

Welcome to the MHI RJ (CRJ) Simulator!



Pilot Initial



CRJ-550 Instructor Whiteboard Session 1 Flight Number 4501



Introductions

Names

Discuss Previous Experience

Exchange Telephone Numbers and/or Emails

Briefing Items

- Pre-Flight Slide Show
- Seat Positioning
- Checklists & Callouts
- Normal Start
- Headset/Intercom Usage
- Pushback and Taxi
- Normal Takeoff & Climb
- RNAV Departures
- FMS Entries & Reroutes
- Airwork Setup
- Steep Turns
- Stalls
- UPRT Low Altitude
- Area Arrival
- ILS Approach & Briefing
- Normal Landing

Success Tips

Maintain a Positive Mental Attitude!

Compartmentalize

- Put life problems in a “mental box” one hour prior to show time.
- Tell your instructor or management if you have unmanageable training distractors.

Work together chair flying profiles and rehearsing callouts

Plan your sleep periods

- Turn off all distractions
- Use the hour prior to going to sleep to study for your next lesson.

Eat sensibly

- Avoid large meals immediately prior to scheduled simulator times.
- Try to avoid sugar “rush” and “crash”, it’s a marathon – not a sprint.

Exercise daily

Checklist Review

- Two Types of Checklists
 - Read and Do
 - Performed Silently
 - **Except for the Safety Check**, a flow pattern may be used to place the required item in the proper position.
 - All items will be verified by reading the checklist and carrying out the appropriate action if necessary.
 - Challenge and Response
 - First done as a flow
 - The applicable items are completed from memory (recall) using a flow pattern.
 - **There IS a designated crewmember in the Expanded Checklist for every Challenge and Response Checklist.**

SOP 2-1.5

Safety Check

- Read and Do
- Performed
 - Every First Flight of the Day
 - After a Crew Change
 - Anytime electrical power has been interrupted or control panel switch selection is questionable.
- **No Flow Allowed!**
- Check Aircraft Log to make sure you have the correct aircraft and that it matches the ship number, no open write-ups, an airworthiness sign off, etc. Any doubts – call maintenance.

SAFETY CHECK	
Circuit Breakers.....	Closed
Nosewheel Steering	OFF
Hydraulic Pumps.....	OFF
Landing Gear Lever.....	Down
Flight Spoiler Lever	0
Slat/Flap Lever	Set to Actual Position
Radar	OFF
ADG Manual Release.....	Stowed
EMER FLAP	NORMAL
Battery Master	ON
APU/AC Electrics.....	As Required/Establish
AHRS (both)	MAG
IRS (if installed)	NAV
Hydraulic Pump 3A	As Required
Parking Brake.....	Reset/ON
FMS Initialization	Complete

SOP 2-4

Safety Check Practice

SAFETY CHECK

Circuit Breakers	Closed
Nosewheel Steering	OFF
Hydraulic Pumps.....	OFF
Landing Gear Lever.....	Down
Flight Spoiler Lever	0
Slat/Flap Lever	Set to Actual Position
Radar	OFF
ADG Manual Release.....	Stowed
EMER FLAP	NORMAL
Battery Master	ON
APU/AC Electrics.....	As Required/Establish
AHRS (both)	MAG
IRS (if installed)	NAV
Hydraulic Pump 3A	As Required
Parking Brake.....	Reset/ON
FMS Initialization	Complete

SOP 2-4

External Walkaround Inspection

Walkaround Inspection

Hearing Protection

Flashlight at night

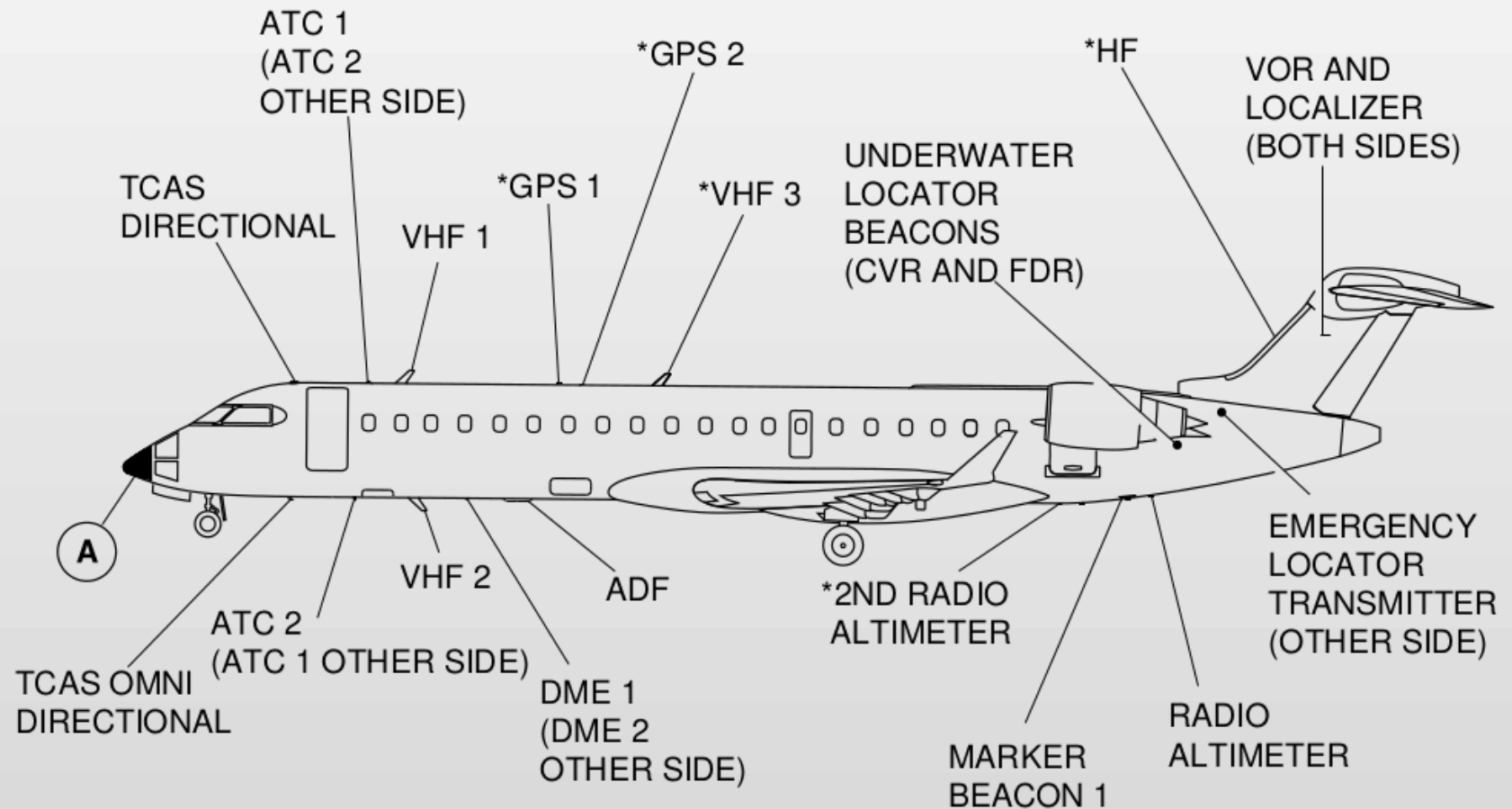
Comply with SSIM 1-4.3

Be careful, de-ice fluids are slippery!

Safety Check Complete & Nav Lights On

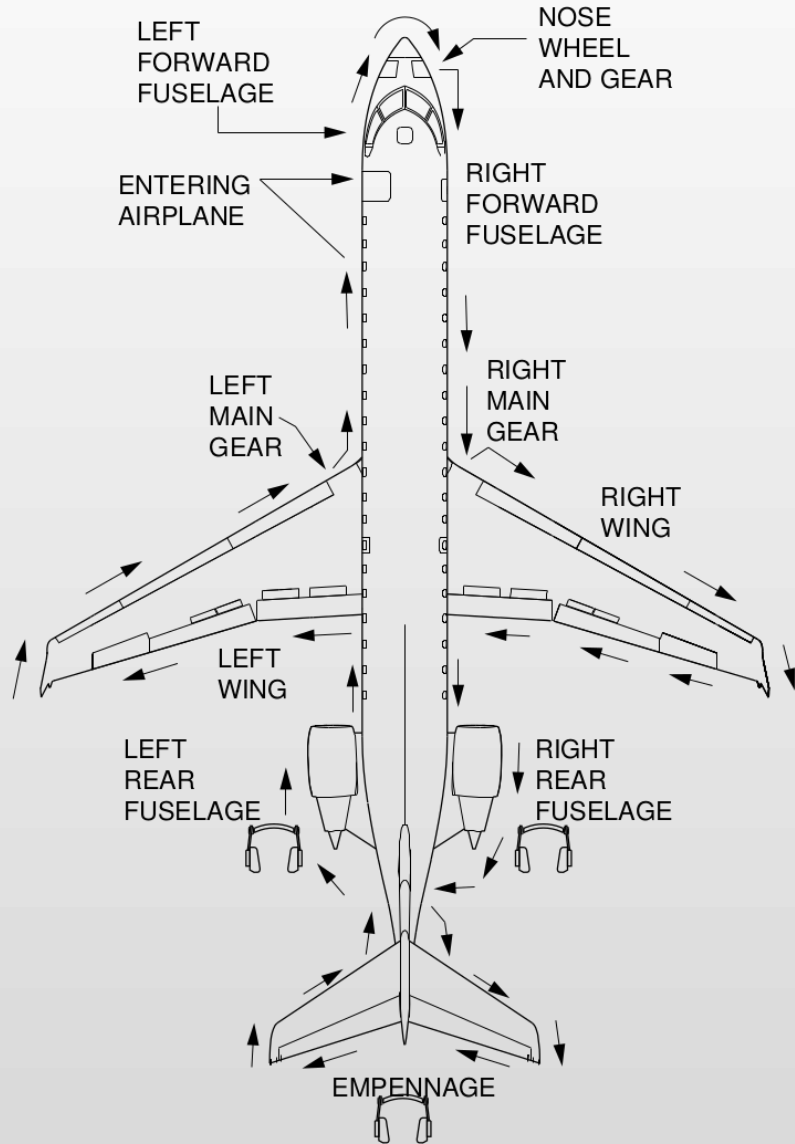
External Walkaround Inspection

Antennae Locations



External Walkaround Inspection

Start at the top of the boarding stairs, proceed in the direction indicated in the external walkaround sequence illustration and terminate at the bottom of the passenger stair unit.



External Walkaround Inspection

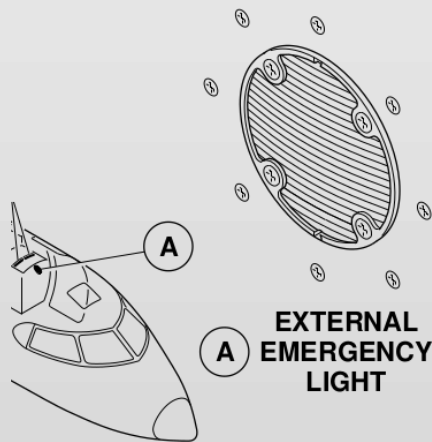
Even though not noted individually, the airplane and its visible components must be checked for the following:

- Proximate area is free of potential FOD items.
- Passenger walkway and boarding stairs are safe and clear.
- Flight control surfaces are unobstructed.
- All vents, ports, intakes and exhausts are unobstructed.
- Tire condition and pressure are acceptable.
- All covers, plugs, picket/mooring lines removed.
- Pay particular attention to any evidence of fluid leaks from components, drains, panels, airplane skin and ground vicinity.
- Condition of skin (visible damage) on radome section, fuselage, wings, nacelles, pylons and empennage.
- All access panels and doors, not actually involved in maintenance, are secured.
- Pitot-static probes for evidence of freezing, severe discoloration, condition and security.

FCOM 2 04-06-11

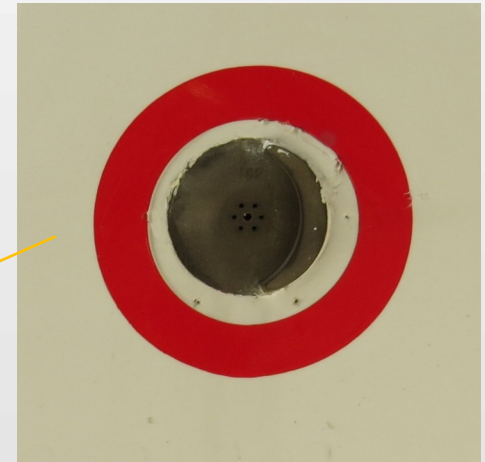
External Walkaround Inspection

Passenger door
emergency
light Check



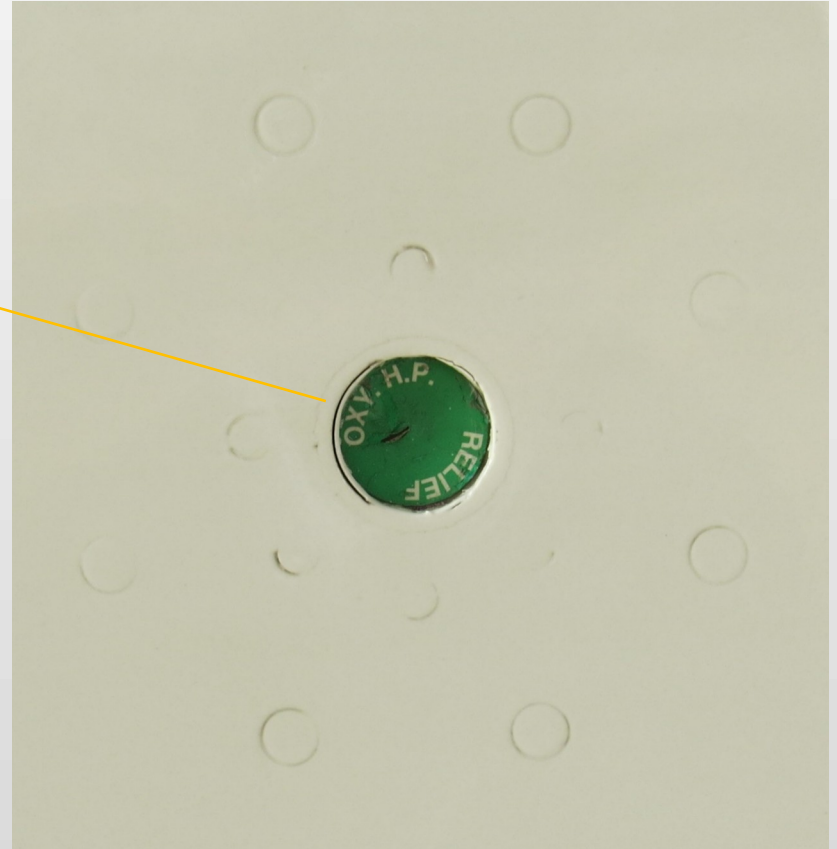
External Walkaround Inspection

Alternate static port Clear



External Walkaround Inspection

Oxygen Blowout Plug Intact



External Walkaround Inspection

AOA Vane Check



External Walkaround Inspection

Standby pitot probe Clear

Recall the general instructions to check pitot-static probes for evidence of freezing, severe discoloration, condition and security.



External Walkaround Inspection

Ice detector probe Clear



External Walkaround Inspection

Pitot-static probe Clear

Recall the general instructions to check pitot-static probes for evidence of freezing, severe discoloration, condition and security.

The fuselage skin in the vicinity of each static source must be free of damage



External Walkaround Inspection

RVSM Critical Area (GOM 3-1-10.13)

Check the condition of static sources (focus on the static ports and fuselage skin near the ports looking for wrinkling of skin, dents, scratches or anything that might adversely alter airflow near the static ports).

Any and all damages discovered in the RVSM critical area would be recorded (by MX) on form MX-50. A copy of form MX-50 is normally carried in the aircraft log can.



External Walkaround Inspection

Windshields,
Windows
Check

Wipers (2)
Check



External Walkaround Inspection

Wheel
chocks
Installed



External Walkaround Inspection

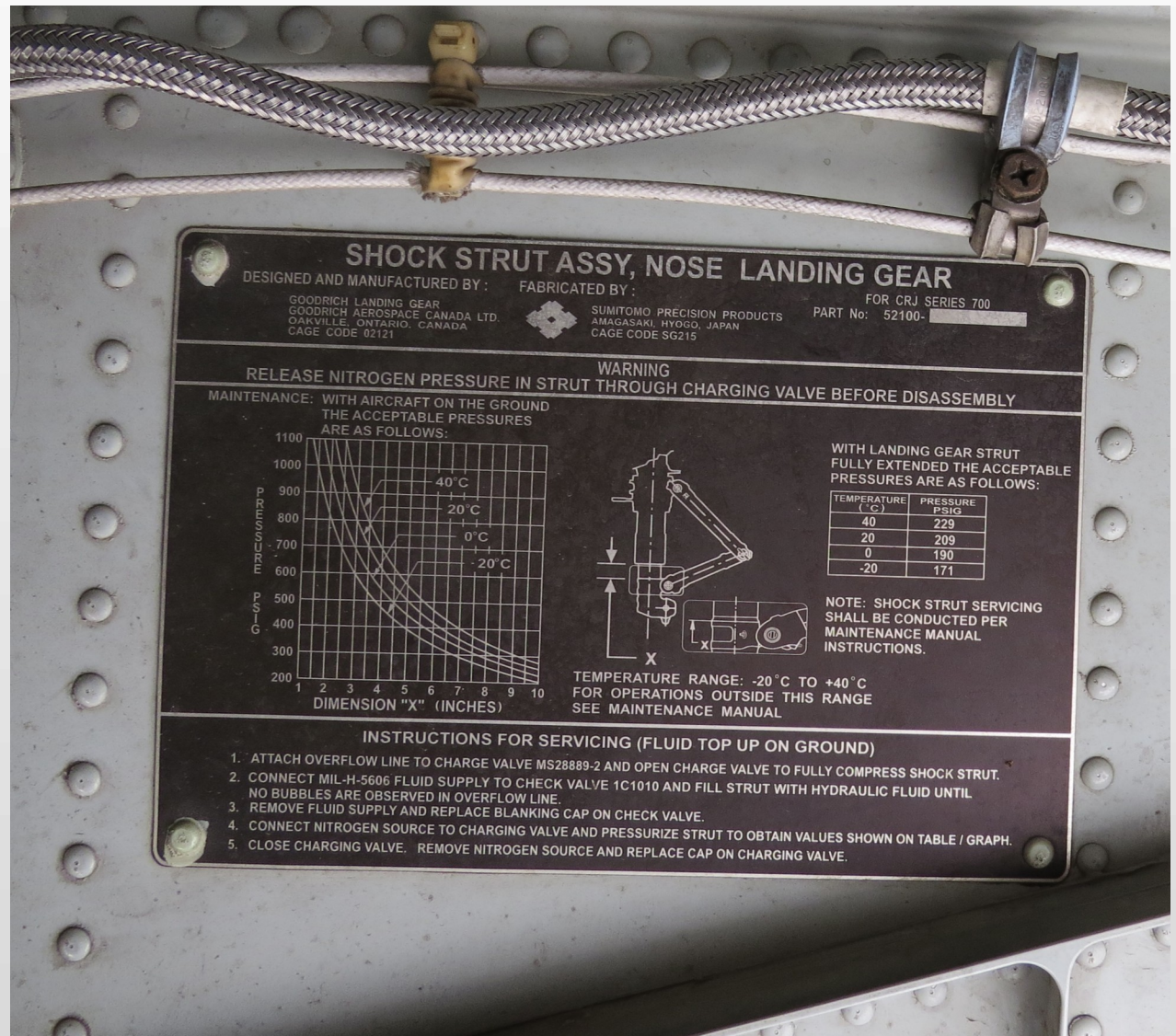
Nose landing
light Check

Oleo
extension
Check



External Walkaround Inspection

Just FYI,
located in
the nose
gear well.



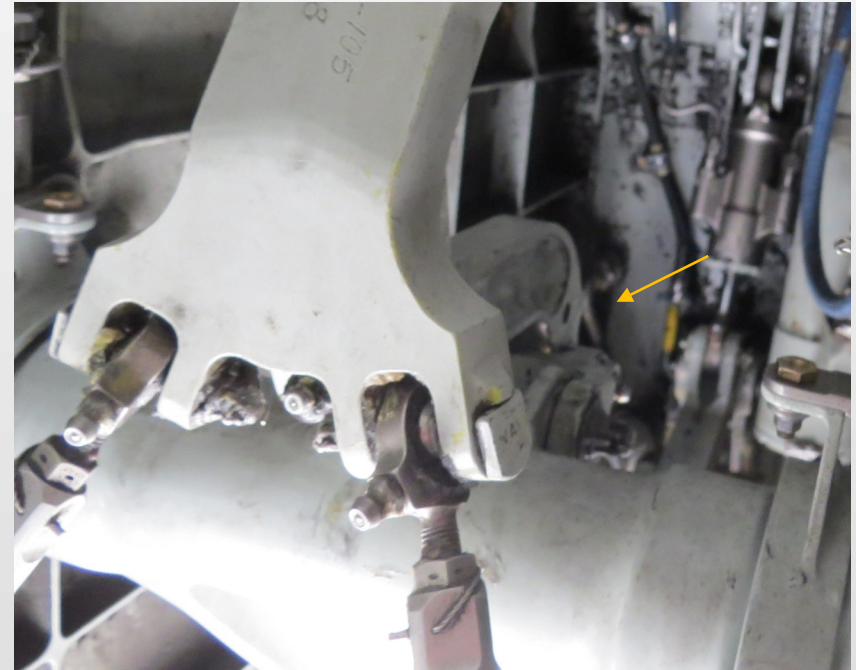
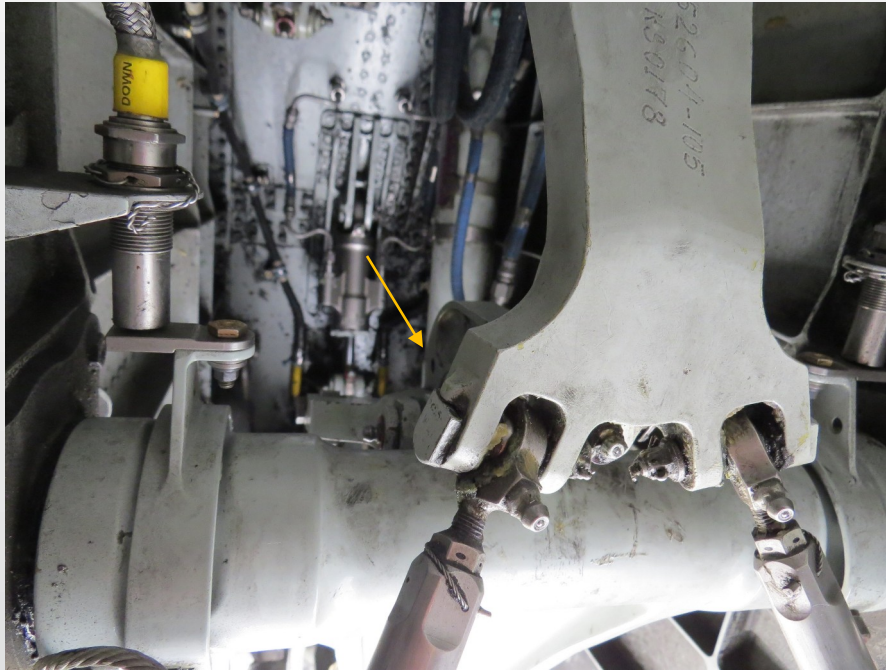
External Walkaround Inspection

Nosewheel scissors As required



External Walkaround Inspection

Downlock safety pin Remove



External Walkaround Inspection

ADG safety pin Remove

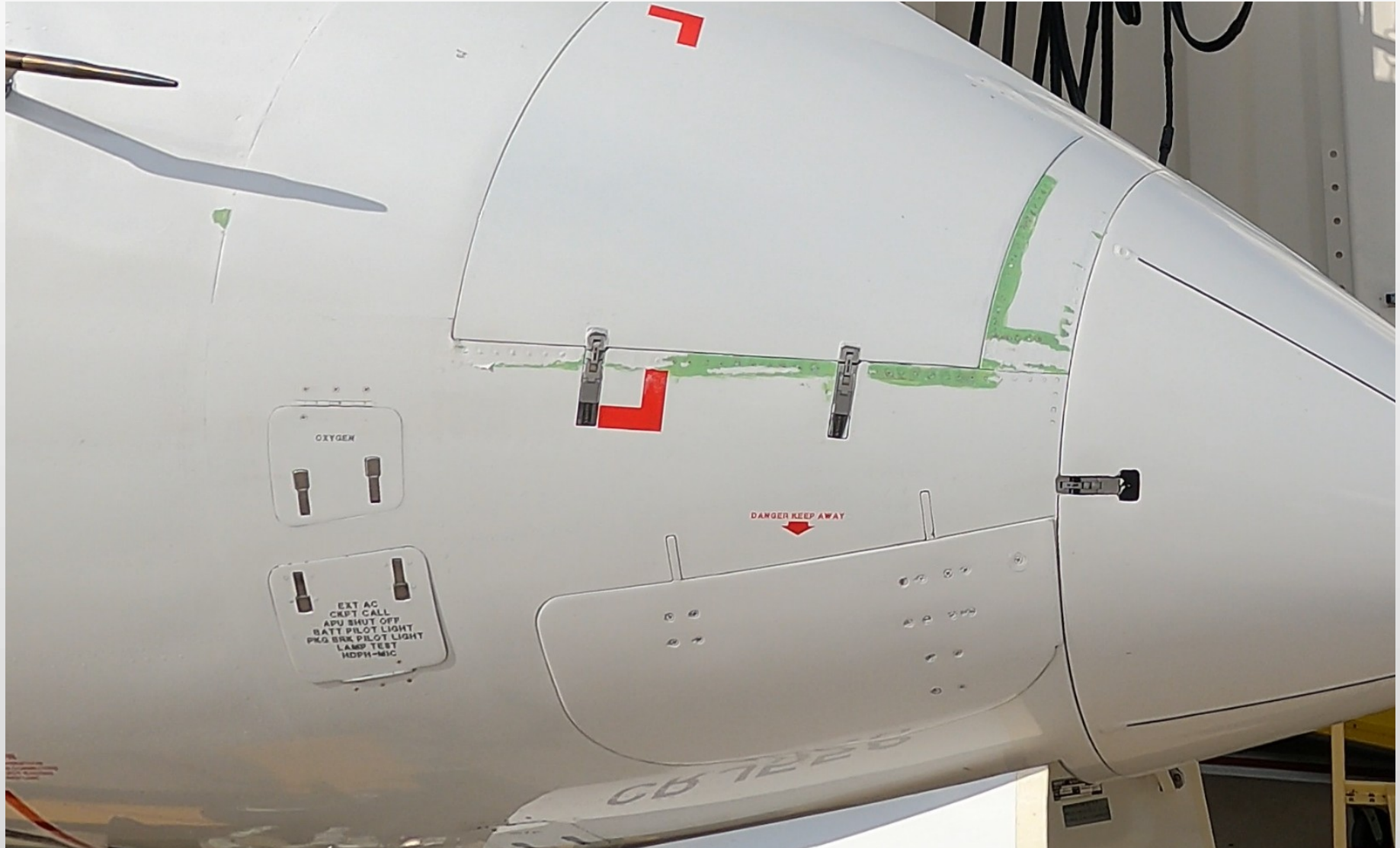


External Walkaround Inspection

Bay maintenance light Off



External Walkaround Inspection



External Walkaround Inspection

External AC power
service door As
required



External Walkaround Inspection

RVSM Critical Area (GOM 3-1-10.13)

Check the condition of static sources (focus on the static ports and fuselage skin near the ports looking for wrinkling of skin, dents, scratches or anything that might adversely alter airflow near the static ports).

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External Walkaround Inspection

Pitot-static probe Clear

Recall the general instructions to check pitot-static probes for evidence of freezing, severe discoloration, condition and security.

The fuselage skin in the vicinity of each static source must be free of damage



External Walkaround Inspection

Ice detector probe Clear



External Walkaround Inspection

TAT probe Clear, AOA vane Check



External Walkaround Inspection

Alternate static
port Clear



External Walkaround Inspection

Galley service
door emergency
light Check



External Walkaround Inspection

Antennae
Check

Not an Antenna!



External Walkaround Inspection

Beacon Light Check



External Walkaround Inspection

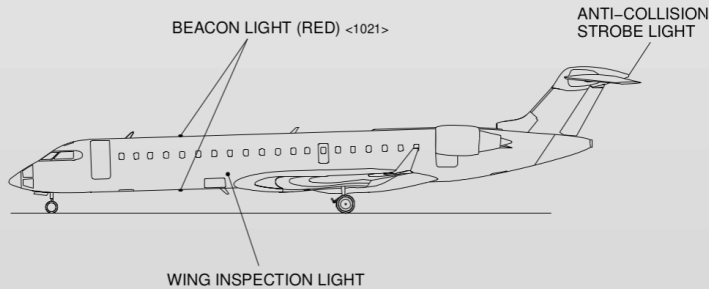


Overwing Emergency Lights

Wing Inspection Light

External Walkaround Inspection

Wing inspection lights Check



External Walkaround Inspection

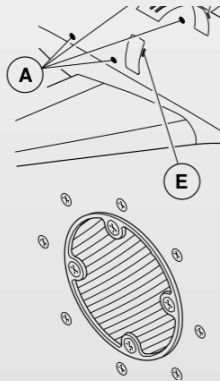
Landing/taxi
lights Check

Which one is
the taxi light?
Remember “Taxi
In” (Inboard)



External Walkaround Inspection

Overwing
emergency
lights (2)
Check



Overwing
emergency
exit Secured



External Walkaround Inspection

Wheel
chocks As
required



External Walkaround Inspection

Oleo
extension
Check



External Walkaround Inspection

FYI - Main Landing Gear Data Plate



External Walkaround Inspection

Downlock safety
pin Removed



External Walkaround Inspection

Leading edge slats Check



External Walkaround Inspection

Navigation and
strobe lights
Check



External Walkaround Inspection

Winglet
Check

Static
dischargers
(9) Check



External Walkaround Inspection

Aileron Check



External Walkaround Inspection

Lower wing
surface
Check



External Walkaround Inspection

Multi-function spoilers Check



External Walkaround Inspection

Flaps Check



External Walkaround Inspection

Upper wing surface Check
Wing anti-slip surface Intact



External Walkaround Inspection

Note the main landing gear door brushes.

There is a CDL performance penalty if missing.



External Walkaround Inspection

Engine cowls
Check



External Walkaround Inspection

Engine cowls
Check

Thrust reverser....
Stowed



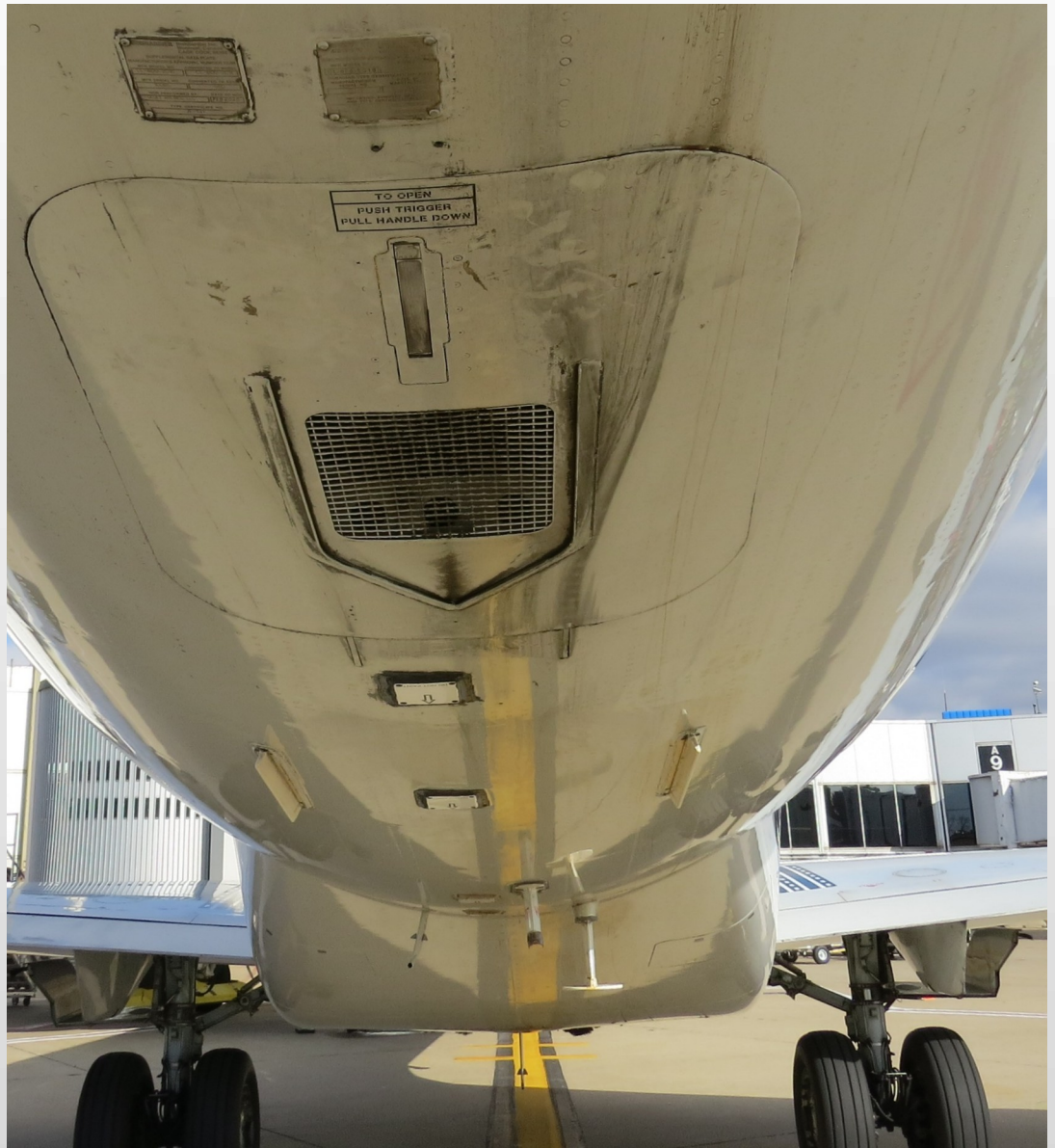
External Walkaround Inspection

Right pylon
Check



External Walkaround Inspection

Antennae.... Check



External Walkaround Inspection

Tail bumper.... Check



External Walkaround Inspection

Horizontal
stabilizer Check
Elevators.... Check
Static dischargers
(15) Check



External Walkaround Inspection

Navigation and
strobe lights
Check



External Walkaround Inspection

Antennae Check



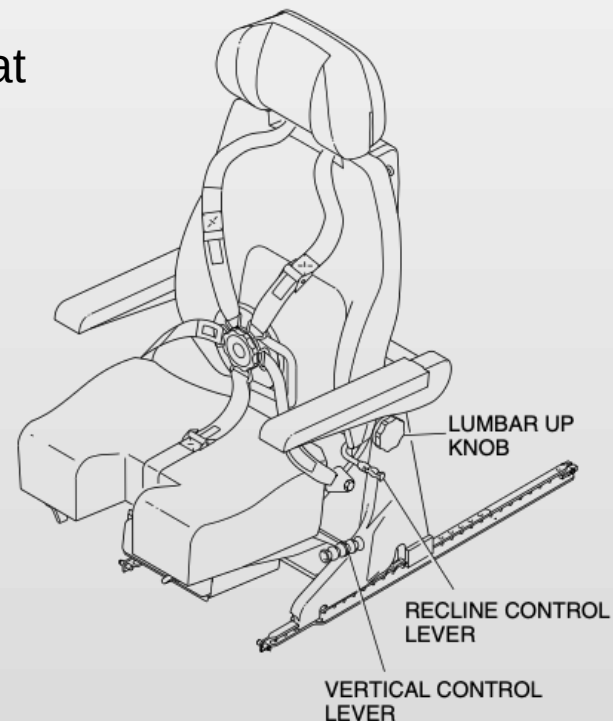
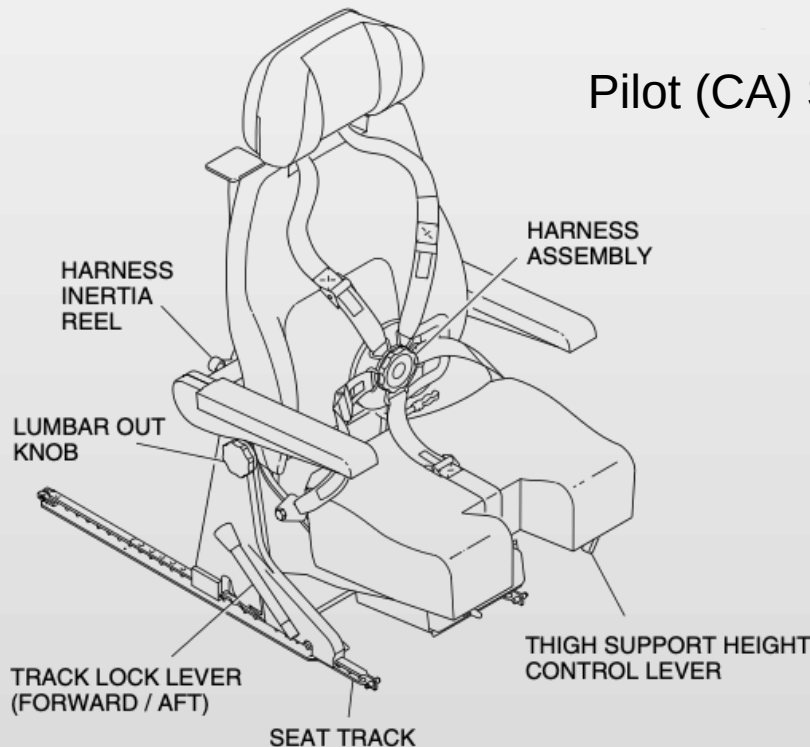
External Walkaround Inspection

- The Left Rear Fuselage, Left Wing and Left Main Gear are checked the same as the Right side.
- Baggage compartments may be open depending on ramp crew and time to departure.
- When you enter the airplane check the stairs and door area security.

Seat Adjustment

The pilot and copilot seats are track mounted to allow forward and aft movement. For lower back support, the backrest is adjustable (about the horizontal and vertical axis) by the lumbar control. The arm rest and thigh supports are adjustable. The seats can also be adjusted vertically and inclined. Each seat includes a five-point harness and inertia reel.

Pilot (CA) Seat



NOTE: After the seat is moved forward or aft, make sure that the lockpins are properly engaged in the lockpin holes. Failure to do so could result in a sudden movement of the seat in flight.

Seat Positioning

(2) Pedals, seats and harnessAdjusted

(a) Rudder pedalsAdjust

(b) SeatAdjust



(c) Optimum eye reference seat positionCheck



to allow full throw when the knees are straightened.

- Set to full aft position.
- Fasten lap belt and shoulder harness. Using handhold, adjust seat position with appropriate levers to obtain optimum eye reference position (using eye position indicator on center windscreen post).
- The correct eye reference position is obtained by adjusting the seat so that the white ball appears to cover the orange ball. The resulting eye level should be approximately in the center of the forward windshield.
- Seat position is not restrictive when moving the control column full forward and aft.

NOTE: Pilot sight line should be down the top of the glare shield and be able to see the PFD with minimal head movement.

Checklist Usage, SOP Sec 02

Two types of checklists

Read and Do Checklists

Safety Check, Engine Start – Cross Bleed, Climb Check, After Landing, Terminating Check.

May use a flow pattern (except for Safety Check), After performing a “flow”, verify by the checklist

Challenge and Response

First done as a flow (Originating, Before Start, etc.)

Memorize proper responses!

In the event that the reading of a checklist is interrupted for any reason, the checklist shall be restarted and completed in its entirety, unless the Captain and First Officer are both certain of the point of interruption.

Checklist Review

- The responses to all checklists are based on the following guidelines:
 - If the challenge is for panel status, the response is “Checked”
 - If the challenge is for a switch, state the position of the switch (e.g., “Hydraulic Pump 3A - OFF”)
 - If the challenge is for a system status, state the status (e.g., “APU - ON”)
 - If the challenge ends with the word “Test”, the response is “Complete”
- Checklist Interruption
 - In the event that the reading of a checklist is interrupted for any reason, the checklist shall be restarted and completed in its entirety, unless the Captain and First Officer are both certain of the point of interruption.

SOP 2-1.1

Originating Check

- Performed
 - Every First Flight of the Day
 - The Captain's first flight on the aircraft
 - Aircraft unattended by flight or cabin crew for any extended period of time
 - Maintenance has been done to the aircraft
- Items with an * are First Flight of the Day Only
- Challenge and Response

ORIGINATING CHECK		
Aircraft Logbook & Documents.....	Checked	BOTH
Emergency Equipment.....	Checked	CA
Safety & External Walkaround Checks.....	Complete	BOTH
Gear & Safety Pins	Removed/On Board	BOTH
Pedals, Seat & Harness.....	Adjusted	BOTH
Audio Warning Panel	Checked	F/O
Electrics	Checked	CA
*Fire Test.....	Complete	CA
Lights.....	Checked	CA
Fuel	Checked	CA
Bleeds.....	Checked	CA
APU	As Required	CA
Start Panel	Checked	CA
Hydraulics	Checked	CA
ELT	ARM/RESET	CA
Pressurization	Checked	F/O
Air-Conditioning	Checked	F/O
*Ice Detector Test	Complete	F/O
Windshield Heat.....	LOW	F/O
Emergency Lights.....	ARMED	F/O
Standby Compass	Checked	F/O
*Stall Test	Complete	F/O
Nosewheel Steering.....	OFF	CA
Clocks	Set	BOTH
EFIS Control Panels.....	Checked	BOTH
Instrument Panels.....	Checked	BOTH
EICAS & Standby Instrument	Checked	CA
*Anti-Skid Test	Complete	CA
*MLG Bay Overheat Test	Complete	CA
Upper Pedestal	Checked	CA
Thrust Lever Quadrant	Checked	CA
Avionics.....	Checked	CA
Starlink Power	On and Dark	CA
Trims	Checked	CA
Yaw Dampers	ENGAGED	CA
Source Select Panel.....	NORMAL	CA
Lower Pedestal	Checked	CA
FMS	SET	CA/F/O
RVSM Qualified	CHECKED	CA

SOP 2-6

Checklists

Originating Check Flow 1 of 2

- Captain
 - Documents and Logbook
 - VOR Check Done for the Day?
 - Open Write Ups?
 - Cabin deferrals, brief FA
 - Emergency Equipment
 - Adjust Seat
 - Nosewheel Steering Off
 - Clock
 - EFIS Control Panels
 - Instrument Panels
 - EICAS & Standby Instrument
 - Electrics
 - *Fire Test
 - Lights
 - Fuel
- First Officer
 - Review Logbook
 - External Walkaround
 - Adjust Seat
 - Initialize ACARS, Get ATIS
 - Audio Warning Panel
 - Clock
 - EFIS Control Panels
 - Instrument Panels
 - Pressurization
 - Air-Conditioning
 - *Ice Detector
 - Windshield Heat
 - Emergency Lights
 - Standby Compass
 - *Stall test

FMX 1-1.3

SOP 2-6, SOP 1-11, GOM 1-2.11

Checklists

Originating Check Flow 2 of 2

- Captain
 - Bleeds
 - APU
 - Start Panel
 - Hydraulics
 - ELT
 - *Anti-Skid Test
 - *MLG Bay Overheat Test
 - Upper Pedestal
 - Thrust Lever Quadrant
 - Avionics
 - Trims
 - Yaw Dampers
 - Source Select Panel
 - Lower Pedestal
 - FMS
 - RVSM
- First Officer
 - Clock
 - EFIS Control Panels
 - Instrument Panel

SOP 2-6, SOP 1-11, GOM 1-2.11

Checklists Originating Check Practice

SOP 2-6, SOP 1-11, GOM 1-2.11

ORIGINATING CHECK		
Aircraft Logbook & Documents	Checked	BOTH
Emergency Equipment.....	Checked	CA
Safety & External Walkaround Checks.....	Complete	BOTH
Gear & Safety Pins	Removed/On Board	BOTH
Pedals, Seat & Harness.....	Adjusted	BOTH
Audio Warning Panel	Checked	F/O
Electrics	Checked	CA
*Fire Test	Complete	CA
Lights.....	Checked	CA
Fuel	Checked	CA
Bleeds	Checked	CA
APU	As Required	CA
Start Panel	Checked	CA
Hydraulics	Checked	CA
ELT	ARM/RESET	CA
Pressurization	Checked	F/O
Air-Conditioning	Checked	F/O
*Ice Detector Test	Complete	F/O
Windshield Heat.....	LOW	F/O
Emergency Lights.....	ARMED	F/O
Standby Compass	Checked	F/O
*Stall Test	Complete	F/O
Nosewheel Steering.....	OFF	CA
Clocks	Set	BOTH
EFIS Control Panels.....	Checked	BOTH
Instrument Panels.....	Checked	BOTH
EICAS & Standby Instrument	Checked	CA
*Anti-Skid Test	Complete	CA
*MLG Bay Overheat Test	Complete	CA
Upper Pedestal	Checked	CA
Thrust Lever Quadrant	Checked	CA
Avionics.....	Checked	CA
Starlink Power	On and Dark	CA
Trims	Checked	CA
Yaw Dampers	ENGAGED	CA
Source Select Panel.....	NORMAL	CA
Lower Pedestal	Checked	CA
FMS	SET	CA/F/O
RVSM Qualified	CHECKED	CA

Checklists

Before Start

- Performed
 - After ATC Clearance and aircraft refueling is completed.
- Challenge and Response

BEFORE START CHECK		
EFB Checklist.....	Complete	BOTH
Logbook & OFP Review	Complete	BOTH
Crew O ₂ & Masks/Smoke Goggles.....	Checked (Qty)	BOTH
Passenger Signs.....	ON	F/O
LDG ELEV	Set	F/O
Altimeters	(---) Set/Cross Checked	BOTH
FMS	Set/AUTOTUNE	BOTH
Radios/Nav aids	Set for Departure	CA
ADSB	GJS _____Set	CA
Thrust Reversers	Armed	CA
Departure briefing	Complete	CA

Number of Crew	Oxygen Bottle Size	
	77 cu ft	50 cu ft.
2	810	1180
3	1110	1630

Checklists

Before Start Flow

- Captain
 - Determine PF/PM
 - Oxygen Masks
 - Oxygen Quantity
 - Altimeters
 - FMS
 - Radios / Nav aids
 - Thrust Reversers
 - If PF:
 - Departure Briefing
 - Verify Legs
- First Officer
 - Oxygen Mask
 - Passenger Signs
 - Landing Elevation
 - FMS
 - If PF:
 - Departure Briefing
 - Verify Legs

SOP 2-8, SOP 1-11, GOM 1-2.11

LIDO Tips and Plates

Proactive LIDO chart, plate and document setup can save a lot of time and minimize document selection errors.

Please set up your LIDO Charts for this lesson.

```
DISPATCH RELEASE
OFP 1 GOJET AIRLINES 26OCT2021 2138Z
-----
IFR FLT G7 4501 KMEM/MEM STD 2200Z ETD 2200Z
              KMEM/MEM STA 2300Z ETA 2246Z
AIRCRAFT TAIL NO N521GJ / CRJ/8C5B1
PERF FACTOR 0.0

BY SIGNING, I BELIEVE THAT THIS FLIGHT CAN BE MADE W/ SAFETY

DX SIGNATURE LAURA GARVEY PHONE +1 314 222 4373 DESK GJ2
CA- A B COOPER

----- FLIGHT PLAN SUMMARY 4501 KMEM KMEM -----
TIME FUEL ALTN TIME DIST ALT BURN
BURN 0145 5003 T/O
MSAP 0005 200 DEST1
RESERVE 0045 2297
MIN FUEL 7500
TAXI OUT 0015 205
MIN GATE 7705
CONT 0005 295
TOTAL 8000
LDG FUEL 0053 2743

PAX LOAD 40 BOW 45101
PAYLD 8399 MPAYLD 12399
ZFW 53205 MZFW 59000
TOW 61000 MTOW 65000
LDG WGT 61000 MLDG 61000
RAMP WGT 61205 MRMP 66000

NO TANKERING RECOMMENDED
LOSS FOR EXTRA FUEL USD/1000 LBS. 4.99

OPERATION MODES CLB CRZ DES
CLIMB 290/.74 AVG WND CMP T4 H1 H8
CRUISE 320/.77 AVG TMP CMP P11 P13 P09
DESCENT 290/.74 AVG CRZ WIND 306 / 13

-----
FMS ROUTE
-KMEM/36C N0400F140 SELPH# OHULO DCT MEM DCT KMEM/36C
-----
TERRAIN CLEARANCE CHECK
-----
DD CHECK - TERRAIN CHECK COMPLETED WITH NO LIMITATIONS
DP CHECK - TERRAIN CHECK COMPLETED WITH NO LIMITATIONS
-----
* DMI LIST ***** REFER TO MEL/CDL FOR ALL ITEMS *****
* 23-22-01A ACARS EXPIRE YYYY-MM-DD (VALID DATE) *
*****
-----DISPATCH REMARKS-----
SIMULATOR TRAINING FLIGHT, FUEL FROZEN
-----
PIC SIGNATURE .....
```

RNAV Departures

RNAV departures require entering the correct departure and runway in the FMS and then verifying the departure against the current LIDO SIDPT and/or SID chart.

Always read the departure notes.
Always verify the FMS.

☰
18R
SELPH 7 RNAV Jet
 KMEM - MEM

📅 +09:01
 ?
✈️
v 7.0.20.7306
No ACFT Filter | ✈️
✓

SELPH 7
RWY 18R (180°)

DESIGNATOR	ROUTING	ALTITUDES
SELPH 7 (Jet only) 124.150 ①②③	H180° INTCPT - 153° RIBZZ - HENIR - WRTTZ - WADEE - DALGE - BETTY - SELPH	Initial climb 5000
	TRANSITION	
	OHULO SELPH - OHULO	

① Accelerate to 250KT, reaching 10000, maintain 250KT or greater, if unable advise ATC

② Expect clearance to filed altitude within 10 min after departure

③ If unable to accept climb rate, advise ATC on initial contact

←
PIEPE 6 RNAV Jet
|
ZUMIT 5 RNAV Jet
→

📄
📖
✎

Checklists

Before Start Practice

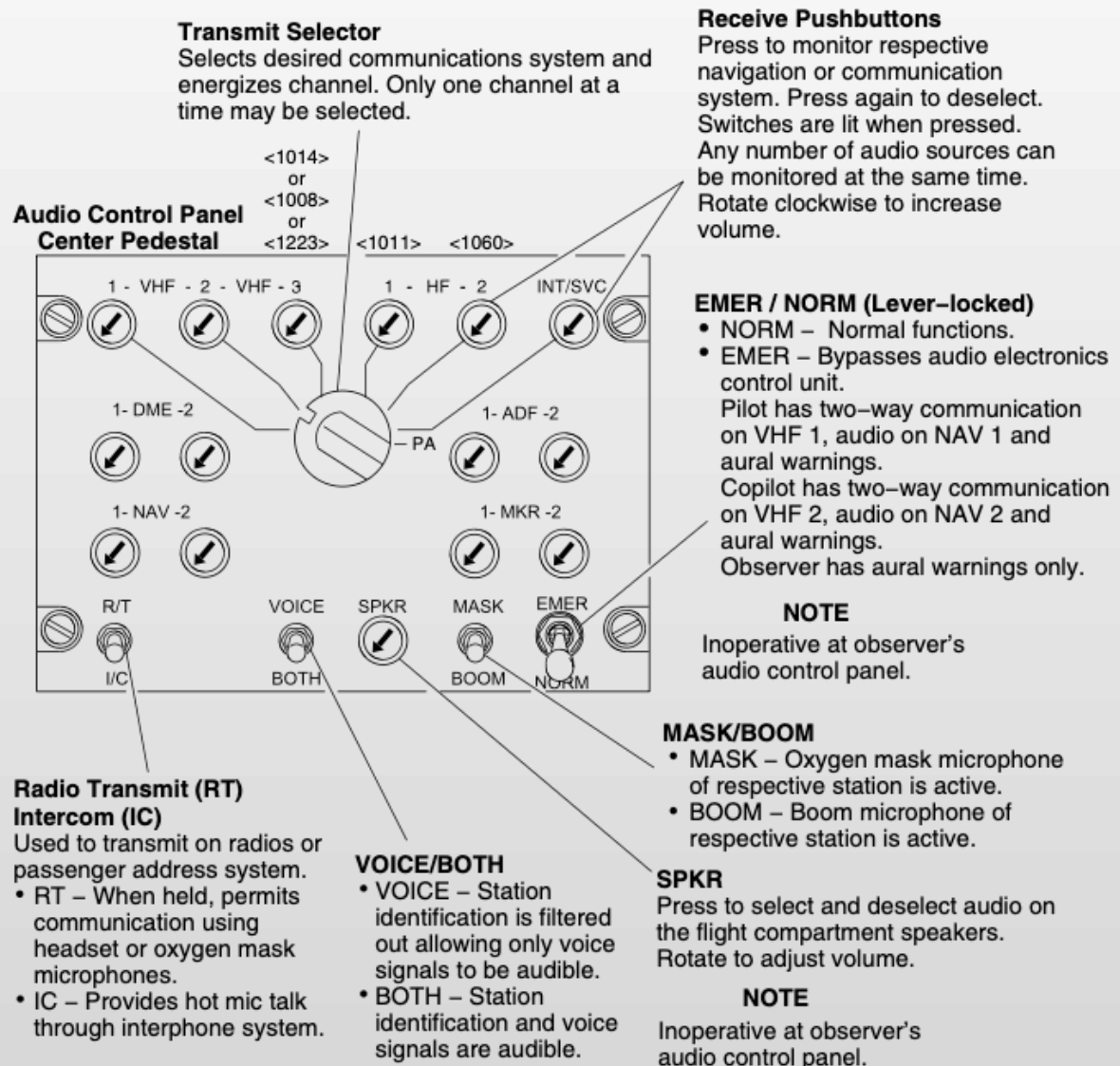
BEFORE START CHECK

EFB Checklist.....	Complete	BOTH
Logbook & OFP Review	Complete	BOTH
Crew O ₂ & Masks/Smoke Goggles.....	Checked (Qty)	BOTH
Passenger Signs.....	ON	F/O
LDG ELEV	Set	F/O
Altimeters.....	(----) Set/Cross Checked	BOTH
FMS	Set/AUTOTUNE	BOTH
Radios/Nav aids	Set for Departure	CA
ADSB	GJS _____Set	CA
Thrust Reversers	Armed	CA
Departure briefing	Complete	CA

SOP 2-8, SOP 1-11, GOM 1-2.11

Headset/Intercom Usage

NOTE: Make sure you set your MASK / BOOM switch to back to BOOM after your Oxygen Mask check. Otherwise you won't be heard when you speak using your headset microphone.



Checklists

Cleared to Start

- Performed
 - After flight deck door is closed.
 - Prior to push
- Prior to any aircraft movement the CA will confirm that all passengers are seated
- The Rotating Beacon will be used to notify the ground crew that the cabin and flight crew are prepared for pushback
- Challenge and Response

CLEARED TO START CHECK	
Personal Electronic Devices.....	OFF BOTH
APU/AC Electrics.....	ON/Checked CA
Papers.....	On Board CA
Doors	Closed/Locked CA
Beacon	ON CA
Fuel pumps & Qty.....	ON, (Qty) CA
Hydraulic pumps.....	AUTO/ON CA
Parking brake.....	As required CA

Note: This is your last chance to make sure that the nosewheel steering is off, ground power removed, beacon is on, and the seat belt and no smoking signs are on prior to aircraft movement. Checking events have ended here.

SOP 1-2.9.7, SOP 2-9

Checklists

Cleared to Start Flow

- Captain
 - Personal Electronic Devices Off
 - Papers on Board
 - Fuel Pumps On
 - Hydraulic Pumps Auto/On
 - Beacon On
 - Nosewheel Steering Off
 - APU/AC Electrics On
 - Let the FO know if you will do a single or dual engine taxi, then ask the FO to call for push.
- First Officer
 - Personal Electronic Devices Off

SOP 2-8, SOP 1-11, GOM 1-2.11

Checklists

Cleared to Start Practice

CLEARED TO START CHECK

Personal Electronic Devices.....	OFF	BOTH
APU/AC Electrics.....	ON/Checked	CA
Papers.....	On Board	CA
Doors	Closed/Locked	CA
Beacon	ON	CA
Fuel pumps & Qty.....	ON, (Qty)	CA
Hydraulic pumps.....	AUTO/ON	CA
Parking brake.....	As required	CA

SOP 1-2.9.7, SOP 2-9

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 120°C

N₂ 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 (if looks like it may exceed 815°C, abort and call for QRH 2 **L/R START ABORT**, if it exceeded 815°C then call for QRH **Engine Hot Start**)

N₂ 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:

N₂ : 55 – 65% rpm

Fuel flow : Approximately 480 lbs/hr

Oil pressure: Greater than 25 psi

Note: Many Checklists have (On the ground) or (In flight), make sure you use the correct checklist.

Engine Starts and Malfunctions

Other ways of starting engines and engine start malfunctions will be discussed and practiced in the next lesson.

Homework:

Please review Starter Limitations, External Air start and Cross Bleed Start procedures in QRH 1.

Also review Low Oil Press, Start Abort, Hot Start, No? Starter Cutout in QRH 2. What checklist will you call for if the engine does not accelerate to IDLE values?

Checklists

After Start

- Performed
 - After engine(s) stabilizes.
 - Prior to taxi
- After starting an engine, all items in the after start checklist shall be accomplished, even if the Captain elects to utilize one-engine taxi procedures.
- Items marked with a (D) are delayed engine start items. The items marked with a (D) shall be accomplished again after starting the second engine.

AFTER START CHECK		
*Fuel Check Valve	Checked	CA
Bleeds/Packs	AUTO/ON	F/O
(D) Anti-ice	As Required	F/O
Probes	ON	F/O
Transponder.....	As Required	F/O
(D) APU/Electrics	As Required/Checked	CA
(D) Flex Thrust.....	As Required	BOTH
Flaps	(--°) Indicating	BOTH
Flight Controls	Checked	F/O

Rudder	Checked	CA
Nosewheel Steering	ARMED	CA
Brake Temp	Checked	CA

Checklists

After Start Flow

- Captain

- Fuel Check Valve
(1st Flight of the Day)
- Monitor push team and direct their disconnect once you have at least one engine started.
- Call for Flaps and After Start
- Once push team is clear
 - Rudder Check
 - Nosewheel Steering On
 - Brake Temperature

- First Officer

- Has started one or both engines as directed by the Captain
- Anti-Ice as required
- Probes on
- Transponder on PF position
- Flaps when directed by the Captain
- Flight Controls Checked

SOP 2-10

Checklists

After Start Practice

AFTER START CHECK		
*Fuel Check Valve	Checked	CA
Bleeds/Packs	AUTO/ON	F/O
(D) Anti-ice	As Required	F/O
Probes	ON	F/O
Transponder.....	As Required	F/O
(D) APU/Electrics	As Required/Checked	CA
(D) Flex Thrust.....	As Required	BOTH
Flaps	(--°) Indicating	BOTH
Flight Controls	Checked	F/O

Rudder	Checked	CA
Nosewheel Steering	ARMED	CA
Brake Temp	Checked	CA

SOP 2-10

Taxiing

- **Taxi Diagrams Out and On**
- **Write Down ALL Clearances**
- **FO performs the Before Takeoff Check when CA asks for it.**

Checklists

Before Takeoff

- Above the line is normally performed during taxi after flight attendant reports "Cabin Secure". In low-visibility, high threat, etc. perform with aircraft stopped and parking brake set.
- Below the line is completed when cleared to line up and wait or cleared for takeoff
- Challenge and Response

BEFORE TAKEOFF CHECK		
T/O Fuel Qty/Balance	_Req _OB/CHKD	FO/CA
Fuel Crossflow	MAN/Off	F/O
Flight Attendant	Advised	F/O
Transponder/TCAS	ON/AUTO	F/O
Radar/Terrain	As Required	F/O
Flaps.....	(_ °) Set for Takeoff	BOTH
Takeoff data	Set	F/O
Trims	Engaged, Zero & (_ _)	CA
Flight Instruments.....	Checked	BOTH
Takeoff Briefing	RWY_ /Complete	PF
Runway Change Check	Complete/Not Required	F/O

CONFIRM RUNWAY _____/HDG Bug Set.....	CONFIRMED/SET	FO/CA
Lights & Strobes.....	As Required	CA
Ignition/Anti-ice	As Required	F/O
CAS	Checked/Clear	FO/CA
T/O Config	OK	CA

Checklists

Before Takeoff Flows

- Captain
 - Above the Line
 - Flaps
 - Below the Line
 - Lights & Strobes
 - CAS
- First Officer
 - Above the Line
 - Fuel Crossflow Manual
 - Call Flight Attendant, hear “Cabin Secure”
 - Transponder / TCAS
 - Radar / Terrain
 - Flaps
 - Below the Line
 - Ignition / Anti-Ice
 - CAS

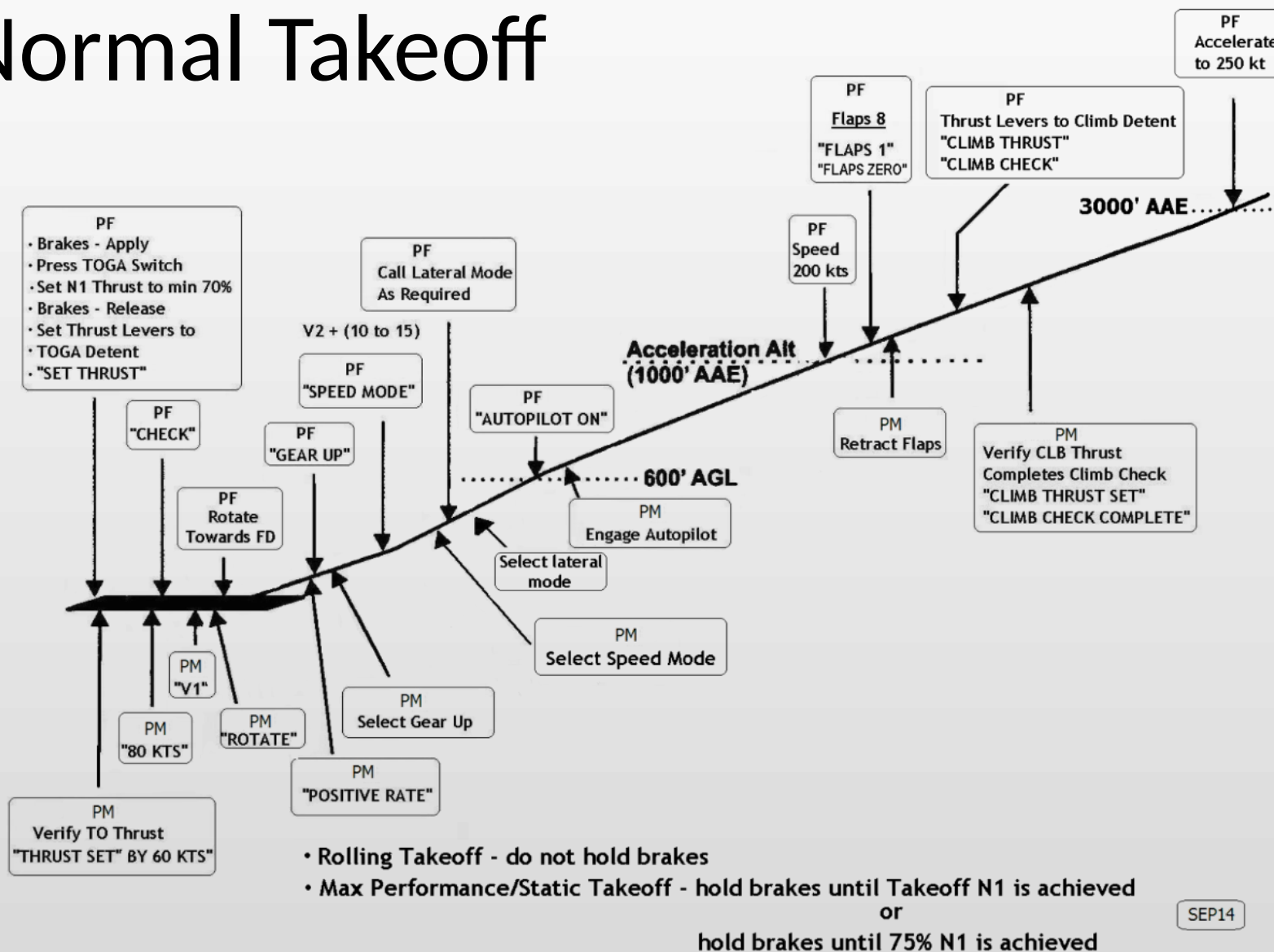
Checklists

Before Takeoff Practice

BEFORE TAKEOFF CHECK		
T/O Fuel Qty/Balance	_Req _OB/CHKD	FO/CA
Fuel Crossflow	MAN/Off	F/O
Flight Attendant	Advised	F/O
Transponder/TCAS	ON/AUTO	F/O
Radar/Terrain	As Required	F/O
Flaps.....	(_ °) Set for Takeoff	BOTH
Takeoff data	Set	F/O
Trims	Engaged, Zero & (_._)	CA
Flight Instruments	Checked	BOTH
Takeoff Briefing	RWY_ /Complete	PF
Runway Change Check	Complete/Not Required	F/O

CONFIRM RUNWAY_____	/HDG Bug Set.....	CONFIRMED/SET
Lights & Strobes.....	As Required	CA
Ignition/Anti-ice	As Required	F/O
CAS	Checked/Clear	FO/CA
T/O Config	OK	CA

Normal Takeoff



Checklists

Climb Check

- Silent Read and Do except for confirming Altimeters.
- Normally completed after the aircraft is clean and climb power is selected.

CLIMB CHECK		
Landing Gear.....	UP	PM
Flaps	ZERO	PM
Fuel Crossflow.....	AUTO	PM
Bleeds & APU	SET	PM
Thrust Reversers	OFF	PM
CAS	Checked/Clear	PM
Prior to 29,000' Altimeters	Checked	BOTH

SOP 2-15.3

Climb Speeds

Sea Level to 10,000'	250 KIAS
10,000' and above	Long Range Climb - 250 KIAS/M 0.70★
	Normal Climb - 290 KIAS/M 0.74
	High Speed Climb - 320 KIAS/M 0.77

- *Use of Long Range Climb is prohibited above FL320
- The minimum all engines operating climb speed/Mach above grid MORA is 250 KIAS to FL320, then accelerate in the climb to attain no less than Mach 0.74 by FL350
- Above FL350, climb at NO LESS than Mach 0.74
- If unable to maintain the minimum climb Mach specified above, and unable to maintain a minimum rate of climb of 500' per minute, level-off and/or request a lower altitude from ATC. The aircraft has reached its effective service ceiling for the current conditions.

Cruise Speeds

- Below 15,000 MSL – applicable approach speed
- Above 15,000 MSL: At no time should the aircraft be flown at less than **Mach .70** or driftdown speed, whichever is higher.
- The driftdown speed is based on the aircraft's weight and altitude and may be found in the speed cards located in the CRJ QRH Volume 1. This will provide adequate protection from stall while maneuvering up to at least 1.3g.

Cruise Checks

- Cruise Fuel Check: As stated in GOM 3-2.2.17, Captains on flights scheduled for flight times of one (1) hour or more must record the actual fuel burn and actual time from brake release on the flight plan at the first fix beyond the top of climb (ToC)
- Cruise Altimeter Check: When operating in RVSM airspace, both primary and stand-by altimeters should be cross-checked at least once per hour. At a minimum, the two primary altimeters should agree with a maximum difference of 200' or less. If there is a difference greater than 200', the altimetry system should be reported to ATC as being suspect, and a discrepancy entered in the aircraft logbook.
- ATC Shortcuts: No GoJet aircraft shall be operated more than 50nm off any shoreline during normal operations.

SOP 2-16.5, 2-16.7, 2-16.9,

FMS Entries & Reroutes

For this lesson FMS Initialization and Flight Plan Entry will be Instructor Demonstration.

Next lesson and follow-on lessons, each PM will set up the FMS, please let your instructor know when you start programming the FMS so your entries can be observed.

The following slides will introduce:

- FMS Waypoints
- FMS Tracking
- FMS Holding



FMS – Waypoints

Along Course Waypoints

1. Create the waypoint, 35 nm this side of APE in the scratchpad:
APE/-35

ACT LEGS 7067		2/4
SEQUENCE		
SINDE	AUTO/INHIBIT	
279°		
GEFFS	---	----
305°	15 NM	
HACKS	---	----
319°	92 NM	
APE	---	----
280°	30 NM	
DANEI	250/11000	

<RWY UPDATE		LEG WIND>
[APE/-35]		

2. Drop on top of the waypoint on which it was based:
The FMS will “auto-place” the waypoint where it belongs.

ACT LEGS 7067		2/4
SEQUENCE		
SINDE	AUTO/INHIBIT	
279°		
GEFFS	---	----
305°	15 NM	
HACKS	---	----
319°	57 NM	
APE01	---	----
319°	35 NM	
APE	---	----

<RWY UPDATE		LEG WIND>
[		]

3. Create the waypoint, 10 nm on the other side of APE in the scratchpad:
APE/10

ACT LEGS 7067		2/4
SEQUENCE		
SINDE	AUTO/INHIBIT	
279°		
GEFFS	---	----
305°	15 NM	
HACKS	---	----
319°	92 NM	
APE	---	----
280°	30 NM	
DANEI	250/11000	

<RWY UPDATE		LEG WIND>
[APE/10]		

4. Drop on top of the waypoint on which it was based:
The FMS will “auto-place” the waypoint where it belongs.

ACT LEGS 7067		2/4
SEQUENCE		
SINDE	AUTO/INHIBIT	
279°		
GEFFS	---	----
305°	15 NM	
HACKS	---	----
319°	92 NM	
APE	---	----
280°	10 NM	
APE01	---	----

<RWY UPDATE		LEG WIND>
[		]

FMS – Waypoints

Place/Bearing/Distance

1. Create a waypoint on the IGB VOR Radial 290 at 45 DME:
IGB290/45

ACT LEGS 7067		2/3
		SEQUENCE
VUZ	AUTO/INHIBIT	
263° 19 NM		
FIBER	---	---
263° 62 NM		
IGB	---	---
269° 88 NM		
SQS	---	---
256° 182 NM		
EIC	---	---
<RWY UPDATE LEG WIND>		
[IGB290/45]		

2. Drop the waypoint where it belongs:
The FMS will **not** “auto-place” the waypoint.

ACT LEGS 7067		2/3
		SEQUENCE
VUZ	AUTO/INHIBIT	
263° 19 NM		
FIBER	---	---
263° 62 NM		
IGB	---	---
289° 45 NM		
Drop Here → IGB01	---	---
249° 49 NM		
SQS	---	---
<RWY UPDATE LEG WIND>		
[		]

Place Bearing/Place Bearing

1. Create a waypoint at the crossing of the SGF VOR Radial 025 and the MKC VOR Radial 125:
SGF025/MKC125

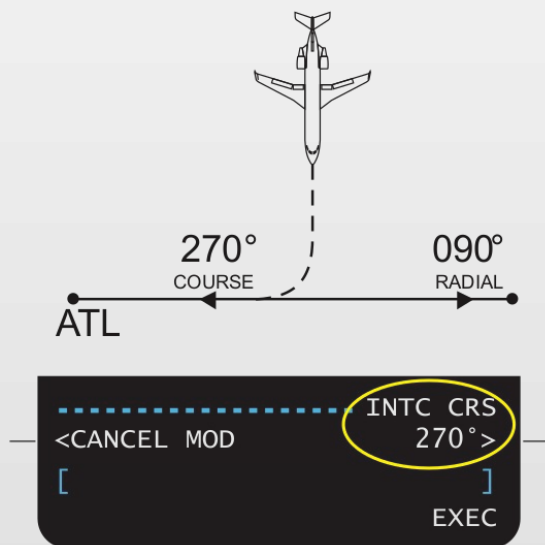
ACT LEGS 4987		2/4
		SEQUENCE
PEABO	AUTO/INHIBIT	
079° 75 NM		
BUM	---	---
105° 101 NM		
TRAKE	---	---
089° 25 NM		
KAYLA	---	---
091° 19 NM		
YUGGA	---	---
<RWY UPDATE LEG WIND>		
[SGF025/MKC125]		

2. Drop the waypoint where it belongs:
The FMS will not “auto-place” the waypoint.

ACT LEGS 4987		2/4
		SEQUENCE
PEABO	AUTO/INHIBIT	
079° 75 NM		
BUM	---	---
040° 35 NM		
Drop Here → SGF01	---	---
105° 101 NM		
TRAKE	---	---
089° 25 NM		
KAYLA	---	---
<RWY UPDATE LEG WIND>		
[		]

FMS – Tracking

Track a Radial Inbound



Example: "Fly heading 180. Intercept and track inbound on the ATL 090 degree radial."

- On the LEGS page:
Place the fix in the TO line (line select 2L).

MOD	LEGS	5324	1/1
(DIR)	246°	58 NM	
ATL	231°	126 NM	---
MGM	342°	91 NM	---
VUZ			---
-----INTC CRS			
<CANCEL MOD	226°		>
[270			]
EXEC FPLN MOD			EXEC

Drop 270 Here

- On the INTC CRS line (line select 6R):
Place the inbound course (in this case, 270).

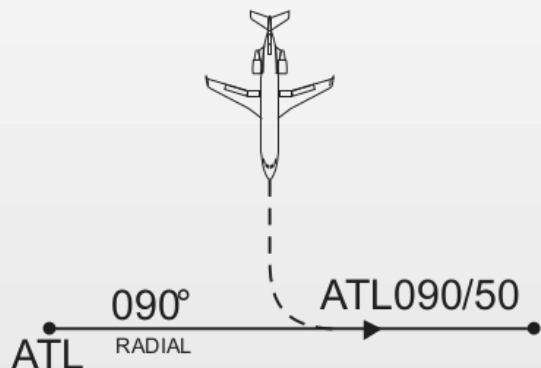
MOD	LEGS	5324	1/1
(DIR)	246°	58 NM	
ATL	231°	126 NM	---
MGM	342°	91 NM	---
VUZ			---
-----INTC CRS			
<CANCEL MOD	270°		>
[			]
EXEC FPLN MOD			EXEC

Tracking the 090 degree radial inbound results in a 270 degree course.

When you first put something in the TO line (line select 2L), the FMS assumes you want to fly direct to that fix. If you do not want to fly direct, you must define how you want to arrive at that fix.

FMS – Tracking

Track a Radial Outbound



```

-----
<CANCEL MOD      LEG WIND>
[ATL090/50      ]
EXEC
  
```

```

MOD LEGS      1/4
ATL      SEQUENCE
ATL01    AUTO/INHIBIT
          ---/-----
  
```

Fly heading 180, intercept the ATL 090 radial outbound

Example: "Fly heading 180. Intercept and track outbound on the ATL 090 degree radial."

On the LEGS page:

1. Create a waypoint on the intended radial that is far enough out that you will not reach it.
2. ATL090/50

```

MOD LEGS 5324      1/1
(DIR)
246° 58NM
ATL      ---/-----
Drop Here
-----
-----INTC CRS
<CANCEL MOD      246°>
[ATL090/50      ]
EXEC FPLN MOD      EXEC
  
```

3. Insert the waypoint directly after the NAVAID upon which the radial is based.

```

MOD LEGS 5324      1/1
ATL
089° 24NM
ATL01    ---/-----
-----
-----INTC CRS
<CANCEL MOD      246°>
[EXEC FPLN MOD      EXEC
  
```

4. If the intercept will be after the NAVAID, put it behind you by dropping it in the FROM line (line select 1L).

The FMS cannot track away from a waypoint. To track outbound, you must create a fix that lies along the intended course. The distance is arbitrary, but must be far enough that it will never be reached.

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.

ACT LEGS 4963 1/2

SEQUENCE

KCRW 266° 8 NM

HVQ 208° 166 NM

SOT 194° 67 NM

ODF 220° 29 NM

FLCON

----- HOLD AT -----

LEG WIND>

[FLCON]

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).

MOD FPLN HOLD 1/1

FIX ENTRY FAA/ICAO

FLCON DIRECT MAX KIAS

QUAD/RADIAL 200

--/--° INBD CRS/DIR FIX ETA

220°/R TURN

LEG TIME EFC

1.0 MIN --:--

LEG DIST 3.4 NM

NEW HOLD>

<CANCEL MOD

[EXEC FPLN MOD EXEC]

FMS – Holding

Holding at a Waypoints Not on the Flight Plan

From the LEGS page:

1. Push the HOLD key
2. If the ACT FPLN HOLD page or the ACT HOLD LIST page is showing, push NEW HOLD.
3. Insert the waypoint in the HOLD AT prompt.
4. Select the waypoint the HOLD will precede.
5. Change the defaults to match your clearance as required.

FMS – Holding

Present Position Holding

From the LEGS page

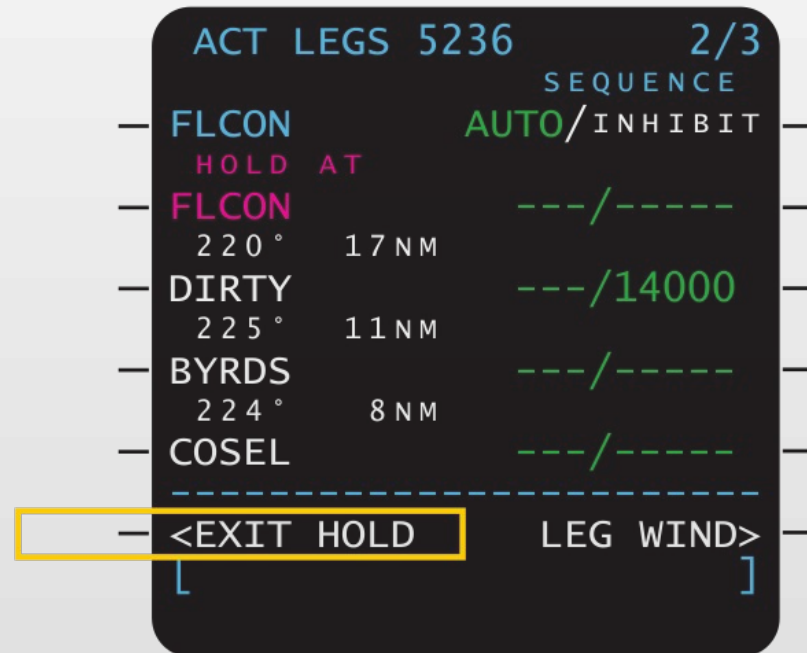
1. Push the HOLD key.
2. If the ACT FPLN HOLD page or the ACT HOLD LIST page is showing, push NEW HOLD.
3. Push the PPOS line select key to show the HOLD page with the present position as the holding fix.
4. Change the defaults to match your clearance as required.

FMS – Holding

Exit Holding

From the LEGS page:

1. Select EXIT HOLD (line select 6L); or
2. Place another waypoint in the flight plan on the TO line (line select 2L).



Airwork Introduction

SOP Section 1-5

Stalls

- Clean
- Takeoff
- Landing

Steep Turns

Baseline Pitch and Power Settings for Straight and Level Flight at 5,000ft/Clean

Speed	Approximate Pitch	Approximate Thrust
250	1 - 1 ½ degrees	59% N1
200	4 degrees	54% N1 (Land the Spaceship)

Aircraft Configuration for Airwork

	Steep Turns	Clean Stall	Takeoff Stall	Landing Stall
Approx. Thrust	64% N1	45% N1	45% N1	45% N1
Flaps	0	0	20	45
Gear	Up	Up	Down	Down
Autopilot	Off	Off	Off	On
Flight Director	Off	On	Off	On
Speed Brakes	Closed	Open	Closed	Closed
Bank Angle	45°	0	20° @ 150kts	0
Pink Bug	250	200	200	200
Blue Bugs	n/a	n/a	V2(ga) 136	V2ga 136
			VT 179	VT 179

Steep Turns

The objective of the steep turn maneuver is to familiarize pilots with the airplane handling characteristics and improve the instrument panel scan. **Steep turns will be done with autopilot and flight director off.** Brief PM to call 15 degrees prior to start your rollout.

Entry:

- stabilizes aircraft at 250 KIAS
- smoothly roll the aircraft into a 45° bank turn
- increase N 1 by approximately 2% to 3%, (approximately 62-63%)
- use approximately 3° nose-up pitch to maintain altitude

Recovery:

15° prior to desired heading, start rolling out and reduce thrust as necessary to maintain 250 KIAS.

Stalls: Clean

The clean stall is meant to simulate an approach to stall condition during the normal cruise phase of flight. The airplane should be **configured in the cruise configuration without the use of the autopilot (Flaps - 0, Gear - UP)**.

Aircraft buffet, uncommanded roll, stick shaker activated and/or stall warbler on:

1. Autopilot Disengage, if required
2. Pitch attitude Lower nose to reduce angle of attack
3. Thrust levers Advance to MAX POWER
4. Roll attitude Wings level
5. FLIGHT SPOILER RETRACT

After airspeed increases and stall warning goes out:

6. Pitch attitude Adjust to minimize altitude loss
7. Thrust levers and aircraft configuration Adjust as required

Note 1: It is essential that the AOA be immediately reduced, even if this means a loss of altitude.

Note 2: Avoid abrupt or aggressive pitch control inputs during recovery. Inappropriate recovery inputs can result in a secondary stall.

Note 3: Height loss resulting from high AOA recovery, especially at cruise altitude and/or low initial thrust conditions, can be significant.

Stalls: Takeoff

The Takeoff Stall is meant to simulate an approach to stall in the takeoff phase of flight. The aircraft should be **configured for a flaps 20 takeoff without the use of the autopilot (Gear - DOWN, Flaps - 20, Left/Right Bank)**.

Aircraft buffet, un-commanded roll, stick shaker activated and/or stall warbler on:

- | | |
|-------------------------|--------------------------------------|
| 1. Autopilot | Disengage, if required |
| 2. Pitch attitude | Lower nose to reduce angle of attack |
| 3. Thrust levers | Advance to MAX POWER |
| 4. Roll attitude | Wings level |
| 5. FLIGHT SPOILER | RETRACT |

After airspeed increases and stall warning goes out:

- | | |
|---|----------------------------------|
| 6. Pitch attitude | Adjust to minimize altitude loss |
| 7. Thrust levers and aircraft configuration | Adjust as required |

Note 1: It is essential that the AOA be immediately reduced, even if this means a loss of altitude.

Note 2: Avoid abrupt or aggressive pitch control inputs during recovery. Inappropriate recovery inputs can result in a secondary stall.

Note 3: Height loss resulting from high AOA recovery, especially at cruise altitude and/or low initial thrust conditions, can be significant.

Stalls: Landing

The Landing stall is meant to simulate an approach to stall in the landing configuration. The aircraft should be **configured for landing with the autopilot on (Gear - DOWN, Flaps - 45)**.

Aircraft buffet, un-commanded roll, stick shaker activated and/or stall warbler on:

- | | |
|-------------------------|--------------------------------------|
| 1. Autopilot | Disengage, if required |
| 2. Pitch attitude | Lower nose to reduce angle of attack |
| 3. Thrust levers | Advance to MAX POWER |
| 4. Roll attitude | Wings level |
| 5. FLIGHT SPOILER | RETRACT |

After airspeed increases and stall warning goes out:

- | | |
|---|----------------------------------|
| 6. Pitch attitude | Adjust to minimize altitude loss |
| 7. Thrust levers and aircraft configuration | Adjust as required |

Note 1: It is essential that the AOA be immediately reduced, even if this means a loss of altitude.

Note 2: Avoid abrupt or aggressive pitch control inputs during recovery. Inappropriate recovery inputs can result in a secondary stall.

Note 3: Height loss resulting from high AOA recovery, especially at cruise altitude and/or low initial thrust conditions, can be significant.

Checklists

Descent

- The Banana Bar and the Snowflake are your friends, use them. Otherwise, plan 3 miles per thousand feet and advance the TOD point by 2 miles for each 10 knots of tailwind, and by 2 miles for each 1,000 feet of anti-ice use.
- Normally, descent is initiated with partial cruise thrust at high altitude (approximately 80% N 2) and in the clean configuration (no flight spoilers).
- If a descent at “pilot’s discretion” is given by ATC and the altitude change is 6,000’ or less, the PF shall initiate the descent immediately unless the immediate descent would take you into inclement weather.
- Unless otherwise instructed by ATC, plan to arrive at 10,000 AGL, 30 miles from the airport at 250 KIAS.

Checklists

Descent Speeds

Descent Speed Schedule	
10,000' and above	Long Range Descent – M 0.70/250 KIAS
	Normal Descent – M 0.74/290 KIAS
	High Speed Descent – M 0.77/320 KIAS
Below 10,000'	250 KIAS

SOP 2-16.5, 2-16.7, 2-16.9,

Checklists In Range

- Normally performed after descending below 18,000'.
- Challenge and Response

IN RANGE CHECK	
Sterile Light	ON
LDG ELEV	Set
Fuel	Checked
Altimeters	(----) Set/Cross Checked
Radar/Terrain.....	As Required
CAS.....	Checked/Clear
Landing Data	Set/Checked
Approach Briefing	Complete
Category II Approach.....	As Required

Checklists

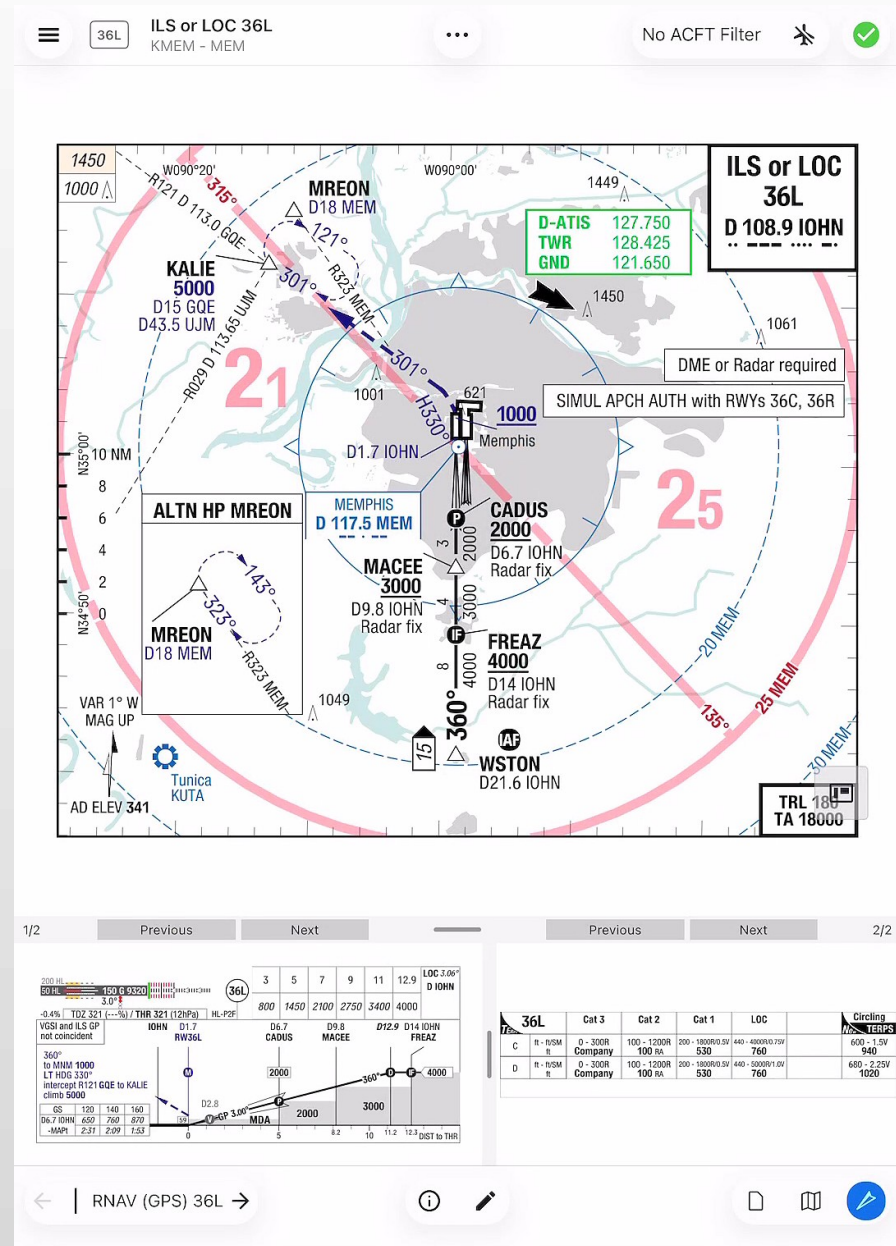
In-Range Flows

- At or before the In-Range Check
- † FMS arrival and approach programming
- ‡ Transfer of controls to PM is optional during low workload and low threat environments with the autopilot engaged.
- Note: The approach should be loaded in the FMS, when available, to aid in situation awareness, but must be loaded in the FMS when the FMS is used to navigate the approach procedure (i.e., GPS approach, VOR approach in white needles, etc.).
- Vref may be inserted as a speed constraint on the LEGS page abeam the runway or missed approach point, depending on the approach flown.
- • With PF concurrence, execute the FMS modification if appropriate.
 - It is mandatory that both pilots verify all FMS lateral and vertical programmed information against the current published procedures.
 - If a discrepancy exists between the FMS and the published procedure, the published procedure must be used.
 - As a general rule, any time the NAV data is selected to FMS (white needles) the respective radio should be in AUT (autotune).
 - Any changes to an approach after the initial briefing should be re-briefed in accordance with this section

Approach Preparation	
PF	PM
—	Get ATIS
—	Set landing data: V_{REF} , V_{2GA} , V_T
—	Preset approach frequencies on RTUs
Select bearing pointers (if applicable)	
Set final course	
Set DDA/MDA	
—	† Program the FMS
‡ Transfer control to PM, do not transfer Flight Director	‡ Take control
Brief approach and verify FMS & RTUs	—
‡ Take control	‡ Transfer control to PF

Approach Briefing

Please brief this approach:

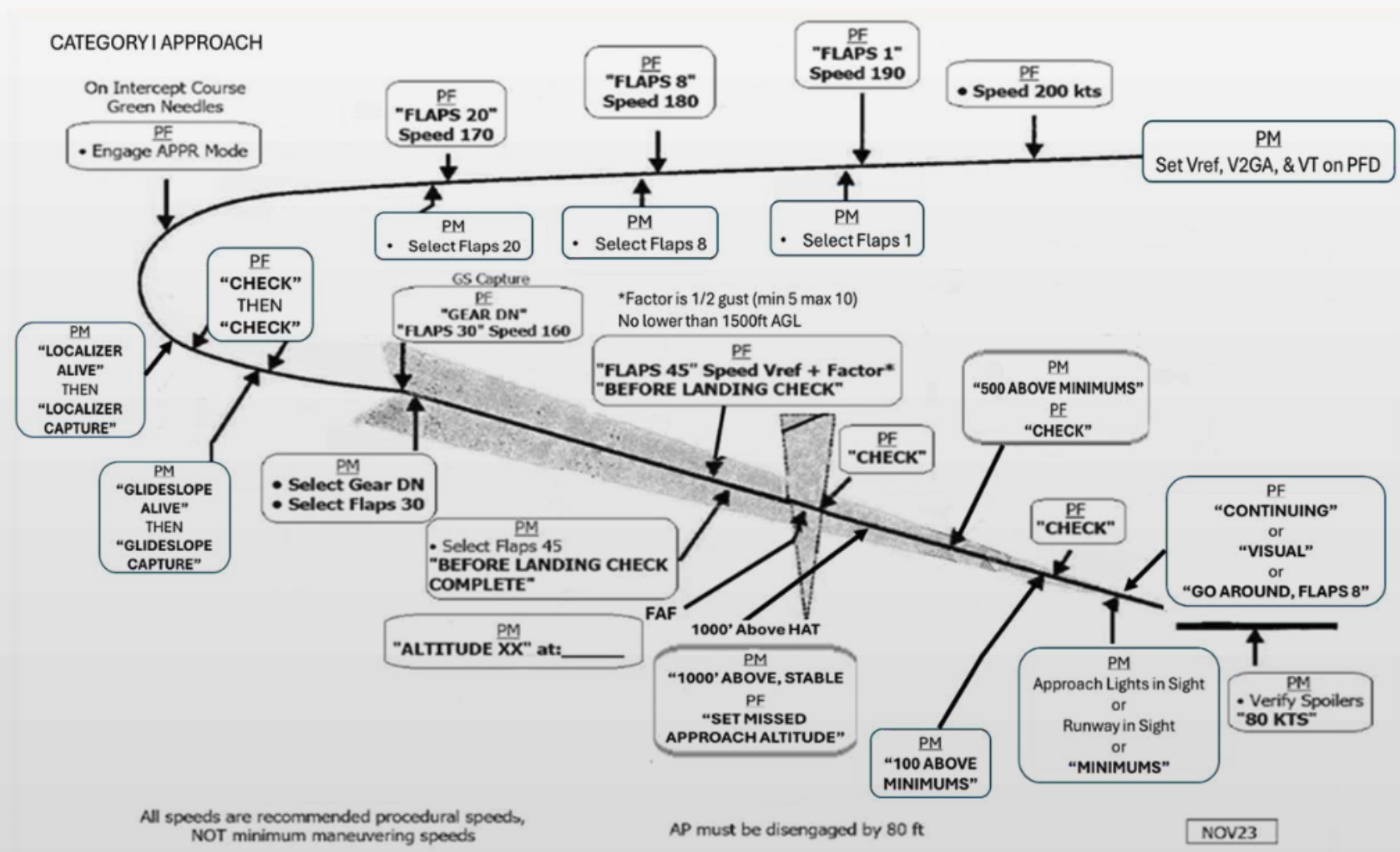


Checklists

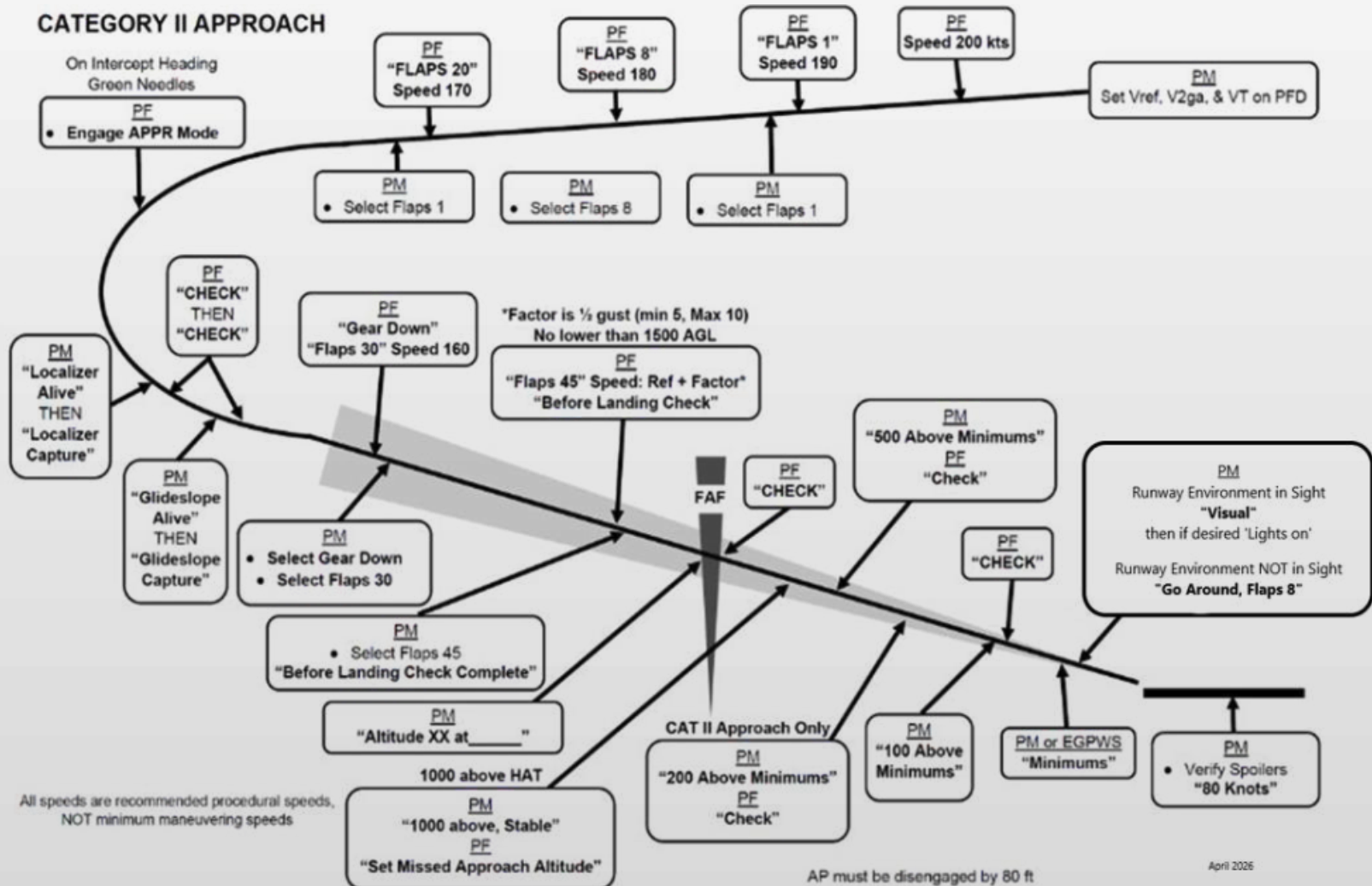
In Range Practice

IN RANGE CHECK	
Sterile Light	ON
LDG ELEV	Set
Fuel	Checked
Altimeters	(----) Set/Cross Checked
Radar/Terrain.....	As Required
CAS.....	Checked/Clear
Landing Data	Set/Checked
Approach Briefing	Complete
Category II Approach.....	As Required
	PF/PM
	PM
	PF
	BOTH
	PM
	BOTH
	BOTH
	PF
	Captain

ILS Approaches (CAT I)



ILS Approaches (CAT II)



Checklists

Before Landing

- Normally performed after final gear and flaps selection
- Pilot Monitoring Flow
 - Flight Attendant Chime (just press the Chime button, you do not have to select PA first)
 - Arm Thrust Reversers

BEFORE LANDING CHECK		
Flight Attendant	Advised	PM
Thrust Reversers	ARMED	PF
Landing Gear	Down	Both
Flaps	(--°) indicating	Both
Flight Spoilers	Stowed	Both

Checklists

After Landing

- Performed by the FO when the aircraft is clear of the active runway.
- Read and Do

AFTER LANDING CHECK		
APU.....	As Required	F/O
Radar	OFF	F/O
Flaps	Up	F/O
Lights & Strobes	As Required	F/O
Probes	OFF	F/O
Trims.....	Zero & 7.0	F/O

Checklists

Shutdown Check

- Taxiing in just short of gate, FO reaches up to seat belt sign.
- As the parking brake is set, the seat belt sign is turned off.
- Once the chocks are in, the seat belt sign is selected on and off, letting the FA know it is safe to open the main cabin door.
- Challenge and Response

SHUTDOWN CHECK		
Chocks & Brakes.....	As Required	CA
Electrics	Set	CA
*Fuel Check Valve.....	Checked	CA
Thrust Levers	Shut Off	CA
Transponder.....	STBY	F/O
Seat Belts.....	OFF	F/O
Anti-ice	OFF	F/O
Fuel Pumps	OFF	CA
Hydraulic Pump 3A.....	As Required	CA
Beacon	OFF	CA
Nosewheel Steering	OFF	CA

Checklists

Shutdown Check Flow

- Captain
 - Chocks & Brakes
 - Electrics
 - *Fuel Check Valve
 - Bleed Valves Closed
 - Thrust Levers Shut Off
 - Bleed Valves Auto
 - Fuel Pumps Off
 - Hydraulic Pump 3A Off
 - Beacon Off
 - Nosewheel Steering Off
- First Officer
 - Transponder Standby
 - Seat Belts Off
 - Anti-Ice Off

Checklists

Shutdown Check Practice

SHUTDOWN CHECK		
Chocks & Brakes	As Required	CA
Electrics	Set	CA
*Fuel Check Valve.....	Checked	CA
Thrust Levers	Shut Off	CA
Transponder.....	STBY	F/O
Seat Belts.....	OFF	F/O
Anti-ice	OFF	F/O
Fuel Pumps	OFF	CA
Hydraulic Pump 3A.....	As Required	CA
Beacon	OFF	CA
Nosewheel Steering	OFF	CA

Checklists

Terminating Check

- Can be performed by either pilot
- Read and Do

TERMINATING CHECK		
Recirc Fan	OFF	CA
Chocks & Brakes	In & ON	CA
Starlink Power Switch.....	OFF ILLUMINATED	CA
Thrust Reversers.....	OFF	CA
IRS 1 & 2 (if equipped).....	OFF	CA
Emergency Lights.....	OFF	CA
Windshield Heat.....	OFF	CA
CARGO Switch	OFF	CA
Hydraulic Pumps.....	OFF	CA
External Lights.....	OFF	CA
APU START.....	OFF	CA
APU PWR/FUEL.....	OFF	CA
DC Service.....	OFF	CA
External AC Power Switch	OFF	CA
Battery Master	OFF	CA
Dome Lights	OFF	CA
Boarding Lights.....	OFF	CA

SOP 2-24

After Landing

Taxi Diagrams Out and On

Write Down ALL Clearances

FO performs the After Landing Checklist when CA asks for it.

On the first shutdown of the day, the fuel check valve verification will be accomplished. Normally this task should be performed by the F/O.

Left Engine Shut down

L & R BOOST PUMPS switchlights..... OFF

Ensure L FUEL LO PRESS and L & R FUEL PUMP caution message display.

If after two (2) minutes and the FUEL LO PRESS caution message is still not displayed:

Ensure engine hazard area is clear

Left engine Dry motor (30 seconds max)

L FUEL LO PRESS caution message should be displayed during motoring as the residual fuel pressure is reduced.

Debrief

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

Engine Failures in Flight

Engine Flameout (**L ENG FLAMEOUT** or **R ENG FLAMEOUT**)

- Not on the Immediate Action Checklist, refer to the QRH (Abnormal 1-15)
- Check for oil pressure and quantity, fans turning (N1 and N2), no unusual noises or vibrations, etc.
- Restartable

Engine Damage & Engine Fire

- On the Immediate Action Checklist
- Not Restartable

SOP Section 1-4.23.5 provides a sample dialog for a Left Engine Fire Indication.

L (R) ENG FIRE Msg or Severe Engine Damage (In Flight)

At a safe altitude, affected engine:

- (1) Thrust lever CONFIRM and IDLE
- (2) Thrust leverCONFIRM and SHUT OFF
- (3) ENG FIRE PUSH..... CONFIRM and SELECT
- (4) Fuel Boost PumpCONFIRM and OFF

After 10 seconds and fire warning persists:

- (5) Affected engine BOTTLE..... SELECT to discharge

After another 30 seconds and fire warning still persists:

- (6) Other engine BOTTLE SELECT to discharge

EMER 1-3

Next Lesson – HOMEWORK!

- ☐ What do you need for a 600 RVR Takeoff?
- ☐ Read QRH 2 ABNORM 1-1 through 1-11, 1-15.
- ☐ Please review Starter Limitations, External Air start and Cross Bleed Start procedures in QRH 1.
- ☐ Also review Low Oil Press, Start Abort, Hot Start, No Starter Cutout in QRH 2. What checklist will you call for if the engine does not accelerate to IDLE values?
- ☐ Review Non-Precision Approaches and CANPA in the SOP.
- ☐ Callouts for the 2 Engine Missed Approach.