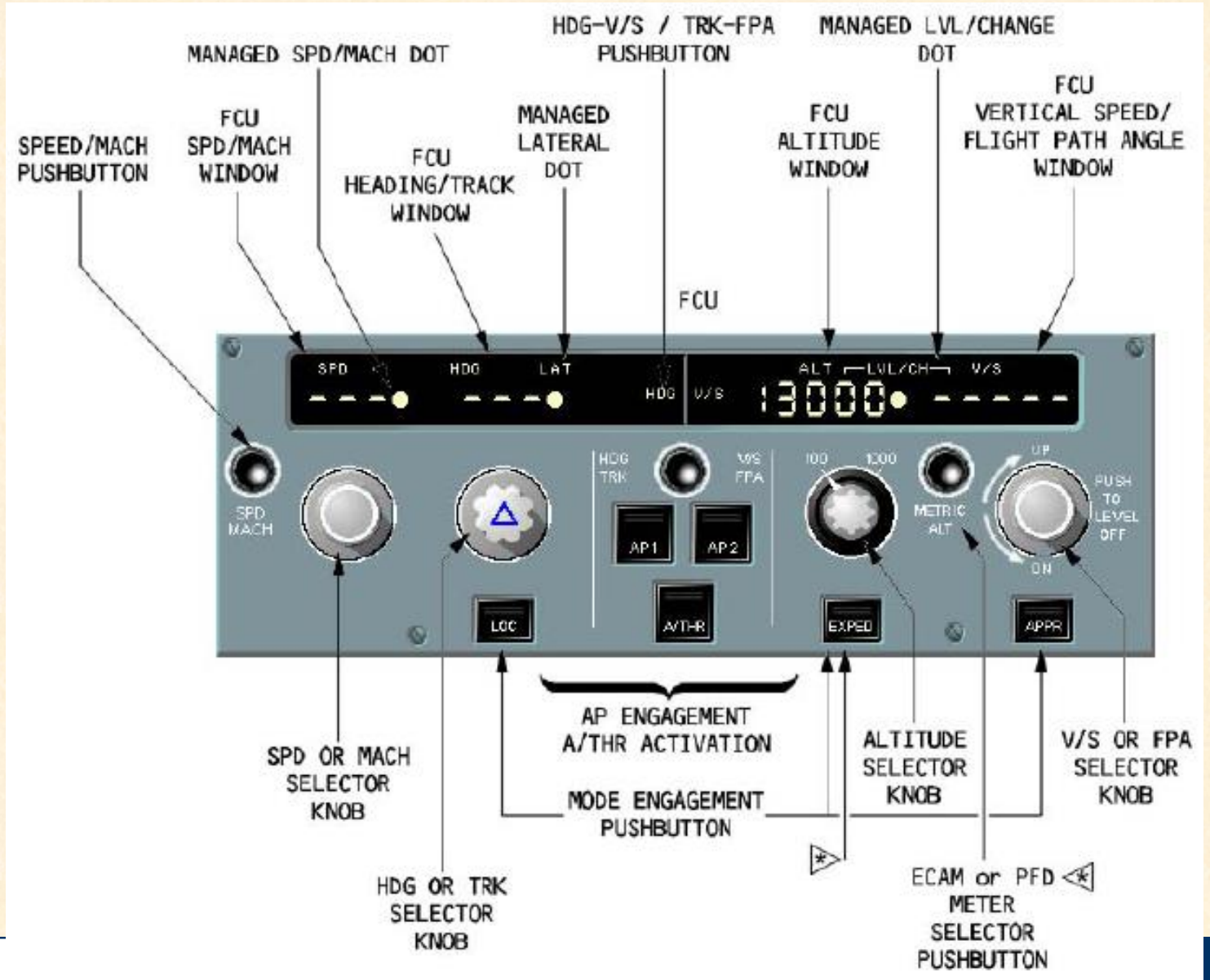
NAVIGATION DISPLAY (ND)

ROSE NAV



PFD & ND SELECTOR PANEL

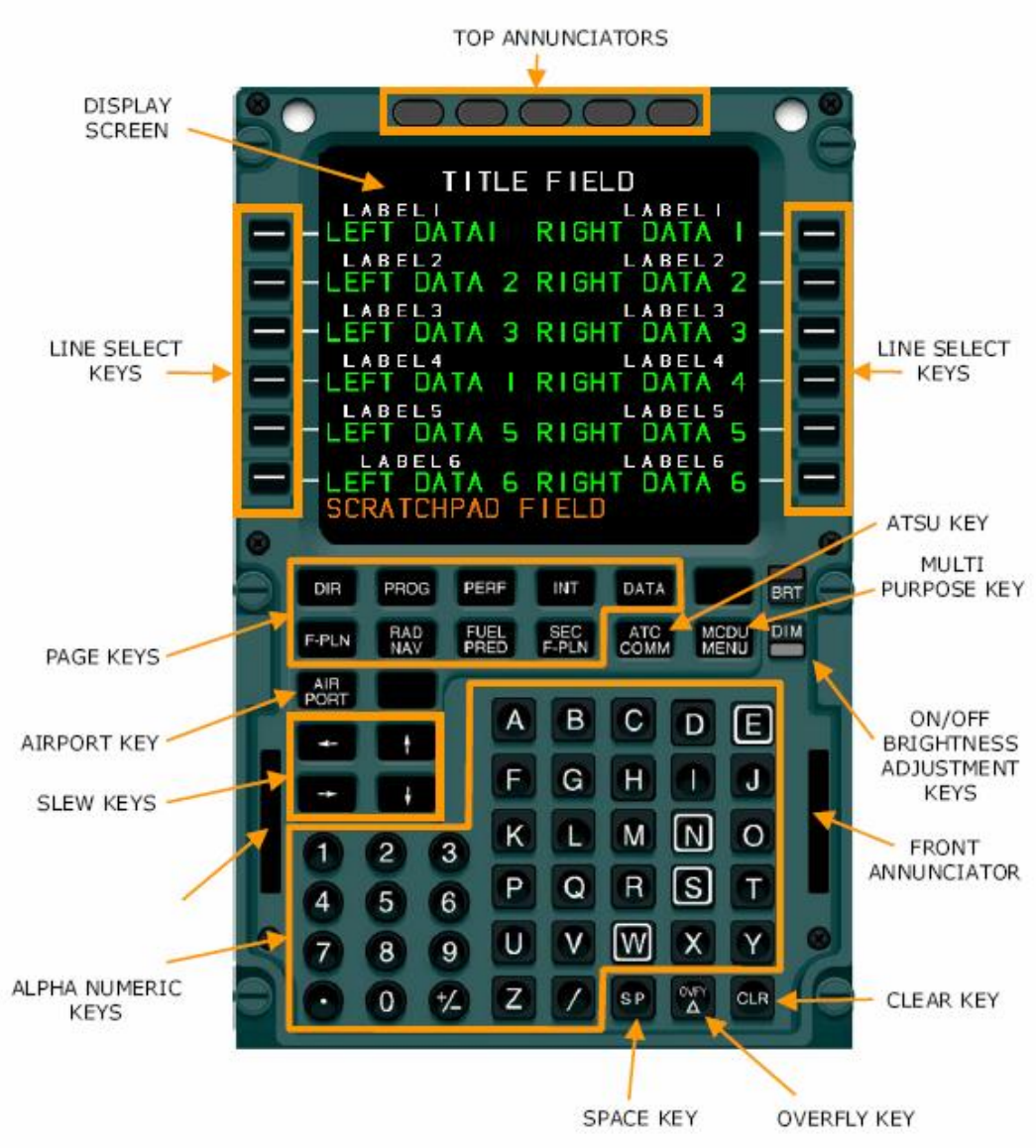
FLIGHT CONTROL UNIT (FCU)
AUTOPILOT & FLIGHT DIRECTOR



POLITECNICO DI MILANO

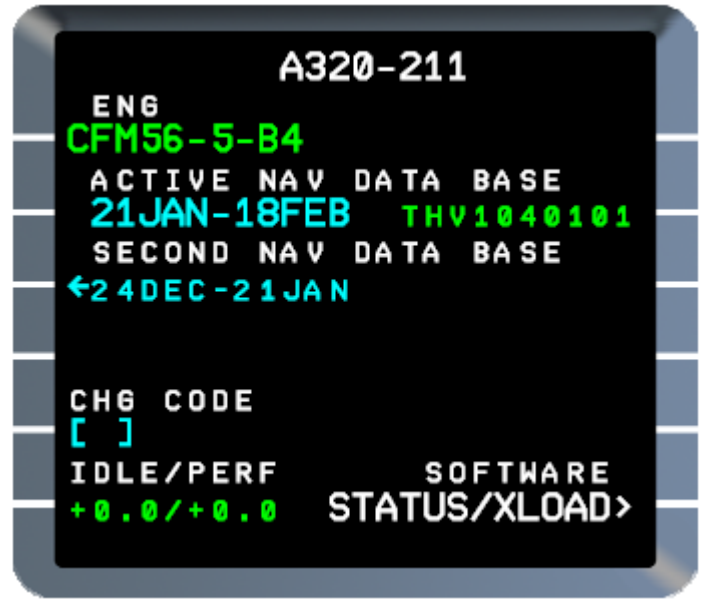
FMGS

Flight
Management
(navigation)
&
Guidance
System
(autopilot)
+
Reading of
CFDS
(Centralized Fault Display System)
from MCDU
(Multifunction Control Display Unit)



FMGS PREPARATION SUGGESTED PATTERN

MCDU PAGES



STATUS page

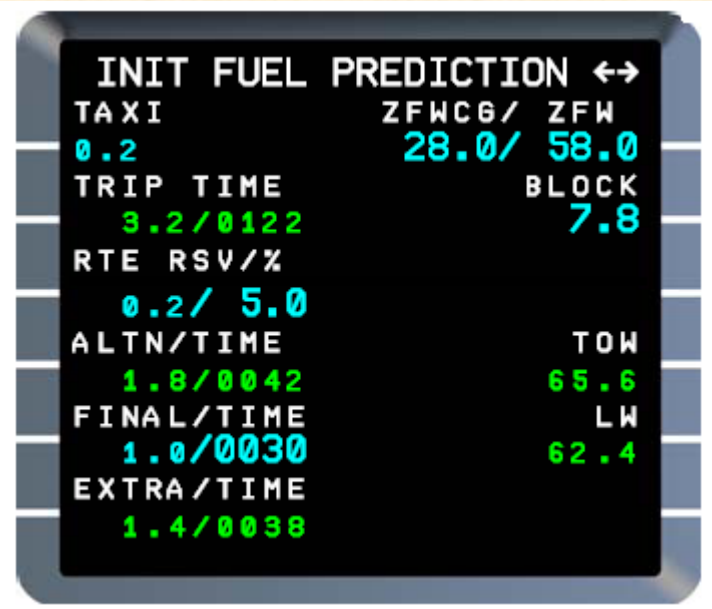
INIT1 page

COST INDEX: per minimizzare il costo dello specifico volo, il C.I. esprime il miglior compromesso tra **costi operativi orari** e consumo di **carburante**.

C.I. = 0 → Max Autonomia Chilometrica

Se C.I. >> → Velocità volo >>

MCDU PAGES



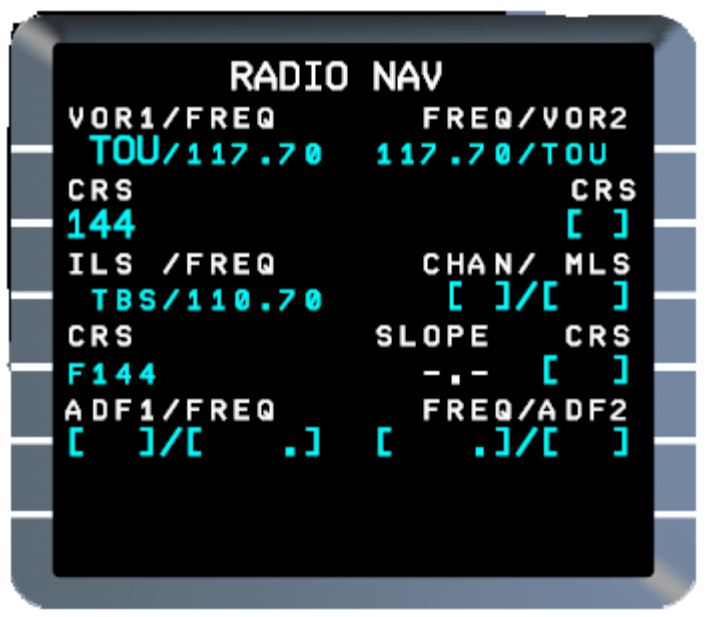
INIT2 page

FLIGHT PLAN

MCDU PAGES

PERFORMANCE page

FUEL prediction page



RADIO NAV

OPT ALT. Consente di ottenere la max autonomia chilometrica, assegnati:

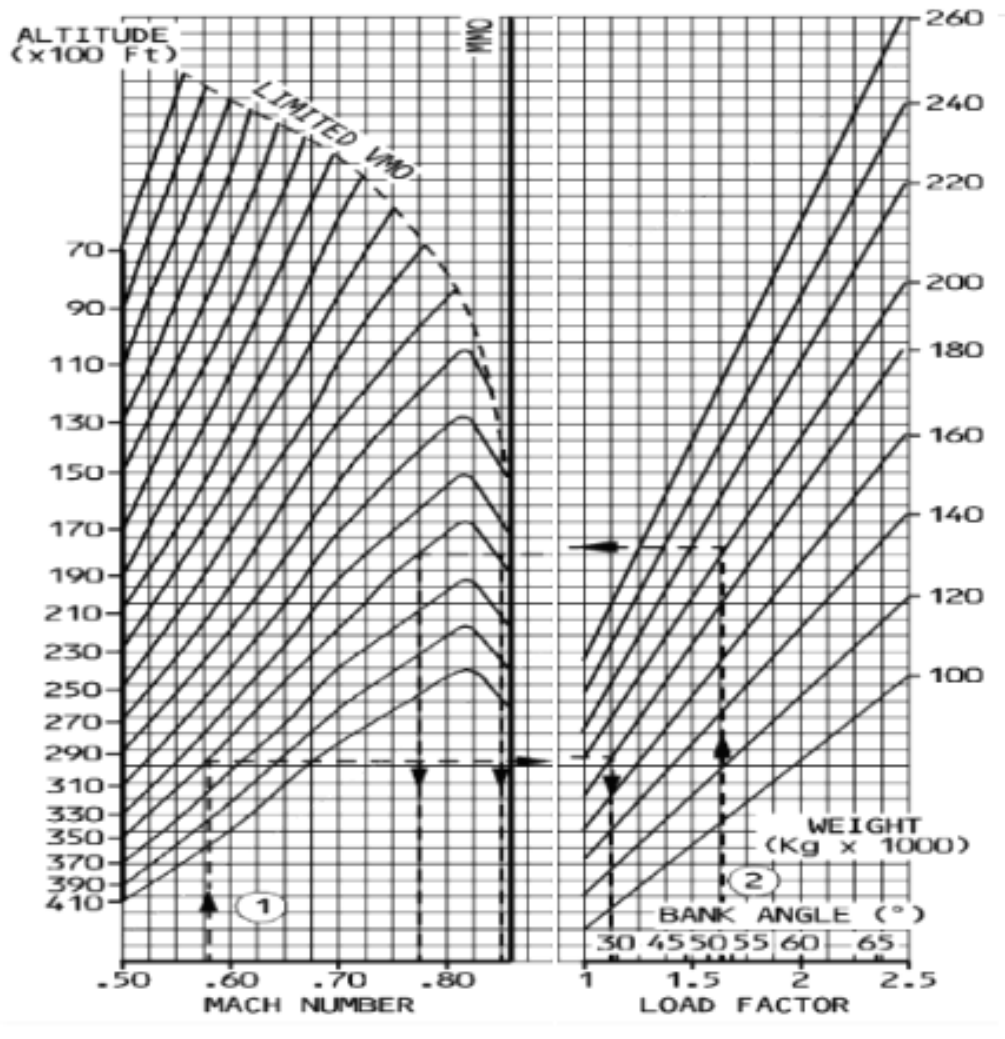
- Peso velivolo
- Cost Index

PROGRESS

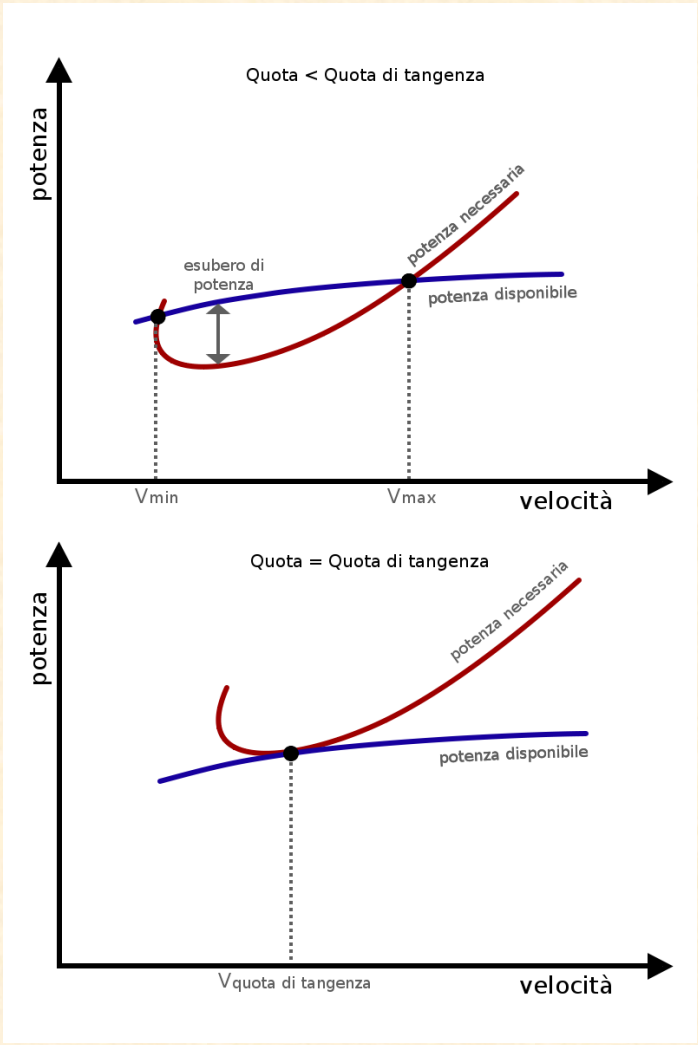
MAX ALT. E' la minore delle due quote di tangenza (con un margine su entrambe):

- Aerodinamica (buffet onset)
- Propulsiva (Potenze Nec. e Disp.)

AERODYNAMIC and PROPULSION CEILING



FCOM A330 - Airbus



https://it.wikipedia.org/wiki/Quota_di_tangenza#/media/File:Tangenza_potenza_vs_velocit%C3%A0.png

STEP CLIMB STRATEGY