Pilot Initial

CRJ-550 Instructor Whiteboard

Session 2

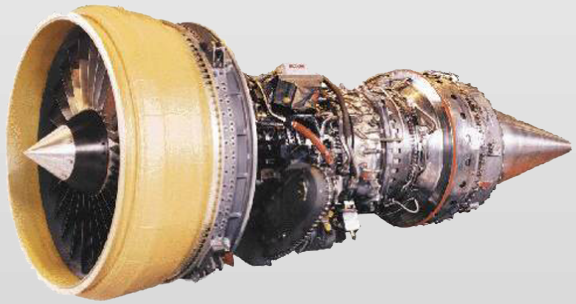
Flight Number 4502

Briefing Items

- External Air and Cross Bleed Starts
- Abnormal Starts
- Low Visibility Taxi and Takeoff
- Non-Precision Approaches and CANPA
- 2 Engine Missed Approach
- Holding (SAFE Check)
- Inflight Engine Shutdown and Restart
- Upset Training Low Altitude Elements

External Air and Cross Bleed Starts

A Normal Start occurs when the APU is supplying electrical and bleed air with the Anti-Ice Off and is complete when the engine reaches idle values.



Supplementary Procedures

- Cross Bleed (Blue Checklist)
- External Air (QRH 1)
- Battery / External Air (QRH 1)

Cross Bleed (Blue Checklist)

ENGINE START – CROSS-BLEED

BLEED VALVES..... AUTO

ECS page..... Select and monitor

Thrust lever (operating engine)..... Advance to achieve 42 psi to a maximum of 80% N_2

Engine..... START

NOTE

If thrust lever was advanced to achieve 42 psi, reduce to idle after starter cutout.

External Air (QRH 1)

MHIRJ	SUPP 2-1
	Rev. 27, Sep 18/2019

GENERAL NOTES, CAUTIONS AND WARNINGS

NOTE

1. Accomplish all the normal checklists up to and including the "Cleared to start" checklist before performing the following supplementary procedures for engine start.
2. If an external source is required, it should be capable of supplying a minimum of 30 psig (ISA conditions) manifold pressure at the initiation of start. ECS synoptic page indicates manifold pressure in psig (psi = psig).

ENGINE START – EXTERNAL AIR

(1) BLEED VALVES ..... CLSD
(2) L or R ENG ..... START

——— END ———

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ENGINE START – BATTERY / EXTERNAL AIR

(1) FUEL, L BOOST PUMP ..... On
(2) BLEED VALVES ..... CLSD
(3) L ENG START ..... START

——— END ———

Normal Start

Usually, the right engine is started first. On the first flight of the day, however, the left engine is started first to verify the fuel check valve.

The following engine instrument verification is required (silent):

Oil pressure : Verify increasing

ITT : Verify below 120C

N_2 20%: L or R thrust lever to IDLE

L or R AUTO IGNITION msg: Appears

Fuel flow: Verify increasing

Light-off : Verify increase in ITT

N_2 50%: Verify L or R ENGINE START status message disappears
(if not call for QRH 2 **NO STRTR CUTOUT**)

L or R AUTO IGNITION msg: Disappears

The following parameters indicate a stable engine at ISA:

N_2 : 55 – 65% rpm

Fuel flow : Approximately 480 lbs/hr

Oil pressure: Greater than 25 psi

Abnormal Starts

What are the indications of, and what checklists do we call for the following?

L START VALVE or R START VALVE

L START ABORT or R START ABORT

NO STRTR CUTOUT

Engine Hot Start

Engine Hung Start

L or R ENG OIL PRESS

L ENG FIRE or R ENG FIRE

Post-Start Engine Limitations

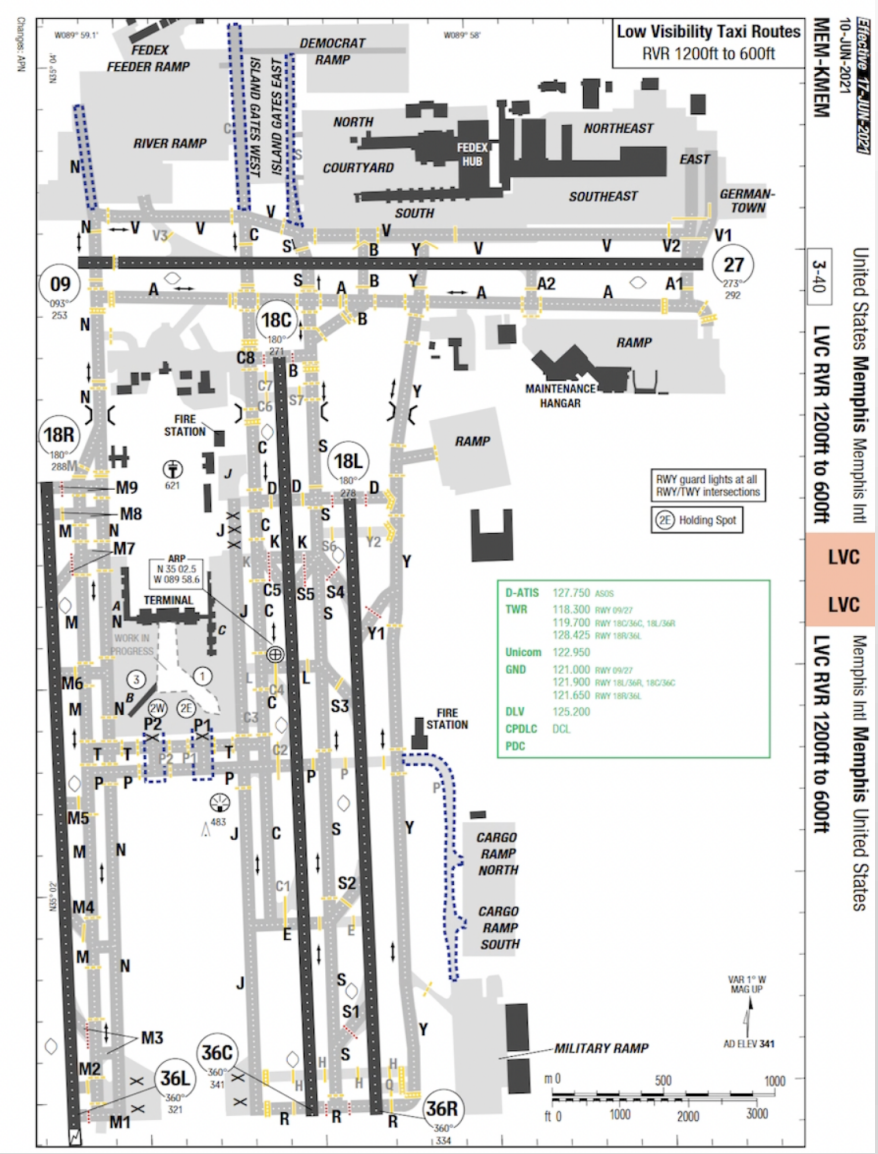
- The engine must remain at IDLE until oil pressure reaches normal operating range.
- During all starts, do not exceed 75% N_1 for two (2) minutes after start, or until all operating indications are in the normal range, whichever is longer.

Low Visibility Taxi

GOM 3-1.4.1

Extra caution should be used during the taxi of aircraft during times of low visibility. These items should include, but not limited to: not using checklists, extra awareness in location on the airport (referencing the airport diagram low visibility taxi charts), attention to signage, using available references in the cockpit (heading indications), development/briefing of the planned taxi route, transcription of taxi instructions, not stopping on a runway, use of standard readback instructions (using full call sign and flight number).

Maintaining a sterile cockpit should alleviate all unwanted distractions, make sure to read back all changes in taxi clearances. When in doubt ask, better to ask and be certain, than to be involved in an incursion. Be sure that both crewmembers are aware of aircraft position and direction at all times, and that if you are unsure about any aspect of the taxi, to clarify. The PIC should brief the SIC that if he feels there is an imminent danger of an incursion, to feel free to stop the aircraft.

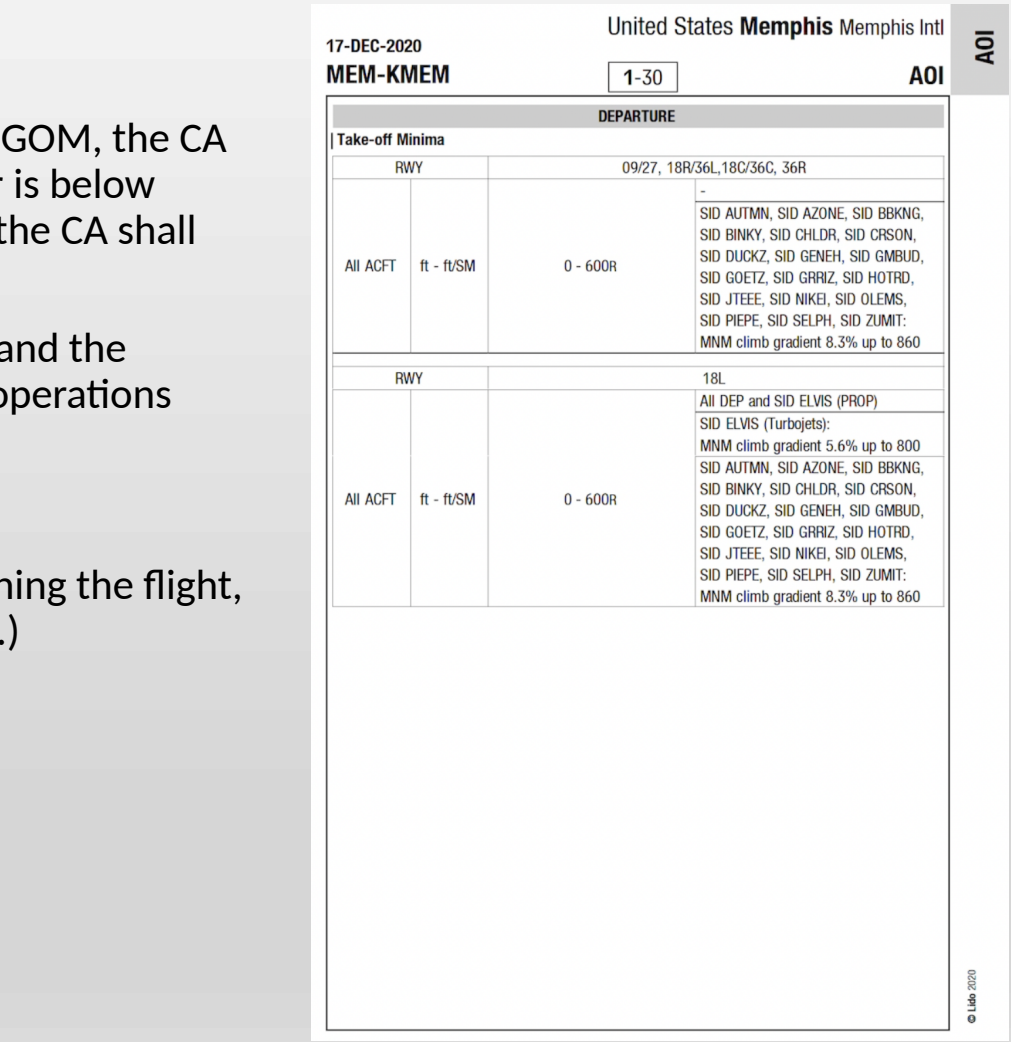


Low Visibility Takeoff

SOP 1-4.19

Except as otherwise allowed by the GOM, the CA will make the takeoff when weather is below landing minimums. Prior to takeoff the CA shall brief the F/O on the following:

- Current reported RVR or visibility and the visibility required for takeoff (from operations specifications and approach plates).
- Filed takeoff alternate.
- Any other particular items concerning the flight, (e.g., MEL items, CAS messages, etc.)



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AOI

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MEM-KMEM 1-30 **AOI**

DEPARTURE

Take-off Minima

RWY		09/27, 18R/36L,18C/36C, 36R	
All ACFT	ft - ft/SM	0 - 600R	- SID AUTMN, SID AZONE, SID BBKNG, SID BINKY, SID CHLDR, SID CRSON, SID DUCKZ, SID GENEH, SID GMBUD, SID GOETZ, SID GRRIZ, SID HOTRD, SID JTEEE, SID NIKEI, SID OLEMS, SID PIEPE, SID SELPH, SID ZUMIT: MNM climb gradient 8.3% up to 860

RWY		18L	
All ACFT	ft - ft/SM	0 - 600R	All DEP and SID ELVIS (PROP) SID ELVIS (Turbojets): MNM climb gradient 5.6% up to 800 SID AUTMN, SID AZONE, SID BBKNG, SID BINKY, SID CHLDR, SID CRSON, SID DUCKZ, SID GENEH, SID GMBUD, SID GOETZ, SID GRRIZ, SID HOTRD, SID JTEEE, SID NIKEI, SID OLEMS, SID PIEPE, SID SELPH, SID ZUMIT: MNM climb gradient 8.3% up to 860

Low Visibility Takeoff

SOP 1-4.19

Prior to advancing the thrust levers on takeoff, the CA will visually verify with outside references that the aircraft is lined up on the proper runway heading. The visual references to be used may include but are not limited to:

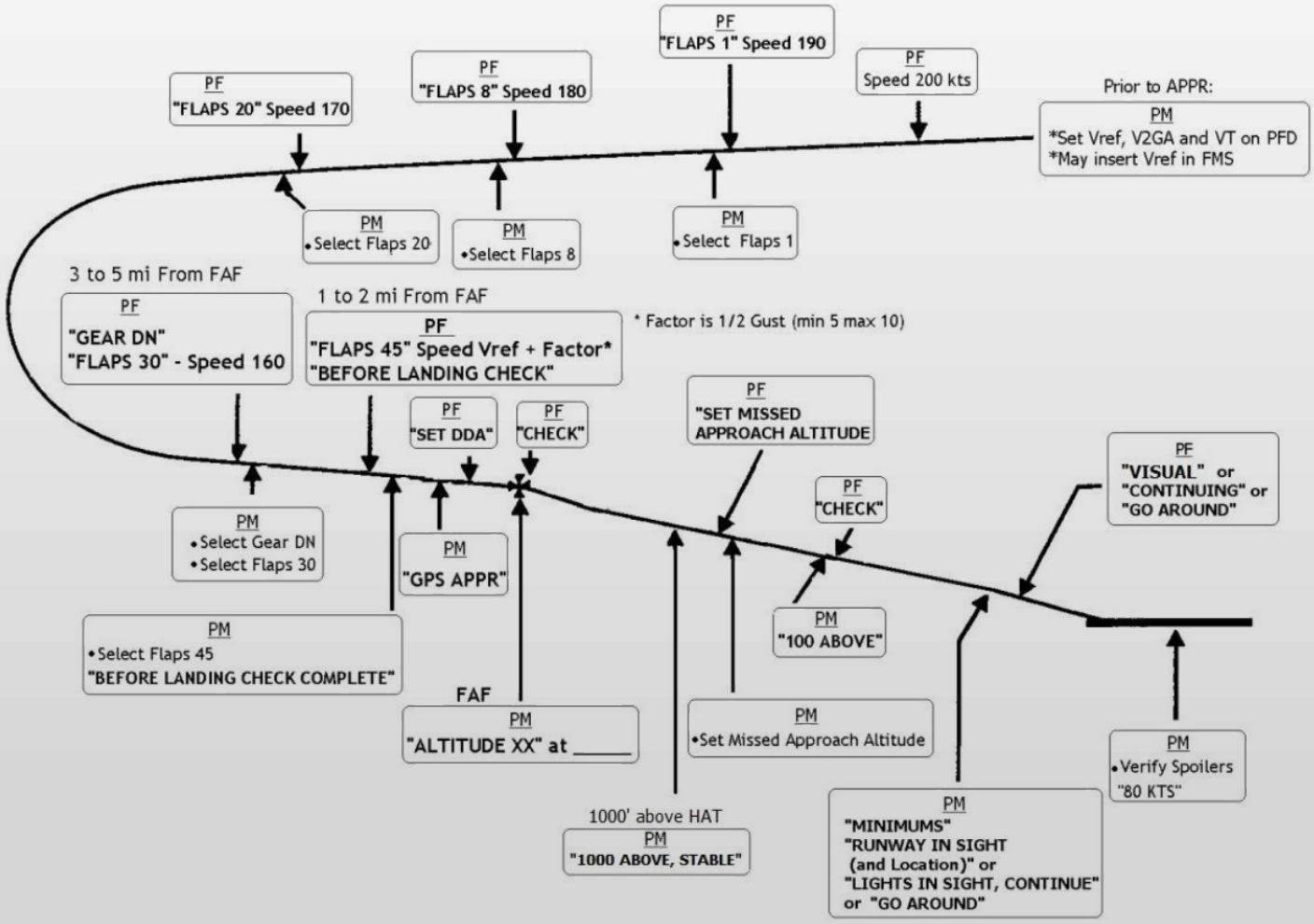
- Operative high intensity runway lights
- Operative runway centerline lights
- Runway centerline markings
- Adequate visual reference with outside references

Note: Consult Operations Specifications for applicable references to be used at specific RVR values.

On the takeoff roll, the CA will maintain outside visual reference until VR . The F/O will monitor the PFD, MFD and CAS throughout the takeoff and initial climb, and will announce any sign of instrument or system failure or heading deviation during the takeoff roll.

C078 . IFR Lower Than Standard Takeoff Minima, 14 CFR Part 121 Airplane Operations - All Airports

Two Engine CANPA Approaches

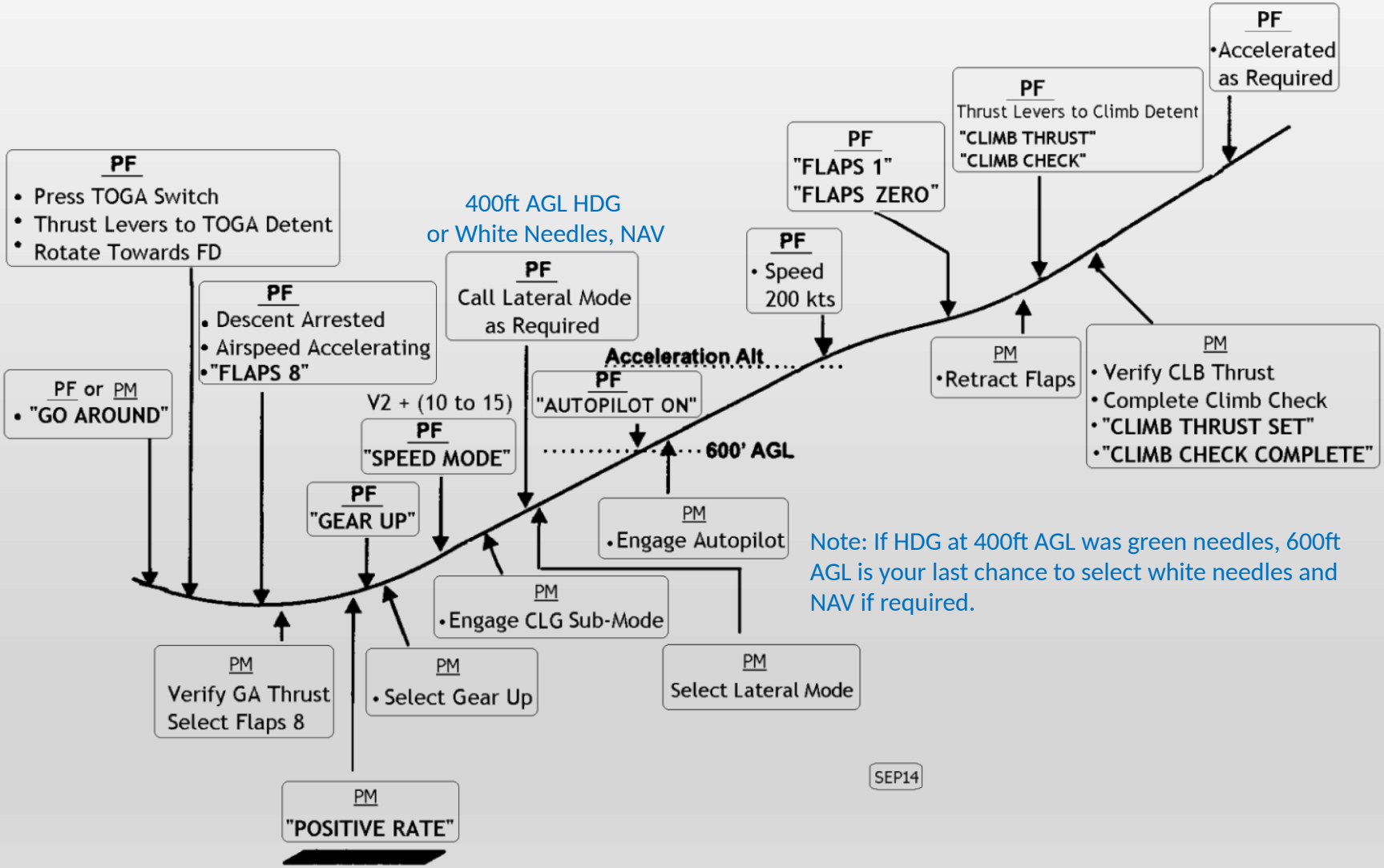


Note: Pilot Flying may request the preselect of next altitude when cleared for the approach, established on a segment of the approach, and FMA in ALTS CAP.

AP must be disengaged by 400 ft

SEP18

Two Engine Missed Approach



Note: If HDG at 400ft AGL was green needles, 600ft AGL is your last chance to select white needles and NAV if required.

Holding (SAFE Check)

SOP 1–8: Holding pattern entry should be accomplished in accordance with the procedures described in the Aeronautical Information Manual (AIM).

Upon receiving a holding clearance, the pilot flying should verify:

S – speed for holding determined, (< 15,000’ MSL, Flaps 0 speed + 30 KIAS)

A – altitude for holding

F – fuel sufficient for holding and minimum diversion fuel

E – expected further clearance time

Speed reduction to the holding airspeed should be initiated three (3) minutes before the estimated arrival at the holding fix.

Make all turns during entry and while holding at 25 degrees, unless otherwise authorized by ATC.

Most RNAV arrivals and approaches utilize fixed distance holding pattern leg lengths, which should be verified against the holding pattern leg length in the FMS database prior to executing the hold.

FMS – Holding

Holding at a Waypoint on the Flight Plan

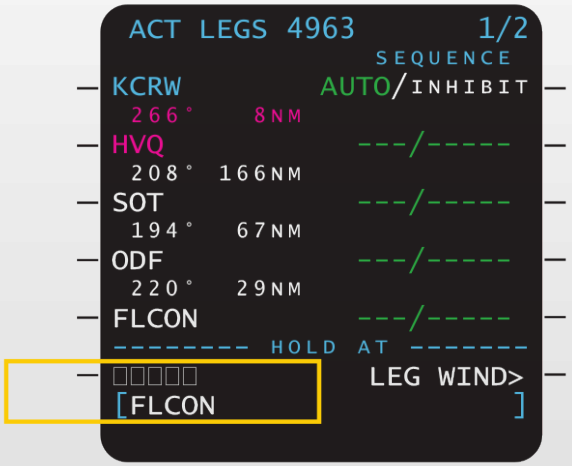
The only holds pre-programmed into the FMS are those that are part of Instrument or Missed Approach Procedures. When a hold waypoint is selected, the FMS defaults to hold on the inbound or current heading, right-hand turns, and 1.0 or 1.5 minutes legs, depending on altitude. These defaults could appear very similar to the published hold.

Always verify that the selected holding course, turn direction, and leg length match your clearance.

S.A.F.E: Speed, Altitude, Fuel, EFC

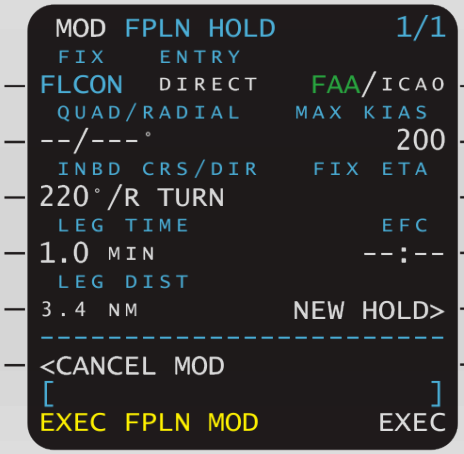
From the LEGS page:

1. Select the HOLD function key on the CDU.
2. The HOLD AT field will display at line select 6L.



If one or more holds are already programmed into the FMS, the ACT FPLN HOLD page or ACT HOLD LIST page will be displayed. In this case, push NEW HOLD.

- Select the waypoint from the flight plan (in this case FLCON) and drop it on the HOLD AT line (line select 6L).



Upset Training Low Altitude Elements

- Takeoff with Gusty Crosswind and Manual Controlled Instrument Departure
- Discovering Aircraft Stability and Roll Control
- Discovering Thrust Available – Demonstration
- Stall Prevention and Recovery
  - Clean Configuration
  - Takeoff Configuration
  - Landing Configuration
- Manually Controlled Slow Flight
- Unusual Attitude/Upset Recovery

Debrief

- ✓ How did you do as Pilot Flying?
- ✓ How did you do as Pilot Monitoring?
- ✓ Instructor Feedback
- ✓ Review and Initial Training Forms

Next Lesson – HOMEWORK!

- ❑ Review KJFK, KEWR, set up your LIDO and save the trip as KJFK Lesson 4
- ❑ Review SOP VOR Approach
- ❑ Review SOP Diversion Procedures
- ❑ Review SOP V1 Cuts
- ❑ Practice Callouts