THE ULTIMATE CHECKLIST for **Concorde X** v1.41 by Flight Sim Labs

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WARNING!

This checklist has been created by Concorde enthusiast Ramón Cutanda. **I am not a real pilot and**, except from some volunteered and limited beta testing, **I have no professional relationship with FSLabs whatsoever. Therefore, this is not, by any means, an "official", "approved" or "real" checklist, either by FSLabs or British Airways.**

This checklist is **MAINLY BASED ON real British Airways Concorde Flying Manuals,** with updates up to 1st May 2003. I have also cross-checked many details with **FSLabs' documentation and checklists included with their Concorde-X**.

Using the aforementioned sources, **I have created this checklist according to the following criteria**.

- **Omitting checks and actions for systems and items not simulated** in Concorde-X by FSLabs, such as the oxygen system or weather radar.
- Because this checklist is performed with the limitations of a virtual cockpit, 2D panels and by only one pilot instead of a crew of 3, I have done my best **reordering the sequence** of some items to **avoid** what I considered **unnecessary panel jumps** within Concorde-X. I have tried, however, to keep these changes to a minimum to respect the original flow.
- Excluding exclusive electrical procedures only applicable to G-BOAG
- Use **different colours and font sizes** to make the checklist both as **useful and easy to follow** as possible **both by casual and advanced simmers**. For **hardcore simmers** that know all the procedures in by heart I would recommend the simpler and quicker *Ultimate Simple Checklist*.

This checklist includes **real notes and comments to extend the knowledge about** the **systems and the reason for many of procedures followed.** Please, take into account that as with almost checklist in aviation, **some items are checked more than once** during the flow. These double-checks **are not a typo.**

This checklist is the result of an extensive review of several real British Airways Manuals put into practice along HUNDREDS of hours at the controls of Concorde-X. I truly believe this is the most complete and helpful checklist for Concorde-X. It has received several updates over the years and now that I have updated it with the most recent British Airways Manuals I have been able to find, I really cannot think of any more improvements. That is why I have called this checklist "Ultimate".

I do hope you will find this checklist both easy to follow and useful.

IMPORTANT NOTES:

1. I have used this grey colour for all the items in the checklist that do not require any action or intervention by the Captain/Flight Office (that's is... you) or the Flight Engineer (should you disable the Virtual Flight Engineer -VFE- which is enabled by default) because they are never used or changed in a normal flight or, in my experience (thousands of hours logged in Concorde-X) never change or fail. Other items such as light bulbs tests, are unnecessary in Concorde-X, as blown bulbs are not included in the list of systems with possibility of failure in the simulation by FSLabs.

You will also find in this grey colour extra information that may be useful to understand systems or procedures, or helpful in case of problems, but that you can safely skip in normal flights.

Unless you are looking for maximum realism, skipping the items in this grey colour can help you speed up the checklist and/or focus on the most important items and, according to my experience, should be safe and trouble-free 99,99% of the times.

2. All the items taken care of by the Virtual Flight Engineer (VFE) that require action/intervention in every flight are marked in this purple colour. YOU CAN ALSO SAFELY SKIP THE ITEMS IN THIS COLOUR *AS LONG AS* YOU KEEP THE VFE ENABLED, which it is by default. With the VFE disabled, on the other hand, the items in this colour are mandatory.

3. I have used this blue colour for steps that are not included any real or FSLabs' Concorde checklists, but that make sense for me and I like to follow.

CONCORDE-X LOADING FROM SCENARIO SETUP IN P3Dv3 . . . . . .

I found that this checklist is more consistent when I load Corcorde-X directly from the P3Dv3 Scenario Setup Window instead of loading first a default airplane such as the F-22 Raptor or the Piper Cub, and then switch to Concorde-X after the scenario has finished loading.

I usually save the situation every time I end a flight because I like to restart Concorde-X from the same position I ended my last flight. When saving a flight, Concorde-X will also save a Panel State with the same name.

PANEL STATE . . . . . LOADED . . . . . FSLabs Menu

When not loading a previously saved situation from the Scenario Setup window, loading a previous panel state once the scenario load finish will set Concorde-X with all the switches, knobs and other settings exactly in the same state as I left them in my last saved situation, making this checklist more realistic and not as "boring" and predictable as the default states.

COCKPIT SAFETY CHECK

This check must be performed "EX BASE" upon entering the cockpit. Its completion ensures that there will be no danger to the aircraft and/or personnel when powering the systems.

BOARDING, RACKING AREA AND ROOF LIGHTS . . . . . ON. . . . . Aft Overhead (SHIFT+3)

- *Set ROOF LIGHTS as required*

AUTO IGNITION switches . . . . . OFF . . . . . .

Verify AUTO IGNITION sws (4) at OFF

NOTE: This prevents,

1. Operation of the start pump and engine igniters should the throttle master sel be at MAIN or ALTERN and the HP VALVE SW be at OPEN.

2. Operation of the start pump and opening of the start valve when the debow switch is at debow and LH or BOTH igniters selected.

ADS/ENGINE PROBE HEATERS . . . . . OFF . . . . . .

- *Verify ADS 1, and ADS 2, selectors at OFF and STBY SW at OFF*
- *Observe all ADS/ENGINE PROBE HEATERS lights (yellow) (NOTE: only after Ground Power connection)*

WING & INTAKE ANTI-ICING TEST . . . . . OFF . . . . . .

FUEL FWD TRANS switch . . . . . GUARDED . . . . . .

TRIM TRANS AUTO MASTER set . . . . . OFF/GUARDED . . . . Lower Fuel (CTRL+SHIFT+5)

TANK 11 INLET VALVES sels . . . . . AUTO/OFF . . . . . .

Verify tank 11 INLET VALVES, MAIN sels at AUTO AND OVERRIDE sels at OFF.

STANDBY INLET VALVES switches (x9) **. . . . . SHUT . . . Upper Fuel (CTRL+SHIFT+6)**

This prevents any inadvertent transfer of fuel when electrical power is supplied Black Rotary Selector

TRIM PIPE DRAIN switch . . . . . SHUT . . . . . .

JETTISON PANEL COVER . . . . . CLOSED . . . . . .

This prevents any accidental discharge of fuel when electrical power is supplied

LANDING GEAR NORMAL LEVER . . . . . DOWN . . . . . .Main

- *Confirm L/GEAR lever at DOWN and observe LH SHORT, UPPER LOCKS and RH SHORT lts off, L/GEAR transit lts off and LH NOSE, T and RH arrow lts (green) on.*

LANDING GEAR O/RIDE . . . . . GUARDED . . . . . .

VISOR/NOSE lever . . . . . .AS CONFIGURATION . . . . . .

Verify that VISOR/NOSE lever position coincides with visor/nose configuration.

NOTE: This check prevents any uncontrolled movement of the droop nose and visor when the green hydraulic system is pressurised.

TRANSPONDER . . . . . STBY . . . . . Lower Pedestal (SHIFT+7)

EMERGENCY NOSE/VISOR UPLOCK RELEASE . DOWN/PIN ENGAGED . Upper Pedestal (SHIFT+6)

NOSE & VISOR STBY CONTROL . . . . . OFF/GUARDED . . . . .

RAM AIR TURBINE SELS . . . . . .GUARDED . . . . . FWD Leg (CTRL+SHIFT+1)

COCKPIT PRELIMINARY PREPARATION

AIRCRAFT FUEL AND AIRCRAFT LOAD. . . . . CHECKED . . . . FS Labs Menu

GROUND POWER . . . . . REQUEST GROUND POWER . . . . . . Ground Services Menu

. . . . . ON (Ground power switch to close) . . . **AC Electrics (CTRL+SHIFT+7)**

- ***Observe GRND PWR AVAILABLE lt (white) on.***
- ***Observe the SSB MI shows inline***

  NOTE: The SSB must be CLOSED or no supply will be available to the cockpit. *The SSB connects the left hand main a.c. system to the right hand main a.c. system. If the SSB is OPEN the ground supply is isolated from all except ground supply busbars.*
- ***Set ground power sw to CLOSE and release.***
- *Observe general lighting up of panels.*
- ***CANCEL THE CONTINUOUS AUDIO GONG OF THE MASTER WARNING SYSTEM WITH ANY OF THE FOLLOWING THREE METHODS:***
  - *Press CTRL+SHIFT+Z*
  - *Push MWS CANCEL in DC Electrics panel (CTRL+SHIFT+8)*
  - *Press the CANCEL push button on the right side of the MWS panel (above the glareshield)*
- *Observe MWS lts go off.*
- *Observe AC MAIN BUS lts are off.*
- ***Move to the DC Electrics panel (CTRL+SHIFT+8)***
  - *Observe AC ESS BUS lts are off.*
  - *Observe DC MAIN BUS lt off and DC ESS BUS lts off.*
  - *Observe DC ESS/MAIN split MIs inline.*
  - ***Verify battery sels at BATT OFF***
  - *Observe battery MIs crossline and BATT ISOLATE lts (amber) on.*

AIR BLEED CONTROL PANEL . . . . . CHECK/SET . . . . . Air Bleed (CTRL+SHIFT+3)

- *Observe OVER PRESS lights, PRIM EXCH lights, SEC EXCH lights, FUEL EXH lights, and DUCT lights off.*
- *Set BLEED VALVES switches to OPEN*
- *Press to test the OVER PRESS lights in turn.*
  - *Observe OVER PRESS light (amber) on, MWS AIR light (amber) on*
  - *Observe BLEED VALVES MIs show crossline*
  - *Observe bleed pressure gauges read 0 approx.*
- *Set BLEED VALVES switches to SHUT*
- *Set 2 and 3 CROSS BLEED switches to OPEN*
- *Verify 1 and 4 CROSS BLEED switches at SHUT*

- *Verify CROSS BLEED MIs 2 and 3 show crossline*
- *Verify COND VALVE selectors at OFF*
    - *Observe COND VALVE MIs show crossline*
    - *Observe JET PUMP MIs show crossline and RAM AIR MIs show inline*
    - *Observe FUEL VALVE selectors are at AUTO and guarded and FUEL VALVE MIs show inline or crossline.*
        - *NOTE: On the ground, any valve may be in either position, depending upon the respective fuel and air temperatures*
- *Observe TEMP VALVE position indicators read C approx.*

I find turning the Air Conditioning ON at this moment a common-sense step. Just imagine doing all the rest of the checklists in Alaska or in the Emirates inside a Concorde at ambient temperature!

AIR CONDITIONING. . . . . REQUEST GROUND AIR . . . . . Ground Services Menu

BLEED VALVES (4) . . . . . SHUT (GRND SUPPLY). . . . . Air Bleed (CTRL+SHIFT+3)

CROSS BLEED VALVES (4) . . . . . OPEN . . . . . .

COND VALVES (4) . . . . . ON . . . . . .

(VFE) EQUIPMENT BAY COOLING PANEL . . . . . CHECK/SET . . .Upper Fuel (CTRL+SHIFT+6)

- *Observe FLOW lts are off.*
- *Verify Fan 2 sel. and Fans 1&3 sel. at AUTO.*
    - *Observe Forward Extract MI reads ON.*
- *Verify Forward Supply Fans sel at NORM.*
    - *Observe LH and RH Supply Fan MIs read ON.*
- *Verify Rear Extract LH and RH Fans sws at ON and Standby Fan sw at OFF.*
    - *Observe LH and RH Rear Extract Fan Mis read ON.*
- *Verify Forward Emergency Relief Valve sw at SHUT and MI reads SHUT.*
    - *Observe Forward Flow Indicator reads 0.85 to 1.1 kgs/sec.*

On the FORWARD EXTRACT panel

- *Set Fan 2 sel to OFF*
- *Observe*
    - *Forward Extract MI reads OFF*
    - *Flow lts remain OFF*
    - *Flow Indicator reads 0.7 to 0.85 kgs/sec*
- *Set Fans 1 and 3 sel to OFF.*
- *Observe*
    - *Flow lts on*
    - *MWS AIR (amber) ON*
    - *Flow Indicator reads zero*

- *Set Fan 2 sel to AUTO*
- *Observe*
    - *Flow Indicator reads 0.4 to 0.55 (0.3 Kg/s on Concorde-X)*
    - *The Flow lts and MWS AIR may be on or off*
- *Set fans 1 and 3 sel to AUTO*
- *Observe*
    - *Forward Extract MI reads ON*
    - *Flow lts OFF*
    - *MWS AIR OFF*

On the REAR EXTRACT panel

- *Set LH and RH fans to OFF*
- *Observe*
    - *LH and RH Mis read OFF*
    - *Flow lt ON*
    - *MWS AIR (amber) ON*
- *Set STANDBY fan to ON*
    - *Observe Flow lt OFF*
- *Set LH and RH fans to ON*
    - *Observe LH and RH MIs read ON*
- *Set STANDBY fan to OFF*

On the FORWARD EXTRACT panel

- *Set the FORWARD EMERGENCY RELIEF valve to OPEN and observe MI reads OPEN*
- *Set the FORWARD EMERGENCY RELIEF valve to SHUT and observe MI reads SHUT*

AIR DATA COMPUTERS . . . . . ON . . . . . Lower Pedestal (SHIFT+7)

- *Set ADC 1 SW to ON and verify ADC 1 rty sel at NORM.*
- *Set ADC 2 sw to ON and verify ADC 2 rty sel at NORM.*
    - *IF the ADC 1 and/or ADC 2 lts (amber) on, when the flight instruments stabilise press to reset.*
        - *Observe the ADC 1 and ADC 2 lts off.*

TEMPERATURE . . . . . CHECK . . . . . .

Observe no failure flags visible on temperature indicator

DRAIN MAST HEATER . . . . . CHECK/SET . . . . . .Aft Overhead (SHIFT+3)

- *Verify DRAIN MAST HTRS sels off.*
- *Observe MAST 1 MAST 2 and MAST 3 lts. off.*
- *Observe total air temperature*
    - *IF total air temperature above 0ºC. set DRAIN MAST HTRS sels to OFF.*
    - *IF total air temperature below 0ºC set DRAIN MAST HTRS sels to ON.*

RELAY JACK PANEL . . . . . CHECK/TEST . . . . . .

- *Verify RELAY JACK sel at NORM.*
- *Observe RELAY JACK BLUE lt and GREEN lt off.*
- *Press to test BLUE TEST pb and observe BLUE JAM lt (red), and MWS PFC (red) on.*
- *Repeat test using GREEN TEST pb.*
- *Cancel PFC MWS*

INS 1, 2 & 3 . . . . . ALIGN, TEST, PRESENT POSITION . . . . . .

IMPORTANT: The aircraft must not be towed or taxied during INS alignment.

INS 1, 2 & 3 . . . . . OFF . . . . . FWD Leg (CTRL+SHIFT+1)

- *Make sure to set the mode rty sel on MSU 1, 2 and 3 to OFF*
- ***For auto align, you only need to press CTRL+I and then skip to FLIGHT ENGINEER'S COCKPIT PREPARATION***
- *For **manual alignment**:*
- ***Set the mode rty sel on MSU 1, 2 and 3 to STBY***
- ***Open CDUS 1, 2 & 3 (SHIFT+7/8/9)***

Check INS malfunctions:

- *Clear Warn light on each control display module and BAT light on each mode selector module should be extinguished.*

Load INS Field Position Data: *NOTE: You can auto enter the current position by CLICKING on the RIGHT HAND SCREW of the INS panels*

- *Position data selector switch to POS.*
- *Press keyboard switch for north (N2) or south (8S) latitude as required.*
- *Press keyboard switches in sequence for present position latitude and observe correct latitude in left data display*

  NOTE: You can see your current position by pressing SHIFT+Z. Round up or down the last digit and use zeroes if necessary (For example, S27º9.59' should be typed as 2709.6)
- *Press INSERT switch once and observe loaded LAT +/- 0.1 in left data display*
  - *Observe INSERT light stays on*
- *Press keyboard switch for east (6E) or west (W4) longitude as required.*
- *Press keyboard switches in sequence for present position longitude and observe correct longitude in right data display.*
- *Press INSERT switch and observe insert light extinguish and new present position data*
- *Latitude and longitude+/- 0.1 appear in left and right data displays.*
- *Repeat for each INS module.*
- *Record INS 3 displayed present position on flight engineer's flight log.*
- *Cross check recorded position with listed ramp position in the Aerodrome Folder.*
- ***TEST INS CIRCUIT STATUS AFTER ENTERING POSITION DATA***
  - ***Press TEST***
  - *Check that all INS lamps (except keyboard and clear lamps) illuminate.*
  - *Figure eight (8) appears in all digit positions of both data displays*
  - *Directional letters (NS) appear in the left display*
  - *Directional letters (EW) appear in the right display*
  - *FROM-TO indicates 88.*
  - *Also check that INS READY NAV and BAT lights on their respective INS mode selector modules illuminate.*

NOTE: Apart from checking the bulbs, this test will also clear INS errors when there is a difference between the coordinates of the last position registered by the INS and your current position. This is very frequent, for example, when you park the Concode-X in one airport and then you load the simulator on a different one for your next flight; or even in the same airport if you don't reload in the exact same parking spot/gate. You may need to press TEST several times to clear all errors.

- *Repeat test on each module.*

INS 1, 2&3 MSU . . . . . ALIGN. . . FWD Leg (CTRL+SHIFT+1)

- ***Set rty 1 sel at ALIGN***

  NOTE: Illumination of the BAT light (amber) on the control display modules during align mode indicates that battery power is operating normally.

  NOTE: You can speed up the alignment by LEFT CLICKING on the RIGHT HAND SIDE SCREW of the INS window.

- ***Repeat for MSU 2 and 3***
- *Set Data Selector to DSRTK/STS position on CDU1, 2 & 3 to check the progress of the alignment*

  NOTE: With the CDU selectors at the DSRTRK/STS position, the fifth digit in the right data indicator display the STATUS of the current INS alignment submode, known as the Accuracy Index (AI). The AI starts from 9 and decreases toward 0 as the alignment progresses. NAV It remains off unless status 5 reached. At 5 or lower, NAV mode is permitted In NAV mode the fifth digit represents the quality of the position data. This provides an indication of the accumulated position error. The sixth digit (Mode Index) stays fixed at 5 during alignment.

FLIGHT ENGINEER'S COCKPIT PREPARATION

FLIGHT DECK DOOR . . . . . OPEN (UNLK) . . . . . Aft Overhead (SHIFT+3)

GRND CALL push button light . . . . . OFF . . . . . .

I/PHONE sw . . . . . NORMAL . . . . . .

STEWARD CALL light . . . . . OFF . . . . . .

CABIN SIGNS FASTEN BELT/ NO SMOKING . . . . . ON . . . . . .

EMERGENCY/EVACUATION WARNING . . . . . ARM . . . . . .

LIGHTING (left side) . . . . . AS REQUIRED . . . . . .

SET ROOF LIGHTS and rotate the LIGHTING STORM, LIGHTING GLARESHIELD and LIGHTING CENTRE CONSOLE PANEL rty sel to the required position. Observe lighting as selected.

ANTI-COLLISION LIGHTS . . . . . OFF . . . . . .

NAV LIGHTS . . . . . AS REQUIRED . . . . . .

ENGINE FLIGHT RATING . . . . . CLIMB . . . . . .

DRAIN MAST HEATERS . . . . . AS REQUIRED . . . . . .

- *Observe total air temperature*
  - *IF total air temperature above 0ºC. set DRAIN MAST HTRS sels to OFF.*
  - *IF total air temperature below 0ºC set DRAIN MAST HTRS sels to ON.*

THROTTLE MASTERS . . . . . MAIN or ALTERN . . . . . .

- *Verify THROTTLE MASTER sels at MAIN or ALTERN*
- *Observe sel lts off, THROT lts off.*

NOTE: An intake mounted T1 (engine probe) supplies temperature information to the Main throttle control system of its own engine and to the Alternate throttle control system of the adjacent engine. Therefore, ***it is recommended that the Main throttle control system is used for engine starting whenever all the engine temperatures are not the same.***

AUTO-IGNITION . . . . . OFF . . . . . .

AUTOTHROTTLE SWITCHES . . . . . ON . . . . . .

ENGINE RATING MODE . . . . . TAKE-OFF . . . . . .

HP VALVES . . . . . SHUT . . . . . .

Verify HP VALVE sws at SHUT and MIs read SHUT

PRESSURISATION STATIC HEATERS . . . . . OFF . . . . . .

ADS/ENGINE PROBE HEATERS . . . . . CHECK . . . . . .

- *Confirm ADS 1, and ADS 2, sets at OFF and STBY sw at OFF.*
- *Observe all ADS/ENGINE PROBE HEATERS lts (yellow) on.*

LIGHTING (right side) . . . . . AS REQUIRED . . . . . .

Set LIGHTING CENTRE DASH, LIGHTING CENTRE CONSOLE FLOOD and LIGHTING ROOF rty sels as required and observe lighting as selected.

ENGINE ANTI-ICING . . . . . OFF . . . . . .

Verify ENGINE ANTI-ICING sws OFF and IGV PRESS lts off

WING & INTAKE ANTI-ICING . . . . . OFF . . . . . .

Verify WING & INTAKE ANTI-ICING rty sel MAIN OFF and ALTERN OFF

RELAY JACK PANEL . . . . . CHECK/TEST . . . . . .

- *Verify RELAY JACK sel at NORM.*
- *Observe RELAY JACK BLUE lt and GREEN lt off.*
- *Press to test BLUE TEST pb and observe BLUE JAM lt (red) and MWS PFC (red) on.*
- *Repeat test using GREEN TEST pb*

FUEL FWD TRANS sw . . . . . GUARDED. . . . . .

ENGINE SHUT-DOWN/FIRE CONTROLS . . . . . CHECK . . Forward Overhead (SHIFT+4)

- *Observe engine shut-down handles fully in*
- *Observe SHOT 1 and SHOT 2 frangible discs and engine shut-down handles lights off*
- *Observe FIRE FLAPS light off*

ENGINE STARTING PANEL . . . . . SET . . . . FWD Leg (CTRL+SHIFT+1)

- *Observe START VALVE MIs read SHUT*
- *Verify START/RELIGHT selectors at OFF*
- *Verify ENGINE DEBOW switches at NORMAL*
  - *Observe DEBOW switch lights off*
- *Verify LH IGN and RH IGN lights off*
- *Verify EMERG RELIGHT BUSBARS rotary selectors at OFF*

FIRE SENSORS/FLAME SENSORS . . . . . BOTH . . . . . .

- Verify FIRE SENSORS sels at BOTH and FIRE SENSOR lts off

AIR COND TEST . . . . . OFF . . . . . .

Verify AIR COND TEST SW at OFF (rotary selector inop in Concorde-X)

RAT SWITCHES (Ram Air Turbine) . . . . . CHECK/TEST . . . . . .

- *Observe RAT lt off.*
- *Verify RAM AIR TURBINE sels (2) at OFF.*
- *Set and hold left-hand RAM AIR TURBINE selector to TEST and observe TEST light (blue) on*
- *Release and observe TEST light OFF*
- *Repeat using the right-hand RAM AIR TURBINE selector*

  NOTE: If you accidentally deploy the RAT, reset the selectors at OFF and the use the menu "FSLabs Ground Services -> Request RAT Restowage"

DOOR WARNING LIGHTS . . . . . CHECK . . . . . .

Observe DOOR SW FAULT light is off

ENGINE OVERHEAT TEST rty sel. . . . . OFF . . . . . **Aft Leg Panel**

FIRE EXT. PRESSURE CARTRIDGE . . . . . CHECK . . . . . .

- *Verify FIRE EXT PRESSURE CARTRIDGE TEST rty sel at NORM.*
- *Observe Mls (4) read FULL.*
- *Rotate rty sel to FIRST SHOT.*
- *Observe Mls (4) read DIS.*
- *Rotate rty sel to NORM.*
- *Observe Mls (4) read FULL.*
- *Rotate rty sel to SECOND SHOT.*
- *Observe MI5 (4) read 015.*
- *Rotate rty sel to NORM.*
- *Observe Mls (4) read FULL.*

SMOKE DETECTION . . . . . CHECK . . . . . .

- *Verify SMOKE CABIN AND FREIGHT HOLD rty sel at NORM.*
- *Observe SMOKE A,B,C,D,E.F,G,H,J and K lts off.*
- *Verify AIR GENERATION rty sel al NORM.*
- *Observe:*
  - *SMOKE 1, 2, 3 and 4 lts off*
  - *FAULT 1, 2, 3 and 4 lts off*
  - *MWS SMOKE lt off.*

GROUND HYD. CHECK OUT. . . . . YELLOW, YELLOW / OFF . . . . . **Brake Controls**

- *Verify PUMP 1 G-Y and PUMP 2 B-Y SWS at off.*
- *Verify rty sel is set to YELLOW YELLOW.*

CLOCK . . . . . SET . . . . . .

- *Verify correct GMT set*
- *Verify Timer/Chro switch at CHRO*

FWD LIGHTS . . . . . TEST . . . . . .

- *Open the following Flight Engineer Panels:*
  - *Forward Leg ((CTRL+SHIFT+1)*
  - *Engine Controls (CTRL+SHIFT+2)*
  - *Air Intakes (CTRL+SHIFT+4)*
- *Select and hold the Fwd Lights sel to TEST*
  - *Observe lights ON*
  - *Release to HI or LO*
  - *Observe lights OFF*

BRAKES ACCUMULATOR . . . . . AS REQUIRED . . . . . Brake Controls

Observe brakes accumulator pressure gauge reading 3000 PSI minimum and no flag visible

NOTE: Concorde-X can sometimes load with no pressure on the brake systems. However, the simulation of the parking brakes will still work (the aircraft will not move). If you need brake pressure, for example to make use of GSX Ground Services by FSDreamTeam, try starting engine 2. When reaching about 5% N2 you will have brake pressure. Abort engine start and continue the checklist.

BRAKES OVERLOAD . . . . . CHECK . . . . . .

Observe BRAKES OVERLOAD MI shows black

BRAKES FANS . . . . . AS REQUIRED. . . . . .

BRAKES TEMPERATURE . . . . . TEST . . . . . .

- *Press and hold BRAKES TEMP TEST push button*
- *Observe BRAKES TEMP gauge reads approx. 270ºC, 1, 2, 3 and 4 FWD and REAR lights (red) on and, on the Main Cockpit panel (above the Landing Gear Lever) WHEELS O/HEAT light (red) on.*
- *Release BRAKES TEMP TEST push button*

INTAKE PRESSURE RATIO ERROR . . . . . CHECK . . . . . .

Observe INTAKE PRESSURE RATIO ERROR instruments pointers vertical between amber bands

INTAKE PANEL . . . . . CHECK . . . . . Intake (CTRL+SHIFT+4)

- *Verify the RAMP/SPILL MASTER sws at MAN.*
  - *If necessary, remove the guard and move the RAM/SPILL MASTER sws to MAN then cancel INT 1-4 MWS*
- *Observe INTAKE lts (red) on and all other AIR INTAKES panel lts off.*
- *Verify LANE rty sels at AUTO A or AUTO B position required for the flight.*
  - *NOTE: There are two identical control lanes per intake identified as A and B. Either may be used as the first selection. With AUTO A or AUTO B selected failure of the lane causes automatic changeover to the other lane. The non-auto positions A and B are selections of the appropriate lane with no auto-change capability.*
- *Verify HYD sels at AUTO.*
- *Observe AUX INLET MI agree with the position of the auxiliary Inlet vane observed during the external check.*
- *Observe RAMP Indicators pointers at 0%, RAMP inching sws at centre position.*
- *SPILL indicators pointers at 0% and SPILL inching sws al centre position.*

CABIN PRESSURE CONTROL . . . . .CHECK/TEST . . . . . Cabin Pressure Control

- *Verify GROUND PRESSURE RELIEF VALVE selector at AUTO*
- *Observe GROUND PRESSURE VALVE MI reads OPEN*
- *Verify SYSTEM SELECTS switches as required*
- *DISCHARGE VALVES SYS 1 and SYS 2 selectors at NORM*
- *DITCHING VALVES SYS 1 AND 2 switches at NORM and guarded*
- *EMERGENCY DEPRESS selector at NORM and guarded.*
- *Observe THRUST RECUPERATOR MI reads OFF, and AIR VENTS HYD MI reads OPEN.*
- *Press to test EXCESS ALT lt.*
  - *Observe EXCESS ALT light (red) on, MWS PRESS (red) on and intermittent horn*
- *Observe cabin altitude indicator pointer indicates correct airfield pressure altitude*
- *Observe cabin differential indicator pointer indicates 0*
  NOTE: When loading a panel state the differential may not be 0 due to the air pressure differences between the moment when the panel state was saved and current conditions. Opening the doors in the simulator will set the differential pressure to zero. Please note, however, that doing so is a serious hazard and, in real life, a number of flight attendant deaths have been recorded over the years because of this.
- *Press to test O/PRESS lt.*
  - *Observe O/PRESS light (red) on, MWS PRESS (red) on*
- *On system 1 cabin alt sel, rotate knob B to set cursor at 1013 rob and rotate knob A to set cabin altitude to that required.*
  - ***Verify altitude shown in lower window is higher than the highest flight level planned for the cruise**. For a ceiling of 60,000 feet, 5,500ft should be selected.*
- *Rotate knob R to set cabin rate of climb; white dot is approx 400 ft/min.*
- *Repeat action, using system 2 cabin alt sel.*
- *Observe SYS 1 and SYS 2 discharge valves position indicators FWD and AFT at OPEN (show a value higher than zero)*
- *Set DISCHARGE VALVES SYS 1 and SYS 2 sels to FWD SHUT.*
  - *Observe SYS 1 and SYS 2 FWD discharge valves position indicators move towards SHUT.*
- *Set DISCHARGE VALVES SYS 1 and SYS 2 sels to NORM.*
  - *Observe SYS 1 and SYS 2 discharge valves position indicators FWD and AFT at OPEN.*
- *Repeat actions with DISCHARGE VALVES SYS land SYS 2 at AFT SHUT.*
- *Observe cabin rate of climb indicator reads 0.*

ENGINE WARNING LIGHTS . . . . . TEST . . Engine Controls (CTRL+SHIFT+2)

Observe ENGINE O/HEAT lts (4), START PUMP lts (4), WIND DOWN lts (4), REHEAT lts (4) and NAC/WING O/HEAT lts (4) off

FUEL HEATERS . . . . . AUTO. . Engine Controls (CTRL+SHIFT+2)

ENGINE RECIRCULATION VALVES . . . . . SHUT . . . . . .

T/O CG switch . . . . . NORM . . Engine Controls (CTRL+SHIFT+2)

Verify that the Take-off GC switch is at NORMAL and is guarded

ENG 4 T/O N1 limiter switch . . . . . NORM . . . . . .

GRD IDLE switches . . . . . AS REQUIRED . . . . .

- *Set it to HI for Cross-Bleed engine start. Set it to LO when starting 4 engines at the gates*

ENGINE CONTROL SCHEDULE . . . . . SET . . . . .

- *Set the rotary selector to FLYOVER (F/O) or NORMAL.*

  NOTE: FLYOVER (F/O) is selected for noise abatement take-off and NORM if noise abatement is not required.
- *Set the ENGINE CONTROL SCHEDULE selector to AUTO*
  - *Observe the ENGINE CONTROL SCHEDULE LO lights (green) ON*

SECONDARY AIR DOORS . . . . . .AUTO . . . . .

Observe secondary air door Mis (4) read SHUT

SECONDARY NOZZLE . . . . . .CHECK . . . . .

Observe SECONDARY NOZZLE instruments for condition (21º)

FLIGHT REV ARM . . . . . OFF . . . . .

Observe FLIGHT ARM OPEN lt off

NOZZLE ANGLE SCHEDULING UNIT TEST SELECTOR . . . NORMAL . . . . .

- *Verify NASU test selector at NORMAL*
  - *Observe NOZZLE light off -> NOTE: On Concorde-X it may be on if you don't load a default panel state ON.*

FLIGHT INSTRUMENTS . . . . . CHECK . . . . . Main

Observe for correct repetition of readings on pilots' panels.

ENGINE INSTRUMENTS . . . . . CHECK . . Secondary Engine Instruments (CONTROL+SHIFT+9)

- *Observe TCA TEMP pointers (4) at sensible values and high TCA TEMP lts (4) off.*
- *Observe FUEL TEMP pointers indicate sensible values and high FUEL TEMP Lts (4) off.*
- *Observe OIL ENG pointers (4) indicate 0 psi and low OIL ENG lts (4) (red) on.*
- *Observe OIL TEMP pointers (4) show sensible values and high OIL TEMP lts (4) off.*
- *Observe OIL CONT pointers (4) show sensible values and high OIL CONT lts (4) off.*
- *Observe P7 pointers show sensible values and agree with their lower digital counters.*
- *No warning flag visible across lower digital counters*

ENGINE INSTRUMENTS WARNING TEST . . . . . CHECK . . . . .

- *Press to test OIL TEMP WARNING TEST pushbutton*
  - *Observe OIL TEMP instruments warning light (amber) on and MWS ENG ambers on*
- *Press to test FUEL TEMP WARNING TEST pushbutton*
  - *Observe FUEL TEMP instruments warning lights (amber) on and MWS ENG (red) on*
- *Cancel MWS ENG 1-4*

GREEN GO LIGHTS . . . . . .CHECK . . . . . Main

- *Set P7 gauge indices below gauge reading in the Secondary Engine Instruments - CONTROL+SHIFT+9*
- *Set Engine Fuel Flow gauge indices to maximum*
- *Arm T/O Monitor*
- *Observe four green lights on*
- *Reset controls as required*

FUEL MANAGEMENT . . . . . CHECK/SET . . . . . Fuel Panels (CTRL+SHIFT+5/6)

- ***Verify tank 9 INLET VALVE MAIN sels at AUTO and O/RIDE sels at OFF.***
  - *Observe tank 9 INLET VALVE Mls show crossline.*
- ***Verify tank 9 PUMP sels at AUTO.***
- ***Verify tank 10 DE·AIR sw at OFF.***
  - *Observe DE-AIR MI reads OFF.*
- ***Set tanks 9 & 10 load limit control to zero.***
- ***Verify tank 10 PUMP sels at AUTO.***
- ***Verify TANKS 1 & 4 sw at NORM.***
  - *Observe TANKS 1 & 4 MI reads NORM.*
- ***Observe no failure flags visible on TOTAL CONTENTS indicator.***
- *Verify TOTAL FUEL REM and A/C WEIGHT rty sel at N (normal).*
- *Press and hold left hand knob. Observe TOTAL FUEL REM digital indicators (4) read 8s and A/C WEIGHT digital indicators (5) read 8s. Release the left hand knob.*
- ***Verify tank 11 INLET VALVES MAIN sels (2) at AUTO and OVERRIDE sels (2) at OFF.***
- ***Verify tank 11 PUMP GREEN sel and PUMP BLUE sel at AUTO.***
- ***Verify tank 11 left and right hand PUMPS sels at AUTO.***
- ***Verify tank 11 DE-AIR sw at OFF.***
- *Observe tanks 1, 2 ,3 and 4 jettison valve Mls show crossline.*
- *Observe JETIISON MASTER VALVES Mls (2) show crossline.*
- *Set FUEL TEMP rty sel to positions 2, 3 and 4 in turn and return to 1.*
- *Observe fuel temperature indications for TANK and ENG show sensible readings at each position.*
  - *NOTE: Each numbered position refers to the fuel feed system of the selected engine. TANK Indicates the temperature of the fuel upstream of the air conditioning and hydraulic heat exchangers, i.e. the tank temperature. ENG Indicates the temperature downstream of these heat exchangers i.e. the engine Inlet temperature.*
- ***Verify tanks 5, 6, 1, 2, 3, 4, 10, 7 and 8 STANDBY INLET VALVES sws at SHUT.***
  - *Observe tanks 1, 2, 3, 4 and 10 STANDBY INLET VALVES Mls (5) read in accordance with refuelling.*
- ***Verify the FUEL LP PROTECTION sw al ARMED.***
  - *Observe the HYD/COND FUEL EXCH BY-PASS Mls (4) show black or read OPEN.*
- ***Verify tank 5A PUMPS sws (2) and tank 7A PUMPS sws (2) at OFF.***
- ***Verify TRIM PIPE DRAIN switch SHUT.***
  - *Observe LH and RH Mls read SHUT.*
  - *Observe SCAVENGE PUMP MI reads ON or OFF.*
- ***Verify TRANS VALVE 5A sw and TRANS VALVE 7A-7 sw at SHUT.***
  - *Observe TRANS VALVE SA-S MI and TRANS VALVE 7A-7 MI show crossline.*
- ***Verify tank 5 and tank 7 PUMPS sel at OFF and guarded and tank 5 and tank 7 PUMPS sw at OFF.***
- ***Verify tank 5 and tank 7 INLET VALVE MAIN sels at AUTO and O/RIDE sels at OFF.***
  - *Observe lank S and tank 7 INLET VALVE Mls show crossline.*
- ***Verify tank 6 and tank 8 PUMPS sws (2) at OFF.***
- ***Verify INTER-CON VALVE (6-7) sw and INTER-CON VALVE (5-8) sw at SHUT.***
  - *Observe INTER-CON VALVE Mls read SHUT.*
- ***Verify ENGINE FEED PUMPS sws (12) at OFF.***

- *Verify engine LP VALVE sels (4) at OPEN and guarded.*
    - *Observe LP VALVE Mls show Inline and pea Its off.*
- ***Verify engine CROSSFEED rty sels (4) are crossline.***
    - *Observe CROSSFEED Mls show crossline.*
- ***When loading a custom panel state, click on the FUEL CONSUMED indicator reset/test knob to RESET the fuel consumed quantity to 0. The quantity is already 0 with FSLabs' default panel states.***
    - *Observe the digital indicator reads 0 at the least significant figure and blanks in the other spaces.*
    - *Repeat for engines 2, 3 and 4.*
- *Press to test. in turn. the LEAK Its (4).*
    - *Observe the LEAK It (red) on. MWS ENG 1 (2.3 and 4) Its (red) on and Cancel MWS*
- *Observe, on TANK PRESSURE gauge, no failure flag is visible.*

TEMPERATURE CONTROL PANEL . . . . . CHECK/SET. . . . . Temperature Control Panel

- *Observe LEAK lights (4) off.*
- *Observe CAU IN temperature gauges (4) and DUCT temperature gauges (4) show sensible readings.*
    - *If AIR COND is ON, observe MASS FLOW gauges (4) in the GREEN range.*
    - *If AIR COND is OFF, observe MASS FLOW gauges (4) at 0.*
- *Observe GROUP 1 switch at ON and guarded and group 1 MI shows a vertical line from group 1 to FLIGHT DECK*
- *Observe GROUP 2 switch at ON and guarded and group 2 MI shows a line from Group 2 to FWD CABIN.*
- *Observe GROUP 3 or 4 switch at ON and guarded and group 3 or 4 MI shows a line from group 3 to REAR CABIN*
- *Observe COMPARATOR light is OFF and that FLIGHT DECK, FWD CABIN and REAR CABIN temperatures show sensible readings.*
- *Rotate group 1 temperature selector to AUTO and NORMAL and repeat for groups 2, 3 and 4*

HYDRAULIC MANAGEMENT PANEL . . . . . CHECK/SET. . . . . Hydraulic management

- *Observe green system, yellow system and blue system reservoirs L/PRESS lights off.*

  CAUTION: To prevent cavitation of the engine-driven hydraulic pumps the three reservoirs must be pressurized.
    - *IF one or more L/PRESS lt(s) (yellow) on*
        - *Press AIR COMP pb.*

      NOTE: One cycle of the air compressor is normally sufficient to pressurize the three reservoirs.

      CAUTION: After operating the air compressor twice, wait 10 minutes of cooling time before operating again.
- *Observe green, yellow and blue systems O/HEAT lights and L/LEVELS lights off*
- *Observe on the GREEN, YELLOW and BLUE system reservoir contents gauges that the pointer indicates within the green bands and no failure flags are visible.*
- *Observe the SHUT OFF VALVES MIs (6) read OPEN*
- ***Set the green system pump selectors 1 and 2 and blue system pump selectors 3 and 4 to OFF***
- *Observe the guard against SHUT is wire locked and PUMPS MIs read OFF*
- *Observe HYD TEMP indication is in the normal range on a selected reservoir*

  NOTE: Normal hydraulic temperature range is below 60 ºC but may be up to 90ºC on short transit.
    - *Repeat temperature check for the other two reservoirs using the HYD TEMP rotary selector.*
- *Observe hydraulic pump L/PRESS lights (6) (amber) are on*
- *Observe GREEN, YELLOW and BLUE systems pressure gauges, pointers at 0 and no failure flags visible.*
- *Observe YELLOW PUMPS switch is at NORM and guarded*

AC ELECTRICS PANEL . . . . . CHECK/SET. . . . . AC Electrics (CTRL+SHIFT+7)

- *Observe CSD high inlet temperature lts (4) off and no failure flags visible*
- *Observe CSD disconnect switches (4) at NORM, guarded and locked*

  NOTE: If a CSD has been disconnected, it can be reset only on the ground with the engine stopped. Thus, if a switch is not at NORM, a ground engineer check must be made before engine start. Go to "FSLabs Ground Services -> Request CSD reconnect"
- *Observe CSD lights (4) (amber) on*
- *Observe KW KVAR Meters (4) condition and reading 0*
- ***Verify generator selectors (4) at ON***
- *Observe generator control breaker MIs (4) show crossline*
- *Observe GEN lights (4) (amber) on*
- *Observe AC MAIN BUS lights (4) off*
- *Verify the parallel PUSH TO ARM pushbutton light is in the disarmed position*
- *Verify BTB selectors (4) at NORM and guarded*
- *Observe BTB MIs (4) show inline*
- ***Observe the SSB MI shows inline***

  NOTE: The SSB must be CLOSED or no supply will be available to the cockpit

DC ELECTRICS PANEL . . . . CHECK/SET . . . . AC Electrics (CTRL+SHIFT+8)

- *Observe ESS main isolate MIs show inline*
- *Observe AC ESS BUS lights (4) off*
- *Verify EMERG GEN isolate switch at NORM and guarded*

  NOTE: The NORM position arms the emergency generator for subsequent automatic operation.
- ***Verify EMERG GEN control selector at AUTO***
- *Observe O/HEAT lights off*
- *Observe EMERG GEN SELECTED lights and EMERG GEN FAIL lights off*
- *Observe EMERG GEN KVA meter condition and indicating 0*
- *Observe auto shed breaker MI shows crossline*
- *Observe No. 1, 2, 3 and 4 DC ammeters indicate loads*

  NOTE: The four TRUs are identical. The DC busbars supplied by them are normally connected together but the TRU ammeter readings may differ.
- *Observe ESS Main split MIs (2) show inline*
- *Observe DC ESS BUS lights (2) off*
- *Observe DC MAIN BUS light off*
- *Set the left-hand battery selector to BATT ON, then to BATT OFF*
  - *Observe BATT ISOLATE light and MWS ELEC amber on.*
  - *Repeat this test for the right-hand battery*
- ***Verify GEN 1&3 and GEN 2&4 GALLEYS switches at ON***
- ***Verify WATER HTRS switch at ON***

FUEL MANAGEMENT (REFUELLING COMPLETED) . CHECK/SET . . Fuel Panels (CTRL+SHIFT+5/6)

- *Observe SCAVENGE PUMP MI does not read ON permanently.*

  NOTE: The scavenge pump may be running due to normal leakage of fuel into the vent system. The MI must be monitored to ensure that the pump switches off at Intervals.
- *Rotate the FQI test rty sel to GAUGES.*
- *Set and hold the FQI test sel to TEST.*
  - *Observe that quantity indications increase, for tank 11 by 3,000 kg, for tanks 9, 10, 5, 6, 7 and 8 by 500 kg, for tanks 5A, 7A, 1, 2, 3 and 4 by 200 kg and TOTAL CONTENTS indication increases by approximately 7,200 kg.*
  - *The CG% CO indicators (2) show approx. 1% aft movement.*
  - *The CG% CO indicator lights (red) on.*
  - *The CG digital display shows approx. 1% aft movement.*
  - *The machmeter (2) bugs move such that the AFT bug comes on scale and the FWD bug shows a higher Mach number*
  - *NOTE: If the actual CG Is forward of 52.7% the Machmeter AFT bug will not come on scale. If the actual CG Is aft of 53% then It Is likely that the aft CG movement indication will activate the aft normal boundary warning i.e. the M/CG Its (red) on, the CG Indicator pea Its (red) on and the MWS M/CG (red) on. If the CG movement Is Insufficient to activate the warnings, the warnings may be activated by adjusting the ZFCG selector.*
- *Release the FQI test sel.*
- *Observe the FQI and c.g. indications return to their original readings and all warnings Its on.*
- *Rotate the FQl test rty sel to MIN A, set and hold the FQl test sel to TEST.*
  - *Wait a couple of seconds and observe the appropriate 9, 10 and 11 Its (yellow) on.*
- *Set the FQI test sel to CANCEL and release.*
  - *Wait a couple of seconds and observe the 9, 10 and 11 Its off*

  NOTE: Whenever the cancel position is selected, the action should be direct and positive, an Interval of at least 10 seconds should elapse between repeated selections of the CANCEL position.
- *Repeat the last two actions for MAX A, MAX B and MIN B.*
- *Rotate the FQI test rty sel to 1 CG.*
- *Rotate the CG channel rty sel to 1.*
- *Sel and hold the FQI test sel to TEST*
  - *Observe CG channel 1 11 (amber) on, MWS CG (amber) on and channel A 11 It (yellow) on. (Channel A 9 and 10 Its (yellow) may also be on).*
  - *Tanks 1, 2, 5, 5A and 6 contents indication increases.*
  - *The CG digital display shows approx 1% aft movement. On captain's and first officer's machmeters the CG failure flag is visible and the bugs move as in the GAUGES test. On captain's and flight engineer's CG% Co indicators failure flag visible.*
- *Rotate the FQI test rty sel to MAX A.*
- *Sel the FOQ test sel to CANCEL and release*
  - *Observe CG channel 1 11 off and channel A 9, 10 and 11 Its off.*
  - *Observe the FQI and e.g. indications return to their original readings and all warnings Its off.*
  - *On captain's and first officer's machmeters CG flag not visible and bugs return to their original position.*
  - *On captain's and flight engineers' CG% Co Indicator no failure flags.*
- *Repeat the test with FQI test rty sel at 2 CG for CG channel 2, CG channel rly sel at 2 and with reference to tanks 4, 3, 7, 7A & 8.*

- *Rotate the FQI test rty sel to MIN B.*
- *Sel the FQI test sel to CANCEL and release.*
- *Rotate the FQI test rty sel to FIL CG, set and hold the FQI test sel to TEST.*
    - *Observe the c.g. display reads 88.8*
- *Release the FQI test sel and rotate the FQI test rty sel to OFF.*
    - *Observe CG digital display is within tolerance*
- *Rotate the CG channel rly sel to 1*
    - *Observe CG digital display is within tolerance*
- *Rotate the CG channel rly sel to M*
    - *Observe CG digital display is within tolerance*

  NOTE: The CG digital display reading at 1, 2 and M should be within 0.2% of each other, or the reading at 1 and 2 should be equidistant about the reading at M with the tolerance compatible with the fuel balance of the left and right hand contents.
- *Observe tank 11 left hand INLET VALVES MI crossline.*
- *Observe FQI for tanks 1 to 8 inclusive do not show failure flags and FQI for tanks 9, 10 and 11 do not have digital indicators obscured.*
- ***Observe individual tank quantities agree with the refuelling sheet (plus or minus 2%).***
- ***Observe the TOTAL CONTENTS indicator agrees with the refuelling sheet (plus or minus 2%) and that the pilots' TOTAL CONTENTS indicator repeats the indication.***

CAPTAIN'S COCKPIT PREPARATION

STEERING LIGHT . . . . . ON . . . . . Main

AUTOLAND light . . . . . OFF . . . . .

RAD/INS switch . . . . . RAD/AS REQUIRED . . . . .

VHF/NAV controller . . . . . CHECK/SET . . . . .

- *Set Captain's HSI course pointer to the lubber line.*
- *On Captain's VHF NAV controller:*
    - *Set local ILS frequency*
    - *Set and hold TEST sel at VOR·UP/L (**WARNING!!!: the 2D cockpit is required for this test!!!**)*
    - *Observe on Captain's ADI:LOC and G/S flags appear. Localiser and Glide indices out of view.*
    - *Observe on Captain's HSI: G/S and Navigation flags appear. Beam Bar and Glide indices unchanged.*

AFCS panel . . . . . CHECK . . . . .

- ***Set initial climb altitude***
- *Verify AT1, AT2, FD1, AP1, AP2, and FD2 switches all at OFF*
- *Observe all warning lights off on both landing display indicators*

AUTOTHROTTLE . . . . . CHECK . . . . . .

- ***NOTE: This test may fail if not using one of the default panel states provided by FSLabs (Cold and Dark or ConcordeX_Preliminary) AND/OR if you DO NOT load Concorde-X directly from the Scenario Startup Screen. If you load the scenery with the Trike/J3 Cub and engines running, then this test is inconsistent (does not always work) with custom panel states.***
- *Set AT1 switch to engage*
    - *Observe switch remains engaged, IAS HOLD pushbutton light (white) on and throttle levers move from the idle position.*
- *Set AT2 switch to engage*
    - *Observe switch remains engaged*
- *Manually disengage AT1 and AT2*
    - *Observe AT 1 and AT 2 sws drop to OFF, IAS HOLD pb It off and AT 1 It (red) flashing on both warning and landing display indicators.*
- *Press the AT 1 It (red) flashing*
    - *Observe AT light (red) off*
- *Retard throttle levers to the idle position*

PULL UP (TERRAIN light), M/CG and TYRE lights. . . . . OFF . . . . . .

NOTE: If VFE is off M/CG maybe on until you manually set the required CG for take-off

WARNING AND LANDING DISPLAY . . . . . .TEST . . . . . .

- *Press and hold TEST push button*
    - *Observe ILS boundaries (amber) and LAND 2 and LAND 3 lights (green) and DH light (amber) on*

      NOTE: On Concorde-X AP light (red) and AT light (red) are not ON
    - *Observe brief audio warning (cavalry charge) and AUTOLAND light (red) on*
- *Release TEST pushbutton*
    - *Observe all lights off*
        - *If AP light (red) on and/or AT light (red) flashing, press the associated instinctive disconnect pushbutton to cancel and observe AP and AT lights off*

  NOTE: With autopilots and autothrottles disengaged a true disengagement warning will be observed when the TEST pushbutton is released

R NAV . . . . . OFF. . . . . .

- *Observe the SENS MI reads LOW*

INSTRUMENT TRANSFER SWITCHES . . . . . SET . . . . . .

- *Verify ATT switch set at ATT/INS 1, COMP 1/COMP 2 switch at COMP 1, DEV 1/DEV 2 switch at DEV 1 and NAV switch at INS 1*

  NOTE: The normal position of the captain's instrument transfer switches is to the left

INSTRUMENTS AND INDICATORS . . . . . CHECK/SET . . . . . .

- ***Air Speed Indicator (ASI)***
  - *Verify ASI mode switch at N*
  - *Observe mode flag reads ADC and no failure flags visible on ASI*
- ***ADI (Attitude Director Indicator)***
  - *Observe no failure flags visible on ADI*
  - *Press and hold TEST pushbutton*
    - *Observe flag G visible, sphere moves 10 degrees pitch up and 10 degrees right blank and CHECK ATT lights (amber)*
  - *Release TEST pushbutton*
    - *Observe sphere returns to initial attitude*
    - *Observe G flag not visible and CHECK ATT lights off*
- **Vertical Speed Indicator (VSI)**
  - *Observe no failure flags visible on VSI*
- ***Standby Horizon***
  - *Observe no flag visible on standby horizon*

    NOTE: The failure warning flag disappears after power on. Allow at least 50 seconds after power on in order to have true indication
- ***Incidence Indicator and Accelerometer***
  - *Observe no failure flags visible on the incidence indicator*
- ***Standby ASI/Machmeter***
  - *Observe no failure flags visible on the Standby ASI/Machmeter indicator*
- ***Machmeter***
  - *Observe no failure flags visible on the Machmeter indicator*
- ***HSI (Horizontal Situation Indicator)***
  - *Observe no failure flags visible on the HSI*
  - *Pull No. 1 HDG/TRK rotary selector to the HDG position*
  - *Rotate No.1 HDG/TRK rotary selector to the left or right*
    - *Observe the corresponding heading is displayed on the AFSC panel and on the HSI; the head index indicates the heading selected and HDG is displayed*
    - *Observe MAG, RAD and 1 visible*
  - *Press and hold TEST pushbutton*
    - *Observe HDG alarm flag visible, compass rotates, 888 visible in MILES and GND SPD displays and HDG light (amber) on HSI.*
  - *Release TEST pushbutton*
  - *Observe, HDG flag disappears, compass indicates a correct heading, 0000 visible in GND SPD display and HDG light off*
- ***Engine Ratings Lights***
  - *Observe T/O light on*
- ***DME***
  - *Observe sensible readings*

- ***VOR/RMI***
    - *Observe no flags visible on VOR/RMI if a VOR station in range*
- ***Side slip . . . . . CHECK . . . . . .***
    - *Observe no failure flags visible on SIDE SLIP indicator*
- ***ADF/RMI . . . . . CHECK . . . . . .***
    - *Observe no heading failure flag visible on ADF/RMI*
- ***C.G Indicator***
    - *Observe no failure flag visible on C.G. indicator*

MARKERS . . . . . TEST . . . . . .

- *Press and hold marker lights TEST pushbutton*
    - *Observe OUTER lights (blue) on, then off, audio while lights on, MIDDLE lights (amber) on, then off, audio while lights on, AIRWAYS lights (white) on, then OFF, audio while lights on.*
- *Release the TEST pushbutton*

RADIO ALTIMETER . . . . . CHECK/SET . . . . . .

- *Observe that red fail flag is out of view*
- *Rotate the DH setting knob to the detent (below zero feet)*
    - *Observe radio altimeter pointer indicates between minus 5 and minus 12 feet*
    - *Observe on runway symbol is indicating aircraft height and red ALT flag is out of view*
    - *Observe DH light off on ADI and the warning and landing display*
- *Press and hold TEST pushbutton*
    - *Observe pointer indicates 100 feet and red fail flag in view*
- *Release TEST pushbutton*
    - *Observe red fail flag disappears, pointer returns to below zero*
    - *Observe a continuous 800 Hz audio warning sounds and the DH lights remain off*
- ***Rotate DH setting knob and set bug to 20 feet***
    - *Observe the audio warning ceases and the DH lights illuminate on ADI and the warning and landing display*
- *Press DH setting* knob to reset and observe all *DH lights off*

FD1/FD2 switch . . . . . .FD1 . . . . . .

Set FD1/FD2 switch to FD1 and observe FD1 visible on ADI (Attitude Director Indicator)

ALTIMETER . . . . . CHECK/SET . . . . . .

- *Verify, on altimeter, mode switch at N*
- *Observe mode flag reads ADC and no failure flags visible on altimeter*
- *Rotate static pressure knob to set the airfield QNH in the corresponding window and check the altimeter reads within plus or minus 35 feet of the airfield elevation*
- *Set bugs to airfield elevation and 3 engine acceleration height*

INS MONITOR LIGHTS . . . . . CHECK . . . . . .

- *While aligning, observe INS 1, INS 2 and INS 3 lights on and INS COMP light off.*

CLOCK . . . . . .SET . . . . . .

- *Verify correct GMT set*

CABIN ALTIMETER . . . . CHECK . . . . . Cabin Pressure Panel

- *Observe sensible reading*

AUTOPILOT TURN CONTROL . . . . . CHECK . . . .Upper Pedestal Panel (SHIFT+6)

- *Verify AUTOPILOT TURN knob in detent.*

TRIM WHEELS . . . . . SET . . . . . .

Verify YAW, PITCH and ROLL trims at neutral.

AUDIO SELECTOR PANELS . . . . . CHECKED . . . . . .

VHF COM . . . . . AS REQUIRED. . . Lower Pedestal Pane (SHIFT+7)

- *Set VHF 1 frequencies as required.*
- *Verify TFR sw at desired position.*
- *Observe corresponding lt (green) on.*
- *Repeat these actions for VHF 2.*

TRANSPONDER/TCAS. . . . . CHECK/STBY. . . . . .

- *Verify ALT RPTC sw selected to handling pilot (1 for the Captain)*
- *Verify Rotary selector to STBY*
- *Press to test Transponder/TCAS system.*
  - *Observe LCD display ATC 1 (or 2) and 8888 and XPDR fail lt illuminates.*
  - *Observe after short delay TCAS display indicates Test followed by a display showing:*
    - *A green band 0-250 fpm climb*
    - *A red band 0-2000 fpm descent*
    - *4 aircraft symbols*
  - *Observe aural statement "TCAS System Test OK".*

ADF . . . . . SET/TEST. . . . . .

- *Select the required ADF frequencies for ADF1 and ADF 2 on the ADF control unit.*
  - *Observe sensible position of the ADF pointers on both ADF/RMI.*
- *Set BFO sw to 1 or 2 as appropriate.*
- *Press and hold ADF 1 TEST pb.*
  - *Observe ADF 1 pointers indicate 135 deg relative on both ADF/RMI and audio warning (1020 Hz).*
- *Release ADF 1 TEST pb.*
  - *Observe ADF 1 pointers return to initial positions on both ADF/RMI.*
- *Press and hold ADF 2 TEST pb.*
  - *Observe ADF 2 pointers indicate 135 deg relative on both ADF/RMI.*
- *Release ADF 2 TEST pb.*
  - *Observe ADF 2 pointers return to initial positions on both ADF/RMI.*

AIR DATA COMPUTERS . . . . . CHECK/NORMAL . . . . . .

- *Observe ADC 1 and TEST Its off and no failure flags visible on associated instruments*
- *Set ADC 1 Test rty sel to 1.*
    - *Observe ADC 1 It (amber) on, audio warning (two tones), stick shaker operating and MWS ADC (amber) on*
- *As soon as the stick shaker operates set ADC 1 rty sel to NORM.*
- *When the instruments stabilise press to reset the ADC 1 It (amber) and observe instrument readings return to previous values, and no failure flags visible, MWS ADC It off, no audio warning, TEST It off, ADC 1 It off.*

FIRST OFFICER'S COCKPIT PREPARATION

STAB, FEEL AND TRIM PANEL . . . . . CHECKED . . . . . Fwd overhead panel (SHIFT+4)

- *Verify AUTO STAB No.1 PITCH, ROLL and YAW sws at OFF*
- *Verify AUTO STAB No.2 PITCH, ROLL and YAW at OFF.*
- *Verify ARTIFICIAL FEEL No. 1 PITCH, ROLL and YAW at OFF.*
- *Verify ARTIFICIAL FEE L No,2 PITCH, ROLL and YAW at OFF.*
- *Verify ELECTRIC TRIM No. 1 and No. 2 sws at OFF.*

FLIGHT CONTROL INVERTERS. . . . . ON . . . . . .

- *Set BLUE INVERTER sel to ON*
    - *Observe BLUE INVERTER FAIL It off*
- *Press to test BLUE INVERTER FAIL It.*
    - *Observe FAIL It (red) and MWS PFC It (red) on.*
- *Repeat actions for GREEN INVERTER.*
- *Set green and blue Control Inverter Guards*
- *Cancel MWS PFC*

FLIGHT CONTROL SELECTION. . . . . GREEN . . . . . .

- *Verify OUTER AND MIDDLE ELEVONS sel and INNER ELEVONS sel at GREEN*
  NOTE: you need to move the switches twice
- *Observe MECH JAM It (red) on*
- *IF MECH JAM It off, move the control column rearwards until light comes on, then release column.*
  NOTE: The MECH JAM light is on because, with no hydraulic pressure, the elevons droop, thus introducing loads into the mechanical linkage that are sensed as a jamming of the linkage.
- *Verify RUDDER sel at GREEN:*
  NOTE: you need to move the switch twice

ANTI-STALL . . . . . ON . . . . . .

- *Verify ANTI STALL SYSTEM 1 SW at ON.*
- *Observe SYS 1 FAIL It (amber) on.*
  NOTE: The FAIL light is on because the pitch auto-stab is off
- *Repeat the action for ANTI STALL SYSTEM 2*

LANDING LIGHTS . . . . .RETRACT/OFF . . . .

WINDSHIELD / VISOR DE-ICE / DV DEMIST. . . . . OFF . . . .

TAXI LIGHTS . . . . .RETRACT/OFF . . . .

- *Verify LIGHTS LANDING TAXI sws at OFF and RETRACT.*
- *Observe EXTENDED lt off.*
- *Verify LIGHTS TAXI TURN sws L and R at OFF.*

MASTER WARNING LIGHTS . . . . TEST . . . . Fwd Overhead VC

- *Press and hold the CANCEL LTS TEST pushbutton.*
  - *Observe all master warning lts on. Release the CANCEL LTS TEST pb*
  - *Observe all master warninq lts off.*
- *Press the INHIBIT pb.*
  - *Observe the INHIBIT lts (amber) on.*
- *Press and hold the CANCEL LTS TEST pb and observe the master warning lts PFC, ADS, TRIM, ENG1, ENG2, ENG3 and ENG4 (red) on.*

  NOTE: This test confirms the inhibit facility.
- *Release the CANCEL LTS TEST pb.*
  - *Observe all master warning lts off.*
- *Press and release the RECALL pb.*
  - *Observe the master warning lts indicate correct system status and the INHIBIT lts off.*
- *Press and release the CANCEL LTS TEST pb.*
  - *Observe all master warning lts on and then off.*

WHEEL O/HEAT LIGHT . . . . CHECKED. . . . . Main

- *Observe the WHEEL O/HEAT light is OFF providing the wheel brake temperature is less than 200 degrees C and the TYRE lights are off.*

FLIGHT CONTROL INDICATORS . . . . CHECKED . . . .

NOTE: During a turnaround, because the outer elevons are lighter than the others, they may not droop at the same rate. The rudders may also be misaligned because the surfaces are independent and can be affected by wind gusts.

- *Observe the flight control channel Mis (8) read M.*
- *Observe flight control position indicator warning lts (8) off.*
  - *IF any warning lts on press the RESET pb and observe all warning lts off.*
- *Press and hold the ALARM TEST pb.*
- *Observe warning lts (8) (red) flash.*
- *Release the ALARM TEST pb.*
  - *Observe warning lt (8) on*
- *Press ALARM RESET pb.*
  - *Observe warning lts (8) off, push to reset MWS PFC lt and check off and INNER ELEV lt (red) on.*

NOTE: On ground with no hydraulic pressure available, the elevons droop and unload their corresponding servo controls which causes the INNER ELEV light to come on.

NOSEWHEEL LIGHT . . . . ON . . . .

ANTI-SKID . . . . . CHECKED . . . . . .

- *Hold, then release, anti-skid system test sel at TEST 1.*
    - *Observe anti-skid R lts (8) (white) on, then off.*
- *Repeat the test with test sel at TEST 2 position*

TAKE-OFF MONITOR. . . . . DISARM . . . . . .

Pull T/O MONITOR control button.

AFCS LIGHTS . . . . . AS REQUIRED . . . . . .

- *Set AFCS MODES lighting rty sel as required.*

TOTAL FUEL CONTENTS INDICATOR . . . . . CHECK. . . . . .

Observe no failure flag showing on TOTAL CONTENTS indicator and sensible readings indicated

PRIMARY ENGINE INDICATION . . . . . CHECKED . . . . . .

- *Observe power management lts (12) off*
- *Observe N2 pointers (4) and digital counters (4) at O, over limit pointers 110% and no flag across digital counters (4).*
- *Observe N1 pointers (4) and digital counters (4) at O, over limit pointers at 108.5%, N1 auto reduction lts (4) off and no flags across digital counters (4).*
- *Observe FUEL pointers (4) and lower digital counters (4) at O, instrument mode flags read F/E, top digital displays and bug settings agree and no flags across lower digital counters (4)*
- *Observe EGT pointers (4) and digital counters (4) show sensible readings, no flags across digital counters (4) and EGT instrument warning lt off.*

  NOTE: The EGT failure flags may be visible if the outside temperature is below minus 5 deg C.
- *Observe AREA instrument pointers (4) show sensible readings and no flags and reheat selected lts (4) off.*

Temperature Indicator . . . . . .CHECK . . . . . .

- *Check no failure flags visible on temperature indicator.*

AUDIO SELECTOR PANEL . . . . . SET . . . . . Upper Pedestal Panel (SHIFT+6)

THROTTLES . . . . . CHECK . . . . . .

- *Advance throttle levers (4) to fully forward and return to the idle stop.*

WINDSHIELD WIPERS . . . . . CHECK . . . . . .

- *Verify W/S WIPERS rty sels (2) at OFF*
- *Observe wipers are parked.*

  CAUTION: W/S wipers must not be operated on a dry screen but may be ground tested on a wet screen.

NOSE AND VISOR STBY control . . . . . OFF/GUARDED. . . . . .

- *Confirm NOSE and VISOR STBY control is OFF and guarded.*

REHEAT . . . . . OFF . . . . . .

Verify REHEAT sels (4) at OFF.

THROTTLE LIGHTS . . . . . TEST . . . . . .

- *Press to test No. 1 engine THROT lt.*

  NOTE: It is not possible to press the Engine THROT lights in the Virtual Cockpit. Using the 2D panel is required.

  - *Observe THROT lt (red) on, MWS THROT lt (red) on, audio gong and No1 engine THROTTLE MASTER SW lt (red) on.*
- *Repeat action for No. 2, 3 and 4 engine THROT lts.*

SELCAL . . . . . TEST . . . . . .

- *Set SELCAL 1 and SELCAL 2 mode sels to a VHF position.*
- *Press to test the SELCAL 1 pb lt*
  - *Observe SELCAl1 pb lt (amber) on when pressed.*
- *Release SELCAL 1 pb lt.*
  - *Observe pb lt off.*
- *Press to test SELCAl2 pb lt*
  - *Observe SELCAL 2 pb lt (amber) on when pressed.*
- *Release SELCAL 2 pb lt.*
  - *Observe pb lt off.*

HF . . . . . AS REQUIRED . . . . . .

- *Verify HF 1 and HF 2 sels as required.*
- *Set frequencies as required.*

LANDING GEAR HORN . . . . . TEST. . . . . .

NOTE: There is a typo in Concorde-X where it reads "NORM" instead of HORN"

- Press the GRND TEST L/G HORN pushbutton.
  - Observe landing gear audio (horn).

LIGHTS PANEL . . . . . TEST. . . . . .

- *Set and hold LIGHTS sel to TEST.*
  - *Observe all warning lights on the centre dash panel are on.*
- *Release LIGHTS sel to HI or set to LO as required.*
  - *Observe lts return to system status.*

BEFORE START CHECKLIST

COCKPIT INSPECTION SECURITY . . . . . COMPLETE

DV WINDOWS . . . . . CLOSED . . . . . Virtual Cockpit only

Verify the sliding side windows are closed and secured

FLIGHT CONTROL INVERTERS . . . . . ON . . Forward Overhead (SHIFT+4)

Confirm BLUE INVERTER and GREEN INVERTER sels at ON

ANTI-STALL SYSTEMS . . . . . ON . . . . . .

RAD / INS switches . . . . . SET . . . . . Glareshield

- *Confirm both RAD/INS SWS to RAD*
- *Observe on both HSI that RAD and MAG displayed.*

NAV RADIOS . . . . . SET . . . . . .

- *The ADF and VOR should be tuned and checked on the facilities.*
- *Required QDM set on VOR LOC selectors and heading or track set on the HDG/TRK selector if required. Set departure frequency*

INSTRUMENT TRANSFER switches . . . . . SET . . . . . Main

Confirm the Captain's instrument transfer switches to the left and First Officer's instrument transfer switches to the right

QNH / AA / ALTIMETERS . . . . . SET/CROSS CHECKED . . . . . .

- *Confirm both main altimeters set to QNH & mode sws at "N"*
- *Check bugs set to airfield elevation and three engine acceleration height.*
- *Set Radio Altimeter bugs to 20' & check DH lts on.*

TRANSPONDER . . . . . XPDR . . . . Lower Pedestal (SHIFT+7)

- *Set ATC mode sel to XPDR*
- *Set code to 2000 until code received from ATC*

BRAKES . . . . . .PARK CHECKED . . . . Main&Upper Pedestal (SHIFT+6)

Confirm brakes are full scale and brake control lever at PARK.

THROTTLES . . . . . .IDLE . . .

NAV LIGHTS . . . . . AS REQUIRED . . . . . .Aft Overhead (SHIFT+3)

THROTTLE MASTER . . . . . MAIN/ALT. . . . . .

GROUND HYD. CHECK OUT. . . . . YELLOW, YELLOW / OFF . . . . **Brake Controls**

- *Verify PUMP 1 G-Y and PUMP 2 B-Y SWS at off.*
- *Verify rty sel is set to YELLOW YELLOW.*

FUEL HEATERS . . . . . AUTO. . . . Engine Controls (CTRL+SHIFT+2)

ENGINE RECIRC VALVES . . . . . SHUT . . . . . .

SECONDARY AIR DOORS . . . . . AUTO . . . . . .

BATTERIES. . . . . .ON / Normal . .DC Electrics (CTRL+SHIFT+8)

- ***Set battery sels to BATT ON.***
- *Observe: BATT A and BATT B MIS show inline, BATT ISOLATE lts off and LH and RH ESS/MAIN SPLIT MIS show inline.*

  NOTE: BATT ON is selected to prevent any interruption of the D.C. supply during engine start

ASI BUGS . . . . . SET . . . . . Main

PITCH INDEX . . . . . SET . . . . . .

3/4 REHEAT PLACARD . . . . . SET . . . . . .

FUEL FLOW . . . . . SET . . . . . .

CLOCK . . . . . SET . . . . . .

- *Preset noise abatement time.*
  - *Set the TIMER/CHRO switch to TIMER.*
  - *Rotate the GMT selector from RUN to the FAST/SLOW position. The countdown value will increase in the CHRONO display.*

When the CHRONO display value reaches the required time, rotate the GMT selector to RUN.

ENGINE (P7) . . . . . SET . . . . . Secondary Engine Panel

TLA BUGS . . . . . SET . . . . Throttle Pedestal (SHIFT+6)

SEAT BELT SIGN . . . . . ON . . . . . .

INS 1, 2, and 3 ALIGMENT . . . . . CHECKED . . . .Fwd leg panel (CTRL+SHIFT+1)

NOTE: I have moved this item on purpose further down its original place in order to give Concorde as much time as possible to complete the alignment before making this check.

- CHECK READY/NAV green light on
- *Observe INS status on CDUs (SHIFT+7/8/9)*

  NOTE: First digit is the NAV Mode status. The number 1 indicates the unit is in NAV mode. Fifth digit is the Accuracy Index (AI). The number will be 5 or less, depending on the accuracy of the alignment. 0 indicates most accurate alignment, which is only achievable on the ground. The highest accuracy possible in the air is 1. The sixth digit is the Mode Indicator (MI). The number 4 indicates that DME Updating is currently active.
- Rotate the MSU knobs (3) to the NAV position

INS 1, 2 and 3 . . . . . PRESENT POSITION CHECK. . . . . ..CDU1, 2 and 3 (SHIFT+7/8/9)

- *Set INS 1 data Selector to POSITION*
  - *Record displayed present position on Captain's flight log and crosscheck the present position with aerodrome booklet (or use the simulator GPS coordinates for greater accuracy)*

INS 1, 2 and 3 . . . . . FLIGHT PLAN LOAD/CHECK

- ***Press REMOTE switch light on each CDU (3). REMOTE light will illuminate.***
- *Rotate the CDU1 Data selectors to WAY PT.*
- *Confirm the WAYPOINT/DME Selector is at 0.*

- *Click the screw in the lower left corner of CDU 1 or CDU 2 to open the Route Reader.*
    - *Use the + (plus) and - (minus) buttons to select the appropriate AWC route file.*
    - *Click the Route Reader's "Load" button.*
    - *The "Reading..." message displays in the window.*
    - *When the file name shows again, the route file is active and loaded into the INS.*
        - *If the file (route) contains invalid data, the message "Route error..." displays.*
    - *Click the screw in the lower left corner the CDU. The Route Reader utility will close.*
- *Set data selector to WAYPOINT and, clicking to the right or left of the waypoint indicator, check waypoint latitudes and longitudes against the flight log.*
- *Set data selector to DISTANCE/TIME.*
    - *Key WAYPOINT CHANGE.*
    - *Key sequential waypoint numbers into the FROM/TO display and check distances against flight log. Remember Waypoint 0 (zero) represents current position*
- *Set data selector to WAYPOINT.*
- *Click to the right or left of the waypoint indicator and select the first DME station number for update.*
    - *RIGHT click 7 and then 9*
    - *Check first DME latitude and longitude against Database Guide.*
    - *Repeat for other DME stations.*
- *RIGHT click 3 and then 9*
    - *Click to the right or left of the waypoint indicator and select the first DME station number for update.*
    - *Check first DME altitude and frequency against Database Guide.*
    - *Repeat for other DME stations.*
- *Set data selector to POSITION and back to WAYPOINT to regain waypoint display*
- ***Observe/set zero to first waypoint in FROM/TO display***
- ***Select AUTO to establish automatic leg switching***

  TIP: I like to set CDU 2 in manual and choose important reference waypoints, such as the ones for transonic acceleration, CIVA card loadings, deceleration, Distance To Go, etc.

INS 1, 2 & 3 . . . . . .LOADING CHECKED NAV MODE / MIX FWD Leg (CTRL+SHIFT+1)

- *Select POS on the data selector of INS 1, 2 and 3 respectively.*
- *Read the ramp position from the Aerodrome Booklet.*
- *Verify that this position is displayed on the respective INS and circle the present position written on logs.*
- *Select data selector to WAY PT and waypoint/DME selector to 1.*
- *Read from flight log the number and name of the first waypoint.*
- *Number and check this waypoint on flight log.*
- *Read the latitude and longitude of that waypoint.*
- *Verify that displays agree with this position and circle the waypoint number on flight log.*

  NOTE: This procedure is carried out for a minimum of the first three waypoints.
- ***Observe INS MONITOR LIGHTS (Main panel) for INS 1, INS 2 and INS 3 lights off and INS COMP light off***

BRIEFING . . . . . STATED/REVIEW. . . . . .

- *Aide-Memoir: ADD's / MEL / A.P. Status, AIS / ATIS, Sig. Wx. / Anti-icing, Performance / Reheats / Rolling T/O, R/W / Surface conditions / Length, Terrain / SSA / MSA, Transition Altitude, SID / Noise Abatement, AFCS / Radio Aids, Emergencies, Take-off Alternate*

- -

LOADSHEET . . . . . CHECKED

ZFW and ZFCG . . . . . SET/CHECKED . . . Lower Fuel (CTRL+SHIFT+5)

- *Set the loadsheet ZFW and ZFCG in the ZFW and ZFCG displays*
- *Confirm that the ZFW and ZFCG settings agree with the load sheet values.*

FUEL REM. & A/C WEIGHT . . . . . SET/CHECKED . . . . . .

- *Rotate the RIGHT HAND KNOB to any position other than N.*
- *CLICK the LEFT HAND KNOB at a different position at a time to set the ZFW A/C WEIGHT. DISCARD THE LEAST SIGNIFICANT FIGURE.*
- *Zero the Fuel Remaining display by setting the RIGHT HAND knob to any position other than N and then RIGHT CLICKING the LEFT HAND KNOB*
- *CLICK the LEFT HAND KNOB at a different position at a time to set the FUEL. DISCARD THE LEAST SIGNIFICANT FIGURE.*
- *Set the RH knob to N to enable the A/C Weight and Fuel Remaining displays to count down*
- *Check that the A/C Weight display agrees with the loadsheet take-off weight plus taxi fuel*

LOAD LIMITS . . . . . SET . . . . . .

Set tank 11 load limit control to the FINAL TANK 11 CONTENTS from the Load Sheet

START CLEARANCE FROM ATC . . . . . OBTAIN

DOOR LIGHTS . . . . . CHECKED/OFF . . FWD Leg (CTRL+SHIFT+1)

MASTER WARNING . . . . . RECALL/CANCEL . . . . . MWS Panel

- *Press the RECALL pb.*
  - *Observe the master warning lights indicate the accepted systems status.*
- *Press Cancel MWS*

ANTI-COLLISION LIGHTS . . . . . ON . . . . . .Aft Overhead (SHIFT+3)

FLIGHT DECK DOOR . . . . . LOCKED . . . . . .

THROTTLES . . . . . IDLE . . . . Throttle Pedestal (SHIFT+6)

ENGINE FEED PUMPS . . . . . ON . . . .Fuel Lower (CTRL+SHIFT+5)

- *Set engines 1, 2, 3 and 4 main ENGINE FEED PUMPS sws to ON*
- *Observe the pumps LOW PRESS lts off*
- *Observe the engine inlet LOW PRESS lts off.*

CLEARANCE TO START FROM GROUND . . . . . OBTAIN

ENGINE START

COND (Conditioning) VALVE . . . . OFF . . . . . Air Bleed (CTRL+SHIFT+3)

CROSS BLEED VALVES . . . . . SHUT . . . . . .

ENGINES . . . . START. . . Forward Leg (CTRL+SHIFT+1)

- *Set DEBOW sws (4) to DEBOW.*
    - *Observe DEBOW sw lts (yellow) (4) on.*

NOTE: Normal starting order is 3, 4, 2, 1.

For push back departures starting order is 3 and 2 on the ramp, then 4 and 1 (cross bleed) when away from the ramp.

ENGINE NO. 3 START

- ***Set Ignition Selector to BOTH***
- ***Set ENG 3 START/RELIGHT sel to START.***
- ***Observe***
    - *START VALVE MI reads OPEN.*
    - *ENGINE DEBOW SW lt off*
    - *START PUMP lt (yellow) on - Engine Control Panel (CTRL+SHIFT+2)*
    - ***N2 rises**.*

NOTE: The minimum recommended air pressure during starting is 29 psi for ambient temperatures above 0 deg C increasing to 32 psi at an ambient temperature of minus 40 deg C.

    - *IF START VALVE MI is not reading OPEN inform ground staff to turn off ground air supply, manually open the start valve then turn ground air supply on. Apply Procedure MANUAL START.*
- ***When N2 is between 10-12% set HP VALVE sw to OPEN - Aft Overhead (SHIFT+3)***
- *Observe*
    - *RH IGN or LH IGN lt (green) on*
    - *Engine shut down handles lts (red) on - Fwd Overhead (SHIFT+4)*
    - *THROT lt off - Throttle Pedestal (SHIFT+6)*
    - *Tl ENGINE PROBE HEATER lt off - Aft Overhead (SHIFT+3)*

NOTES: With the HP VALVE switch at OPEN the inhibition of the engine shut down handle lights is removed and they are on as part of the engine oil low pressure warning. During starting, the engine oil low pressure warning light may remain illuminated at the debow speed. The start may be continued provided that some oil pressure is indicated. The low-pressure warning must be off when the engine stabilizes at Idle.

    - *IF THROT lt (red) comes on immediately HP VALVE is set to open.*
        - *Set HP VALVE SW to SHUT*
        - *START/RELIGHT sel to off*
        - *ENGINE DEBOW SW to NORMAL.*
        - *Verify THROTTLE MASTER sel at MAIN or ALTERN.*
        - *Restart engine*
    - *The THROT lt corning on immediately the HP VALVE SW is set to OPEN indicates there is no throttle lane selected. Observe EGT increases and monitor the rate of increase.*

NOTE: an increase in EGT is an indication of engine light up and should occur within 8 seconds of opening up the HP VALVE. *The maximum EGT will not normally exceed 450 deg C.*

- *IF no increase in EGT within 8 seconds.*
  - *Set HP VALVE SW to SHUT*
  - *Set START/RELIGHT sel to OFF*
  - *Set ENGINE DEBOW sw to NORMAL*
  - *Apply procedure FALSE START.*
- *IF EGT rate of rise shows 550 deg C may be exceeded or Tl ENGINE PROBE HEATER 1 t (yellow) on.*
  - *Set HP VALVE SW to SHUT*
  - *Set START/RELIGHT sel to OFF*
  - *Set ENGINE DEBOW sw to NORMAL.*
- *IF THROT lt (red) comes on after light up but before ENGINE DEBOW SW is set to NORMAL set THROTTLE MASTER sel to opposite selection and continue with engine start.*

- ***When N2 is at 25% observe START/RELIGHT sel returns to OFF***
  - *IF ... START/RELIGHT sel remains at START.*
    - *Set START/RELIGHT sel to OFF.*
    - *Observe the START VALVE MI reads SHUT, the RH IGN and LH IGN lts off.*
    - *IF START VALVE MI reads OPEN Inform ground staff to turn off ground air supply and manually close the start valve.*
    - *IF Ground staff report START VALVE will not shut set HP VALVE sw to SHUT*

DEBOW START

NOTE: If more than 10 minutes or less than five hours has elapsed since the engine was last operated then it must be run in the debow conditions for at least one minute.

- *Start clock.*
  - *Observe N2 stabilised at approximately 30%*
- *Wait until the ENGINE DEBOW sw lt (yellow) comes on or 1 minute has elapsed since START/RELIGHT sel returned to OFF.*

  NOTES The engine speed should stabilise at approximately 30% N2. It is likely, particularly at high altitude airfields, that the engine speed will overshoot the stabilised debow speed. In extreme circumstances this overshoot could be up to 10% of N2.
- *IF ... Stabilised N2 exceeds 32% or N2 exceeds 32% for more than 5 seconds during overshoot set HP VALVE sw to SHUT, set THROTTLE MASTER sel to opposite selection and restart the engine.*
- ***NOTE: It Is permissible to start the second engine whilst the first engine is still at debow provided that the limitations for running at debow are observed.***
- ***Set DEBOW SW to NORMAL***
- *Observe N2 rises then returns to idle, ENGINE DEBOW SW lt off.*

  NOTE: THE START PUMP will run for approximately 30 sees after the ENGINE DEBOW sw is set to NORMAL.
    - *IF N2 does not rise to clear rotating stall or fails to achieve idle, set THROTTLE MASTER sel to opposite selection when N2 stabilised at idle advance throttle lever slowly to obtain 72% N2, return throttle to idle.*

        - *CAUTION: IF THE THROTTLE LEVER IS ADVANCED TOO QUICKLY DURING ROTATING STALL CLEARANCE ENGINE SURGE MAY OCCUR.*

- *Observe AREA fully open.*

  NOTE: The primary nozzle will normally be fully open during engine start cycle but occasionally it may tend to close during start but should be fully open by the time the engine has achieved idle

        - *IF AREA not fully open when idle achieved, set THROTTLE MASTER sel to opposite selection and observe AREA fully open.*

- *Observe START PUMP lt off.*

        - *IF START PUMP lt (yellow) ON. TRIP the start pump cb.*

          CAUTION: WITH AN INOPERATIVE START PUMP, AUTO AND MANUAL RELIGHTS, WILL NOT BE POSSIBLE.

          NOTES: It is permissible to leave the start pump running but an inspection of the HP and LP turbines must be made on landing.

- ***Set the BLEED VALVE sw to OPEN***
    - *Observe pressure gauge indicator approximately 20 psi*

REPEAT ENGINE STARTING PROCEDURE FOR OTHER ENGINE

- ***If starting all four engines at the gates, continue with engine 4 start.***
- ***If using push-back start procedure, then start engine 2.***
- ***Set appropriate main ENGINE FEED PUMPS to ON***
    - *Observe the pumps LOW PRESS lts OFF.*

PUSHBACK CHECKLIST

DISCONNECT GROUND EQUIPMENT . . . . GRND CALL . . . . Aft Overhead (SHIFT+3)

- *Left-click on GRND CALL and wait for the orange light to go off to confirm Ground Power and Air have been disconnected.*

- CROSS-BLEED START -

NO. 3 AND 2 ENGINES . . . . STARTED . . . .

BLEED VALVES 2 & 3 . . . . OPEN . . . . . Air Bleed (CTRL+SHIFT+3)

COND VALVES (4) . . . . OFF . . . .

CROSSBLEED VALVES (4) . . . . OPEN. . . . .

Observe pressure gauge indicator approximately 20 psi.

Start 4 and 1 using Cross bleed start procedure.

NOTE: Satisfactory bleed pressure (25-30 psi) is normally obtained with engine at high idle.

NO. 4 AND 1 ENGINES . . . . STARTED . . . .

- *Satisfactory bleed pressure (25-30 psi) is normally obtained with engine at high idle. Confirm start complete.*

- END OF CROSS-BLEED START -

IGNITION ROTARY SELECTOR . . . . . OFF. . . . . .

ENGINE INSTRUMENTS . . . . . CHECK . . . . . .

- *Observe that for all engine parameters the indicators are consistent over the four engines*

  NOTE: For take-off, the buckets should be at 21 deg. However, take-off is permitted with buckets within the range 18-24 deg

  CAUTION: If, after starting engines or when taxying, an engine runs down:

  - *Set HP valve shut*
  - *Throttle master to the other lane*
  - *Rtart engine*

HYDRAULICS . . . . . CHECKED . . . . . Hydraulics

- ***Set the green hydraulic system pump sels 1 and 2 and the blue hydraulic system pump sel 3 and 4 to ON***
  - *Cancel PFC MWS*
  - *Observe CSD and Generator lt off and GCB MI in-line. (Electric Panel CTRL+SHIFT+7)*
  - ***Observe green, yellow and blue system contents gauges pointers indicate within green band.***

    NOTE: After engine start there is a slight drop in level in each reservoir which is caused by the filling of the accumulators.
  - *Observe Nos 3 and 2 engines UPRESS lts (3) off.*
  - ***Observe green, yellow and blue system pressure gauges read normal***

GROUND EQUIPMENT . . . . . CLEAR . . . . . .

GRD IDLE switches . . . . . LOW . . .Engine Controls (CTRL+SHIFT+2)

BLEED VALVES 1 & 4 . . . . . OPEN . . . . . Air Bleed (CTRL+SHIFT+3)

CROSSBLEED VALVES (4) . . . . . .SHUT . . . . . .

COND VALVES (4) . . . . ON . . . . . .

Observe

- *MI in line within 30 secs*
- *Mass flow satisfactory (Green arc) - **Temperature Panel***

AFTER START CHECKLIST

NOSEWHEEL STEERING . . . . . CHECKED . . . . . Main

- *Press the nosewheel RESET pb.*
  - *Observe NOSE WHEEL lt off and STEERING lts (2) off.*

  NOTE: If the nose wheels are not centred it may be necessary to push the RESET pb several times.
  - *IF nose wheel inhibit system engaged put off the following actions until the inhibit system is switched off.*
  - *NOTE: To tow the aircraft with engines running, or hydraulic pressure on, the nose wheel steering is de-activated by a control lever located in the ground engineer's interphone box. When the system is inhibited, the NOSE WHEEL lt (red) and the two STEERING lts (red) come on.*
- *Set and hold NOSE WHEEL test sel at TEST 1.*
  - *Observe NOSE WHEEL lt (red) and STEERING lts (red) on.*
- *Release test sel and*
  - *Observe NOSE WHEEL lt and STEERING lts off.*
- *Repeat these actions, using TEST 2.*

FLIGHT CONTROLS AFCS AND TRIMS. . . . . CHECKED. . . Forward Overhead (SHIFT+4)

- ***Observe on the flight control position indicator Main Panel:***
  - *elevons and rudders inline.*
  - *flight control channel MIs read M.*
- ***Press to cancel the MECH JAM light (red)***
  - *Observe MECH JAM lt off.*

    NOTE: The MECH JAM light has remained locked on, even though the elevons have moved to an aligned position.

TRIMS

- *Hold the nosewheel steering handle and rotate the YAW TRIM Knob to right yaw until it stops.*
  - *Observe· yaw trim indicator is at 20 deg. and both rudders indicate 20 deg. right.*
- *Rotate YAWTRIM knob to neutral mark*
  - *Observe rudders inline at 0 deg.*
- *Repeat for left yaw and return to neutral.*
- *Rotate the PITCH TRIM wheel to nose up until it stops.*
  - *Observe control column moves rearwards, pitch trim indicator is at 15 deg., elevons indicate 15 deg. up.*
- *Rotate PITCH TRIM wheel to neutral mark.*
  - *Observe elevons inline at 0 deg.*
- *Repeat for nose down trim 8 deg. and return to neutral.*

- *Rotate ROLL TRIM knob to right roll until it stops.*
- *Observe:*
    - *pilot control moves correctly*
    - *roll trim indicator is at 10 deg.*
    - *left outer & middle elevens at 10deg. down.*
    - *left inner elevon at 7 deg. down.*
    - *right inner elevon at 7 deg. up.*
    - *right outer & middle elevons at 10deg. up*
- *Rotate ROLL TRIM knob to neutral mark.*
    - *Observe elevons inline.*
- *Repeat for left roll and return to neutral.*
- ***Set ELECTRIC TRIM 2 switch to engage***
    - *Observe sw remains engaged*
    - *NOTE: The ELECTRIC TRIM No. 2 is engaged first because the subsequent engagement of ELECTRIC TRIM No. 1 will check the priority of system 1 over system 2.*
- ***Set ELECTRIC TRIM 1 switch to engage.***
    - *Observe sw remains engaged*
- *On captain's control wheel, set and hold PITCH TRIM sel at UP.*
    - *Observe control columns and mechanical trim wheel respond to the order, audio (bell) during operation and flight control indicator bars move accordingly.*
- *On captain's control wheel, set and hold PITCH TRIM sel at DOWN to return trim wheel to neutral mark.*
    - *Observe control columns and mechanical trim wheel respond to the order, audio (bell) during operation and flight control indicator bars move accordingly.*
- *Release PITCH TRIM sel when mechanical trim wheel is at neutral position.*
    - *Observe control columns and mechanical trim wheel stop.*

FLIGHT CONTROLS MECHANICAL SIGNANILING

- *With pitch control at neutral, apply full left wing down control.*
    - *Observe:*
        - *Control stiffness is normal*
        - *Left outer & middle elevons to 20 deg. up*
        - *Left inner elevon to 14 deg. up*
        - *Right inner elevon to 14 deg. down*
        - *Right middle and outer elevons at 20 deg. down*

    NOTE: The above tests the mechanical channel in roll, the rate of operation of the PCUs servos and relay jacks and the operation of the relay jacks selectors. The artificial feel system will cause an increase in control stiffness with increasing deflection.
- *Return controls to neutral.*
    - *Observe elevons in line.*
- *Repeat roll test for full right wing down control.*

- *Push control column fully forward.*
    - *Observe that control stiffness is normal and, on the flight control position indicator, the elevons sensibly follow the control movement to full pitch deflection. All elevons 17 deg. down.*
- *Return control column to neutral.*
    - *Observe elevons inline.*
- *Repeat pitch test for control column full rearward and all elevons 15 deg. up.*

  NOTE: The 15 deg. up stop can be overriden to obtain 17 deg. by applying additional pressure.
- *Hold nose wheel steering handle and push rudder pedals to full left.*
    - *Observe that control stiffness is normal, and, on the flight control position indicator, the rudders sensibly follow the control movement to full deflection, both rudders 30 deg. left.*

  NOTE: The nose wheel will follow the rudder movement, thus scrubbing the tyres, unless the steering handle is firmly held.
- *Return rudder pedals to neutral.*
    - *Observe rudders at neutral*
- *Repeat the rudders test for rudder pedals to full right and both rudders 30 deg. right.*

FLIGHT CONTROLS IN GREEN SIGNANILING

- ***In one movement, rotate the SERVO CONTROLS black rty sel to GREEN ONLY Aft Overhead (SHIFT+3)***

  NOTE: Movement of the selector must be made without pausing at NORMAL to prevent the simultaneous pressurising of blue and green half-bodies.
- *Cancel PFC MWS*
- *Press the RESET pbs and observe the flight control channel MIs read G.*
- *Check AUTO STAB 1 pitch and roll sws to OFF.*
    - *Observe ANTI-STALL SYST 1 FAIL lt on.*

  NOTE: Auto stab 1 pitch & roll disengaged allows a test of Emergency Flight Control system 2.
- *Engage AUTO STAB 1 pitch and roll sws.*
    - *Observe ANTI-STALL SYST 1 FAIL lt off.*
- *Set AP 2 switch to engage*

  NOTE: The AP 2 engage light, pitch hold pb and heading hold pb lights will illuminate.
- *Disconnect autopilot.*
    - *Observe:*
        - *AP 2 sw drops to off.*
        - *AP 2 engage light off.*
        - *AP light on at both landing display indicators.*
        - *brief audio (cavalry charge).*
- *Apply full left wing down control, then full right wing down control and return to neutral.*
    - *Observe*
        - *Control stiffness is normal*
        - *Elevons sensibly follow control movement.*
        - *Rudders deflect 8 deg. and return to neutral.*

- *Push control column fully forward, then pull fully rearward and return to neutral.*
    - *Observe*
        - *Control stiffness is normal.*
        - *Elevons sensibly follow control movement.*
- *Hold nosewheel steering handle and push the rudder pedals to full left, then to full right and return to neutral.*
    - *Observe*
        - *Control stiffness is normal.*
        - *Rudders sensibly follow control movement.*
- *Rotate the SERVO CONTROLS yellow rty sel to YELLOW GREEN.*
- *Verify all surfaces in green signalling.*
- *Apply approximately half-range roll travel to left and right and return to neutral.*
    - *Observe*
        - *Control stiffness is normal.*
        - *Elevons sensibly follow control movement.*
        - *Some rudder deflection and return to neutral.*
- *Rotate the SERVO CONTROLS yellow rty sel to NORMAL.*

FLIGHT CONTROLS IN BLUE SIGNANILING

- ***In one movement, rotate the SERVO CONTROLS black rty sel to BLUE ONLY. Aft Overhead (SHIFT+3)***

  NOTE: Movement of the selector must be made without pausing at NORMAL to prevent the simultaneous pressurising of blue and green half-bodies.
- *Cancel PFC MWS*
- *Set all three signalling mode selectors to BLUE.*
- *Press the RESET pbs and observe the flight control channel Mls read B.*
- *Set AP 1 switch to engage*

  NOTE: The AP 1 engage light, pitch hold pb and heading hold pb lights will illuminate.
- *Disconnect autopilot.*
    - *Observe:*
        - *AP 1 sw drops to off.*
        - *AP 1 engage light off.*
        - *AP light on at both landing display indicators.*
        - *brief audio (cavalry charge).*
- *Apply full left wing down control, then full right wing down control and return to neutral.*
    - *Observe*
        - *Control stiffness is normal.*
        - *Elevons sensibly follow control movement.*
        - *Rudders deflect 8 deg. and return to neutral.*
- *Push control column fully forward, then pull fully rearward and return to neutral.*
    - *Observe*
        - *Control stiffness is normal.*
        - *Elevons sensibly follow control movement.*

- *Hold nosewheel steering handle and push the rudder pedals to full left, then to full right and return to neutral.*
    - *Observe*
        - *Control stiffness is normal.*
        - *Rudders sensibly follow control movement.*
- *Rotate the SERVOCONTROLS yellow rty sel to YELLOW BLUE.*
- *Verify all surfaces in blue signalling.*
- *Apply approximately half-range roll travel to left and right and return to neutral.*
    - *Observe*
        - *Control stiffness is normal*
        - *Elevons sensibly follow control movement.*
        - *Some rudder deflection and return to neutral.*
- *Rotate the SERVOCONTROLS yellow rty sel to NORMAL.*
- ***Rotate the SERVOCONTROLS black rty sel to NORMAL.***
    - *Observe*
        - *all 8 pea lights off*
        - *both L.PRESS lights off*

    CAUTION: THE FOLLOWING TEST MUST BE ACCOMPLISHED AS A SMOOTH NON-STOP ACTION FROM BEGINNING TO END TO MINIMISE STRESS CYCLES ASSOCIATED WITH MOMENTARY PAUSES.
- *Apply approximately half-range roll travel to the left and right and return to neutral.*
    - *Observe*
        - *Control stiffness is normal.*
        - *Elevons sensibly follow control movement*
        - *Some rudder deflection and return to neutral.*
- ***Set pitch trim to required take-off setting.***
- ***Verify that roll and yaw trims are set to neutral***
- ***Confirm elevon and rudder positions on Flight Control Position Indicator are as required.***

STAB & FEEL . . . . . .ENGAGED . . Forward Overhead (SHIFT+4)

- *Set AUTO STAB No. 1 PITCH, ROLL and YAW sws to engage.*
    - *Observe sws remain engaged.*
- *Set AUTO STAB No. 2 PITCH, ROLL and YAW sws to engage.*
    - *Observe sws remain engaged.*
- *Set ARTIFICIAL FEEL No. 1 PITCH ROLL and YAW sws to engage.*
    - *Observe sws remain engaged.*
- *Set ARTIFICIAL FEEL No. 2 PITCH, ROLL and YAW sws to engage.*
    - *Observe sws remain engaged.*

ENG ANTI-ICE / ENG SCHEDULE . AS REQUIRED . Aft OHD (SHIFT+3) / E. Panel (CTRL+SHIFT+2)

- *"**ON - Normal**"*
    - *IF the ambient temperature is **below + 3ºC** and **visibility less than 1000 metres**, switch on engine anti-ice immediately **after start** and set the ENGINE CONTROL SCHEDULE rty sel to NORMAL. Retain these selections until after take-off or after any ice warning has cancelled.*

  NOTE: Whenever engine anti-ice is selected on for taxy and take-off the Engine Control Schedule rty sel is set to Normal so that at noise abatement power reduction the Engine Schedules go to High only.
- *"**OFF - Flyover**"*
    - *IF icing conditions, as defined above, do not apply, verify*
        - *Engine Anti-ice switches at OFF*
        - *Engine Control Schedule rty sel at FLYOVER*

BRAKE FANS . . . . . ON . . . . . Brake Control

DOOR WARNINGS . . . . . TESTED / OFF . . . . FWD Leg (CTRL+SHIFT+1)

ENGINE FEED PUMPS . . . . . CHECKED . . . . Fuel Panels (CTRL+SHIFT+5)

- *Set all ENGINE FEEDPUMPS sws to ON*
    - *Observe*
        - *all ENGINE FEED PUMPS LOW PRESS lts off.*
        - *all ENGINE INLET LOW PRESS lts off.*

HYDRAULICS . . . . . CHECKED . . . . . Hydraulics

- *Observe green, yellow and blue system contents gauges pointers indicate within green band.*

  NOTE: After engine start there is a slight drop in level in each reservoir which is caused by the filling of the accumulators.
- *Observe pumps L/PRESS lts off.*
- *Observe green, yellow and blue system pressure gauges read normal.*

ELECTRICS . . . . . CHECKED . . . . . AC Electrics (CTRL+SHIFT+7)

- *Observe CSD OIL overheat lts off, CSD OIL DIFF and INLET temperatures are normal.*
- *Observe each KW KVAR meter indicates a normal load of 10-20 kw with 4 generators operating.*
    - *IF one meter indicates zero, set associated generator to OFF and observe its GCB MI show crossline.*
- *Observe GCB MIs show inline.*

ELECTRICS . . . . . CHECKED: GROUND BYPASS. . . DC Electrics (CTRL+SHIFT+8)

- *Set EMERG GEN sel to GROUND BYPASS*
    - *Observe SELECTED lt off.*

NOTE: The Emergency Generator selector is set to GROUND BYPASS to enable the A.C. essential bus bars to be powered by the Emergency Generator, during take-off and landing, under electrical failure conditions.

- *Observe the auto shed breaker MI shows inline.*
- *Observe D.C. ammeters indicate loads within limits.*
- *There may be a difference between individual meter indications operating total dc load is approximately 200 A.*
- *Observe BATT AMPS meters indicate within limits and steady or falling slowly, BATT ISOLATE lts are off.*

  NOTE: A battery charge reading which is low and steady or falling slowly indicates that the battery is in good condition.

GROUND EQUIPMENT . . . . . .CLEAR

TAXI CHECKLIST

VISOR / NOSE . . . . . DOWN / 5 DEG . . . . . Main

FLIGHT INSTRUMENTS. . . . . CHKD / NO FLAGS . . . . . .

FLIGHT CONTROLS / EFC. . . . . CHECKED / LIGHT OFF . . . . . .

- *Observe flight control channel MIs read B and no warning lights.*

LANDING/TAXI/TAXI TURN LIGHTS . . . . . AS REQUIRED . . Forward Overhead (SHIFT+4)

- *If lights required set LIGHTS TAXI-TURN sws to ON.*
  - *Observe taxi/turn lights on.*
- *Set LIGHTS LANDING TAXI sws to EXTEND and ON*
  - *Observe EXTENDED lt (blue) is on, landing taxi lts on*

C.G. MOVEMENT . . . . . AS REQUIRED. . Fuel Panels (CTRL+SHIFT+5/6)

- *When starting to taxi with a full fuel load the aircraft's C.G. will be beyond the flight limit, and the M/CG warning lights will be on. Fuel must be transferred forward to achieve the correct CG position before beginning the take-off roll.*
  - *If tank 11 contains MORE than requirement*
    - *Set tanks 5, 7 and 9 INLET VALVE MAIN sels to SHUT*
    - *Verify tank 11 load limit control at take-off value*
    - *When there is sufficient space in the collector tanks to accept approximately half the excess fuel in tank 11, set tanks 1,2,3 and 4 STANDBY INLET VALVES sws to OPEN.*
      - *Observe MIs read OPEN.*
    - *Set the tank 11 Hydraulic Pumps to OFF*
    - *Set the TRIM TRANS AUTO MASTER sel to FORWARD*
      - *Observe tank 11 quantity decreasing*
  - *IF tank 11 contains LESS than requirement*
    - *Verify tank 11 load limit control at take-off value.*
    - *Set tanks 5 & 7 Inlet Valves main sels to SHUT.*
    - *Set the TRIM TRANS AUTO MASTER sel to REARWARD.*
      - *Observe:*
        - *Tank 9 pumps low pressure lights illuminate then extinguish*
        - *tank 10 pumps low pressure lights illuminate*
        - *Tank 11 INLET VALVES MIs show inline*
        - *Tank 11 quantity increasing*
        - *Tank 9 quantity decreasing.*
- **NOTE: Because the next steps in the FUEL TRANSFER checklist are extensive and never carried out before the end of the taxi run, I have manually moved the rest of the fuel transfer checks after that checklist.**

ENGINE RATING MODE . . . . . TAKE OFF. . . . . Aft Overhead (SHIFT+3)

AUTO IGNITION . . . . . .ON. . . . . .

THROTTLE MASTER . . . . . CHECKED. . . . . .

- *Set all Throttle Master sws to the other selection.*
    - *Observe*
        - *all THROT lts off*
        - *all engines stable*
- *Set all Throttle Master sws back to original selection.*

DRAIN MAST HEATER . . . . . ON . . . . . .

ENGINE FLIGHT RATING . . . . . CLIMB . . . . . .

PRESS STATIC HEATERS . . . . . ON. . . . . .

ADS & STBY HEATERS . . . . . .TT INHIB / ON . . . . . .

- *Set ADS/ENGINE PROBE HEATERS sels (2) to TT INHIB. STBY SW ON.*

  NOTE: Tt INHIB is selected when the aircraft is on the ground to avoid an overheat condition that could cause false total temperature gauge readings or false TMO warnings.
- *Observe ADS/ENGINE PROBE HEATERS lts (15) off.*

  NOTE: At Tt INHIB the Tt lights (2) will be on (yellow) if the temperature is below plus 15 ºC

AIR INTAKES . . . . . CHECKED / SET . . . . . Intake Panel

- *Set the RAMP AND SPILL MASTER sws (4) to AUTO and set the guards.*
- *Verify the LANE rty sels (4) are at the position required for the flight.*

  NOTE: There are two identical control lanes per intake identified as A and B. Either may be used as the first selection. With AUTO A or AUTO B selected failure of the lane causes automatic changeover to the other lane. The non-auto positions A and B are selections of the appropriate lane with no auto-change capability.
- *Observe all AIR INTAKE panel lts off except lane in use lts (4) (green).*
- *Observe RAMP and SPILL indicators show 0%*
- *Observe AUX INLET Mis (4) read OPEN*

ENGINE CONTROL SCHEDULE . . . . . CHECKED. . Engine Control (CTRL+SHIFT+2)

Confirm ENGINE CONTROL SCHEDULE sel at AUTO and rty sel at FLYOVER (F/0) or NORMAL

ENG. 4 T/O N1 Limiter . . . . . 88% . . . . . .

AIR CONDITIONING . . . . . CHECKED / SET . . . . . Air Bleed (CTRL+SHIFT+3)

- *Observe BLEED VALVES Mis (4) show inline, bleed pressure gauges (4) indicating approximately 20 psi.*
- *Observe COND VALVE Mis (4) show inline.*
- *Observe JET PUMP Mis (4) show inline.*
- *Observe on TEMPERATURE CONTROL panel MASS FLOW gauges (4) are indicating 2.5 kg/sec. approx. (x 0.1)*

  NOTE: about 3.0 -3.2 kg/sec (x 0.1) on Concorde-X

FUEL LP PROTECTION sw . . . . . ARMED . . . . . Upper Fuel (CTRL+SHIFT+6)

- *Confirm FUEL LP PROTECTION SW at ARMED and observe MIs (4) show black.*

FUEL CONSUMED INDICATORS . . . . . CHECKED . . . . . .

- *Observe Fuel Remaining and A/C Weight display decreasing.*
- *Rotate the test knob on each indicator clockwise and hold for 3 seconds.*
- *Observe*
    - *Associated indicator shows 8s*
    - *Main and Reheat density compensator lights illuminate*
    - *Indicators return to normal status with readings increasing.*

ENGINE FEED PUMPS sws . . . . . ALL ON (12) . . . . . .

FUEL CROSSFEED VALVES . . . . . SHUT . . . . . .

REVERSE ASOV's . . . . . CHECKED/18-24 DEG/NORM . . . . . .Aft Leg/Nozzle Override

- *Set all 4 throttles to idle.*
- *Set 27° Security Switches to Test PIDU. . .* ***Nozzle Override Panel***
    - *Observe associated Blue Warning Lts ON*
- *Set both NOZ AIR SOV & WIND DOWN test sels. direct to E*
- *Observe*
    - *all 4 Reverse lts. flashing*
    - *all 4 Wind Down lts. on. ...* ***Engine Control Panel (CTRL+SHIFT+2)***

  NOTE: N2s may increase or decrease slightly.
- *Set throttle levers to-mid travel*
    - *Observe N2 do not increase by more than 6%*
- *Set throttle levers to idle.*
- *Select reverse idle on all 4 engines*
    - *Observe:*
    - *buckets rotate to between 27° and 37° then stop . .* ***Engine Control Panel (CTRL+SHIFT+2)***
        - *Wind Down lts. extinguish . . .* ***Engine Control Panel (CTRL+SHIFT+2)***
        - *Reverse lts. continue to flash*
        - *N2 increases to reverse idle*
- *Cancel reverse by maintaining a steady downward pressure on the reverse levers. The forward baulk will remain engaged until the following action is take-:*
- *Rotate both test sels. through D to OFF and check,*
    - *buckets return to between 18° and 24°*
    - *27° Security Switches NORM . . .* ***Nozzle Override Panel***
    - *Associated Blue Warning Lts OFF*
    - *N2 at idle*

      NOTE: Position D opens the electrical latch circuit on the ASOVs thus permitting them to re-open.
- *Set 27° Security Switches to Test NTRC and repeat the process. . .* ***Nozzle Override Panel***

C.G. MOVEMENT . . . . . CHECK. . Fuel Panels (CTRL+SHIFT+5/6)

- *If tank 11 contained MORE than requirement*
  - *When tank 11 quantity reaches the load sheet value:*
    - *Observe CG indicator shows the required take-off CG*
    - *Set the TRIM TRANS AUTO MASTER sel to OFF and guarded.*

    NOTE: As the excess fuel in tank 11 is intended for pre take-off purposes, the take-off may not proceed until the tank 11 quantity is correct and total fuel remaining is correct.
  - *Set tanks 1,2,3 and 4 STANDBY INLET VALVES sws to SHUT.*
    - *Observe MIs read SHUT.*
  - *Set tanks 5,7 and 9 INLET VALVES MAIN sels to AUTO.*
  - *Set tank 11 Hydraulic Pumps to AUTO*
- *IF tank 11 contained LESS than requirement*
  - *When tank 11 quantity reaches the take-off value*
    - *Set the TRIM TRANS AUTO MASTER sel to OFF and guarded.*
    - *Set tanks 5 & 7 Inlet Valves main sels to AUTO.*
    - *Observe:*
      - *tanks 11, 5 & 7 Inlet Valves MIs crossline*
      - *tanks 9 & 10 pumps low pressure lights off*
      - *C.G. indicators show the required take-off C.G.*
  - *Set tank 11 load limit control to initial supersonic cruise value.*
    - *Should a taxy back to the ramp, following a PTOTR, be necessary, transfer the PTOTR quantity from 11 back to 9 in order to set tank 11 contents to the refuel schedule quantity.*

TRIM TANK CONTENTS . . . . . CHECKED . Fuel Panels (CTRL+SHIFT+5/6)

Confirm the fuel distribution in the trim tanks is as required by the load sheet.

MAIN TRANSFER PUMPS . . . . . FOUR ON . . . . . ^

- *Set tank 5 and tank 7 PUMPS sel and sw to ON*
  - *Observe PUMPS LOW PRESS lts (yellow) on momentarily then off.*

    IF tanks 5 and 7 are empty, switch on pumps in tanks 6 and 8

DE-AIR PUMPS . . . . . ON . . . . .

- *Set tank 10 DE-AIR pump SW to ON.*
  - *Observe de-air MI reads ON.*
- *Set tanks 5A and 7A PUMPS (4) to ON.*
  - *Observe PUMPS LOW PRESS lt (yellow) on momentarily then off.*
- *Verify TRANS VALVE 5A-5 SW and 7A-7 SW at SHUT.*
  - *Observe SA-5 and 7A-7 MIs crossline.*

  NOTE: These TRANS VALVES must remain shut during take-off and climb while tanks 5A and 7A pumps are being used for de-aeration.
- *Set tank 6 and tank 8 right-hand PUMPS sws to ON*
  - *Observe PUMPS LOW PRESS lts. (yellow) on momentarily then off.*

  NOTE: This initiates de-aeration of tanks 6 and 8. No transfer to the collector tanks will occur as tanks 5 and 7 fuel is transferred preferentially.
- *Set tank 11 DE AIR SW to ON.*
  - *Observe PUMPS left hand LOW PRESS lt (yellow) on momentarily then off..*

TAKE-OFF CG switch . . . . . .AS REQD . . .Engine Ctrl (CTRL+SHIFT+2)

- *Set the switch to NORMAL if the T/O CG is 53.5%.*
- *Set the switch to 54% if the T/O CG is 54% and check AFT limit moves 0.5% rearward.*

  CAUTION: Take off CG position of 54% if fuel used on taxy exceeds the planned quantity by more than 2,000 kgs, take off at CG position of 54% Is not permitted. In this event 1,500 kgs must be transferred from tank 11 to tanks 6 & 7 to achieve T/O CG of 53.5%. T/O CG warning switch must be reset to normal. An excess taxy consumption of 2,000 kgs will more than offset the performance penalty of using a T/O CG of 53.3%. The performance speeds calculated for 54% CG take off are to be used without alteration

  If the Indicated CG position Is not within the defined limits, tank contents must not be adjusted to conflict with the balance chart requirements. Take-off must not be attempted until the reason for the discrepancy is established.
- ***Observe the MWS M/GC It off***
- *Observe on TEMPERATURE CONTROL panel MASS FLOW gauges (4) in the green band*

PFDIS/Marilake Controller . . . . . SET . . . . . Upper Pedestal (SHIFT+6)

- *Right-click the DTG SET switch to increase the numerical value (x 10)*

  NOTE: The SET selector operates at slow speed for two seconds, thereafter at high speed
- *Right-click RESET MON/ENTER switch to convert the DTG numerical value from the set nautical miles to statute miles.*
- *The nautical miles value is replaced by the converted statute miles value.*
- *ENTER DTG light extinguishes.*

TRIMS . . . . . SET . . . . . Upper Pedestal (SHIFT+6)

- *Set pitch to required take-off setting.*
- *Verify that roll and yaw trims are set at neutral.*
- *Confirm elevon and rudder positions on F.C.P.I.*

BRAKES . . . . . NORM . . . . . .

ANTI-SKID ‘R’ lights / TYRE lights . . . . . OFF . . . . . Main

- *When taxiing above 10 kts, observe all R lights remain off during gentle braking and when rolling freely*
- *Confirm tyre lts and system lt off*

  NOTE: One R light on during gentle braking above 10 kts. indicates that one wheel is not rotating normally e.g. a flat tyre, the associated brake is broken or the anti-skid system has failed. The take-off prohibition when any R light is permanently on does not apply when the aircraft is operated in accordance with the (Minimum Equipment List) concession, which allows dispatch with a confirmed indication fault which results in one of the R lights being permanently on.

BEFORE TAKE-OFF

BRIEFING/ TAKE-OFF DATA . . . . . UPDATED . . . . . .

CABIN CREW (STEWARD) CALL . . . . . .3 PRESSES . . . . . .Aft Overhead (SHIFT+3)

LANDING LIGHTS . . . . . AS REQUIRED . . Forward Overhead (SHIFT+4)

- *For every take-off, set the TAXI-TURN lts sws to ON.*
    - *IF main landing lights required, set LIGHTS MAIN LANDING SWS to EXTEND and ON and observe EXTENDED lt is on.*

  NOTE: The main landing lights provide sufficient illumination but if more light is required the LAND TAXI lights may be used. Some buffet may be experienced with these lights extended in flight.

TRANSPONDER. . . . . SET . . . . . Lower Pedestal (SHIFT+7)

WHEEL O/HEAT LIGHTS . . . . . OFF . . . . . Main

- *Observe the WHEEL O/HEAT lt is off and the brake temperature below 200ºC*
  CAUTION: TAKE OFF MUST NOT BE ATTEMPTED WITH WHEEL O/HEAT LIGHT ON.

NOZZLE OVERRIDE LIGHTS . . . . . OFF. . . . . Nozzle Override

MASTER WARNING . . . . . RECALL / INHIBIT . . . . . .MWS Panel

- *Press the RECALL pb.*
    - *Observe the master warning lights indicate the accepted system status.*
- *Press the INHIBIT pb.*
    - *Observe the INHIBIT lts (2) (amber) on. IF INHIBIT lts off Brief for take-off with inhibit function inoperative.*

T/O MONITOR. . . . . ARMED . . . . . Main

REHEAT . . . . . ON . . . . . Upper Pedestal (SHIFT+6)

- *Set REHEAT sels (4) to RHT using the gang bar (SHIFT+F4)*
    - *Observe REHEAT selected lts (4) (white) on*

PITCH INDEX . . . . . CHECKED . . . . . Main

BRAKE FANS . . . . . OFF . . . . . Brake Panel

BRAKES OVERLOAD MI . . . . . BLACK . . . . . Brake Panel

CAUTION: IF THE OVERLOAD MI IS SHOWING A CLOVERLEAF PATTERN THE ANTI-SKID R LIGHTS MUST BE CAREFULLY MONITORED DURING THE TAKE OFF ROLL. IF AT 10 KNOTS THE R LIGHT (WHITE) IS ON, THE TAKE-OFF MUST BE ABANDONED

FLIGHT DIRECTORS . . . . . CHECKED . . . . . .

During manual flight the handling pilot's flight director should normally be engaged shortly after the noise abatement procedure ends, and remain engaged until Decision Altitude (or later, if allowed by limitations). The handling pilot will normally call for AFCS selections [...] However, If the non-handling pilot is too busy to respond to the request, the handling pilot may make the appropriate selection having clearly indicated his intention.

I personally find taking-off all by myself so demanding, especially with the Virtual Flight Engineer disabled and taking-off in low weight with a high rate of climb, that I prefer to engage the Flight Directors before take-off and have an extra help as soon as possible.

- TAKE-OFF -

- *On "3" the ELAPS timer is set to RUN. Release brakes.*
- *On "NOW," the CHRO button on is pressed to start the countdown timer and the throttles are slammed forward.*

AFTER TAKE-OFF CHECKLIST

CLIMB POWER

If Noise Abatement is required, at the end of the countdown:

Altitude	N2
3000	93%
4000	95%
5000	97%
6000	99%
7000	101%
8000	CLB PWR

- *Set **REHEAT sels (4) to OFF** using the gang bar (**SHIFT+F4)***
- *Set de pre-defined **TLA** as required for noise abatement **(CONTROL+F5)***

LANDING GEAR. . . . . .UP, LIGHTS OFF, NEUTRAL .. . . Main (G)

- *Observe WHEEL O/HEAT lt off*
- *Set L/GEAR lever to UP*
  - *Observe landing gear position indication lts go off at the end of the retraction sequence.*
- *Set L/GEAR lever to NEUTRAL*
  - *Observe landing gear position indication lts off.*
- ***CAUTION: THE LANDING GEAR NORMAL LEVER MUST BE SET TO NEUTRAL <u>BEFORE</u> THE VISOR IS RAISED TO PREVENT INADVERTENT RELEASE OF GEAR OR DOOR UPLOCK.***

LANDING LIGHTS. . . . . OFF / RETRACT . . . . . Fwd Overhead (SHIFT+4)

- *Confirm*
  - *Landing lights off and retracted*
  - *Extended light off*
  - *Landing taxi lights off and retracted*
  - *Extended light off*

MASTER WARNING . . . . . .RECALL . . . . . .MWS Panel

- *Press the RECALL pb.*
  - *Observe the INHIBIT lts (2) off; the master warning lights indicate the accepted system status.*

NOTE: This will indicate any faults that occurred while the system was inhibited and which still exist.

ADS & STBY HEATERS . . . . . ON . . . . . .Aft Overhead (SHIFT+3)

- *Set ADS 1 and ADS 2 sels (2) ON*
  - *Observe ADS/ENGINE PROBE HEATERS lts (15) off.*

CAUTION: THE ADS 1 AND ADS 2 SELECTORS MUST NOT BE SELECTED TO OFF DURING FLIGHT

ENG RATING MODE . . . . . FLIGHT . . . . . .

- *Verify ENG RATING MODE sws (4) to FLIGHT.*
  - *Observe CLB lt (white) on, T/O lt off, CRS lt off.*
- *NOTE: If less than 15 seconds has elapsed between reheat off and Flight Rating selections a Reheat warning may be received. This is not a fault condition unless accompanied by other fault indications.*

PRESSURIZATION .. . . . . .CHECKED . . . . Main/Cabin Pres

- *Observe*
  - *Ground Pressure Relief Valve shut*
  - *Unselected system discharge valves shut*
  - *Selected system discharge valves in controlling positions*
  - *Cabin rate of climb satisfactory*

Altitude	N2
3000	93%
4000	95%
5000	97%
6000	99%
7000	101%
8000	CLB PWR

SECONDARY AIR DOORS . . . . OPEN/LIGHTS OFF

Engine Control (CTR+SHIFT+2)

- *Observe*
  - *Secondary Air Doors MIs read OPEN*
  - *Current Draw lights off.*

CAUTION: IF THE SECONDARY AIR DOOR MIs ARE NOT OPEN ABOVE M 0.95. NACELLE OVERHEATING AND ENGINE SURGE WILL OCCUR.

NOSE / VISOR . . . . UP / LOCKED . . . . Main

- ***Verify landing Gear normal lever at NEUTRAL***
- *Set VISOR/NOSE lever to UP.*
  - *Observe NOSE MI reads UP, VISOR MI reads UP and unlock lt off.*
- *If the Visor is raised whilst the Landing Gear normal lever is at UP*
  - *Reduce speed to below 325 kts*
  - *Lower the Visor*
  - *Set landing Gear lever to NEUTRAL*
  - *Raise the Visor and continue with normal flight*

At M 0.7 CLIMB CHECKLIST

ALTIMETERS . . . . . SET ALL . . . . . Main

Set subscale to required setting.

FUEL TRANSFER . . . . . AFT. . . . . Lower Fuel Panel (CTRL+SHIFT+5)

- *Set Trim Trans Auto Master to REARWARD*
- *Observe*
  - *Tank 9 pumps low pressure lights illuminate then extinguish*
  - *Tank 10 pumps low pressure lights illuminate*
  - *Tank 11 Inlet Valves MIs show inline*
- *Set tank 11 De-air sw to OFF*
  - *Observe tank 11 left hand pump low pressure light off*
  - *Observe*
    - *Tank 11 quantity increasing*
    - *Tank 9 quantity decreasing*
    - *CG moving aft*

TAKE-OFF CG switch . . . . . NORMAL . . .Engine Ctrl (CTRL+SHIFT+2)

- *Verify that the switch is at NORMAL and set the guard.*

  NOTE: Tanks 9 & 10 are fitted with pulse start pumps: they reach full speed and trip the T/O CG sw electric latch approximately 5 seconds after selection.

SECONDARY AIR DOORS . . . . . OPEN . . . . . .

- *Observe*
  - *Secondary Air Doors MIs read OPEN*
  - *Current Draw lights off.*

SECONDARY NOZZLES . . . . MODULATING . . . . . .

- *Observe the SECONDARY NOZZLES have started to move away from the 21 deg. position*
  - *IF... the buckets have not moved from the take-off position, Refer to Abnormal Procedure: INCORRECT SECONDARY NOZZLE POSITION (WITHIN NORMAL THRUST RANGE)*

ENGINE CONTROL SCHEDULE . . . . . AS REQUIRED . . . . . .

- *Set or leave it at **FLYOVER during full subsonic flights or subsonic steps.***
- *Set to **NORMAL before transonic acceleration**. When set to NORMAL observe:*
  - *HI schedule lights on*
  - *correct response on N1 and Area Gauges*

BRAKE FANS . . . . . OFF . . . . . Brake Control

SEAT BELT SIGNS . . . . . AS REQUIRED . . . . . Aft Overhead (SHIFT+3)

TAXI TURN LTS . . . . . OFF . . Forward Overhead (SHIFT+4)

- *When clear of the terminal area, set the TAXI TURN lts sws to OFF.*

NOZZLE OVERRIDE LIGHTS . . . . . OFF. . . . . Nozzle Override

SUBSONIC CLIMB

- *Set the desired altitude*
- *Climb at VMO if the climb is to be continued to supersonic speeds or climb at VMO and then 0.93 if the climb is to a subsonic flight level.*
- *Rearward trim transfer should begin at Mach 0.70. When climbing to Subsonic Cruise, rearward trim transfer should be stopped at 55% CG or if the acceleration is interrupted below Mach 1.00*

FUEL & CG MANAGEMENT FOR SHORT SUPERSONIC FLIGHTS. . Fuel Panels (CTRL+SHIFT+5/6)

NOTE: Normal procedures and limitations apply throughout with the following additional guidelines:

- *When 55% CG obtained on the CLIMB CHECK transfer fuel from TRIM TANKS 9,10, and 11 into TANKS 5 and 7*
- *Maintain 55% CG and lateral trim.*
- *Stop transfer when the addition of contents of TRIM TANKS 9, 10, 11 equal the previously extracted TANK 11 contents for Supersonic Cruise from the CCM. This achieves the highest possible fuel level in the COLLECTOR TANKS for reheat operation during the acceleration.*

SUBSONIC CRUISE

FUEL TRANSFER . . . . . AFT. . . . . Lower Fuel Panel (CTRL+SHIFT+5)

- *When the **CG is at 55%** set the Trim Trans Auto Master to OFF and guarded*
  - *Observe:*
    - *Tank 11 Inlet Valves Mis crossline*
    - *Tanks 9&10 pumps low pressure lights off*
    - *Transfer ceases*

- *If subsonic cruise is required, set VMO and engage AT1 and AT2 to level off and engage ATs at the selected altitude.*
- *The subsonic cruise is carried out at Mach 0.95.*
- *For the optimum flight level during subsonic cruise, check the table below. The recommended procedure is to fly with a CG position of 55% which may give an elevon deflection of 2 to 2.5° down. This deflection is acceptable because the CG position is considered more important than the elevon deflection.*
  - *Any increase in subsonic cruise flight level above the optimum will have an adverse effect on specific range. As height is increased above the optimum, the IAS at Mach 0.95 can fall progressively below the minimum drag speed for the weight. Drag can thus become more penalising until height cannot be maintained at subsonic speeds.*
- *Regardless of weight it can be seen from the Flight Envelope that above 41,000 feet the IAS equivalent to Mach 0.95 is prohibited by VLA (Lowest Authorised Speed).*
  CAUTION: At heavy weight a large power increase may be required to regain speed following inadvertent deceleration to speeds below about 300 knots. If climb power is insufficient, reheat should be used and if necessary, the aircraft should be descended to increase the speed to the lesser of VMO or M = 0.95. The desired level should then be regained by climbing at VMO
- ***Engine control schedule** should be selected to **'flyover' above Mach 0.8** for optimum performance.*
- *For INS DME UPDATE check SUPERSONIC CRUISE*

NIVEAU DE VOL OPTIMAL - DISTANCE SPECIFIQUE

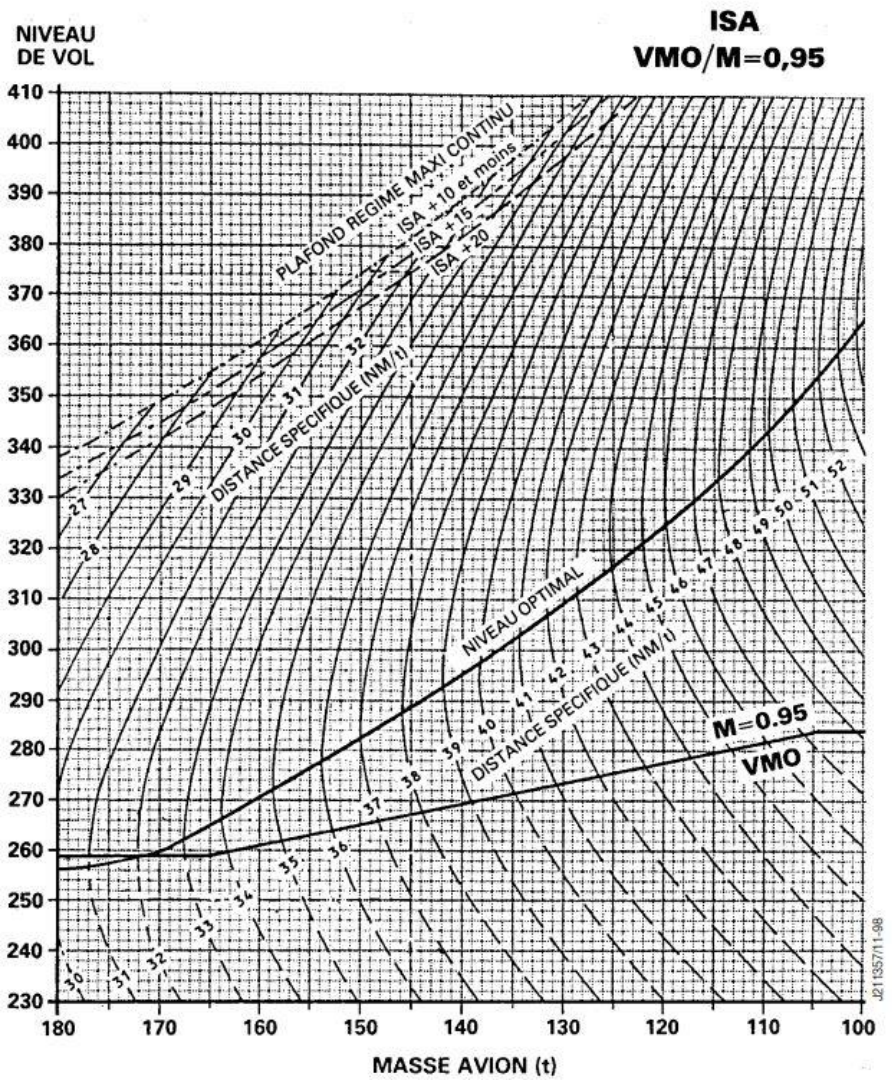

Table used by Air France. Shared by Pierre Chassang in FSLabs' forum.

DE-AIR PUMPS . . . . . 100% SUBSONIC FLIGHT ONLY. . . . . OFF. . . . .

- *Set tanks 10, 5A and 7A de-air pump to OFF.*
- *Set tanks 6 and 8 right hand pumps to OFF.*

ENG FLIGHT RATING . . 100% SUBSONIC FLIGHT ONLY. . CRUISE . . . . .. Aft Overhead (SHIFT+3)

FUEL & CG MANAGEMENT . 100% SUBSONIC FLIGHT ONLY . . . . . Fuel Panels (CTRL+SHIFT+5/6)

- *Aircraft weight **LESS THAN 140.000kg:***
  - *When 55% CG obtained on the CLIMB CHECK, transfer the fuel from TANKS 5A & 7A. Maintain 55% CG by adjusting TRIM TANK contents.*
    NOTE: The "A" TANKS can take as long as 25 minutes to empty & must be empty on landing. Very short flights will require the fuel transfer from the "A" TANKS to be commenced at least 25 minutes before landing irrespective of the above guidelines.

- ***Aircraft weight GREATER THAN 140,000 kg.***
  - *Transfer fuel from TRIM TANKS 9, 10 and 11 into TANKS 5 and 7 when space becomes available whilst maintaining 55% CG and lateral trim.*
  - *When the aircraft weight has reduced to 140,000 Kg transfer TANKS 5A & 7A fuel as above.*
    NOTE: Delaying the transfer of TANK 5A and 7A fuel to an aircraft weight of 140,000 Kg, relieves wing bending loads in subsonic flights.
- *Continue with NORMAL PROCEDURES*

TRANSONIC CHECKLIST

DE-AIR PUMPS AFTER A SUBSONIC LEG . . . . AS REQUIRED . . . Fuel Panels (CTRL+SHIFT+5/6)
AUXILIARY INLET MIs . . . . . SHUT . . . Air Intakes (CTRL+SHIFT+4)

- *Before the aircraft speed is greater than M = 0.90*
- *Observe AUX INLET vane MI(s) (4) read SHUT.*

SECONDARY NOZZLES . . . . . <15 DEG . . . . . .

- *Observe the SECONDARY NOZZLE instrument indicates less than 15 deg.*
- *NOTES: Supersonic flight is permitted with bucket angles of up to 27°. See Cruise Control Manual for penalty. Reheat must not be selected on any engine indicating a Secondary Nozzle angle greater than 15 degrees. If the buckets have not moved from the take-off position refer to the Abnormal Procedure: INCORRECT SECONDARY NOZZLE POSITION (WITHIN NORMAL FORWARD THRUST RANGE)*

TRANSONIC ACCELERATION . . . . . SET. . . . . .

- *If engaged, disengage AT1 and AT2 (SHIFT+R x2). The AT light (W & L Display) will flash. Press to extinguish.*
- *Select PITCH HOLD on the AFCS.*
- *Pitch the aircraft up to 7° to 10°. You can use the AP DATUM adjustment or the keys on the numeric keypad (NUM LOCK OFF) to pitch the nose of the aircraft to 7 to 10°.*
- *Make sure you keep the aircraft at VMO (400kts) during the whole acceleration period. Adjust PITCH as required.*

REHEAT . . . . . ON . . . . . Upper Pedestal (SHIFT+6)

- ***Advance throttle levers fully.***
- ***Select Reheats in symmetric pairs - selected lights on (CTRL+F4 twice)***
- *Observe:*
  - *Fuel flow increase*
  - *F_T flags appear and area increase*
  - *Con lights off*
  - *MID schedule lights on.. Engine Control (CTRL+SHIFT+2)*
- *NOTE: Two reheats are the minimum required for transonic acceleration, however due note must be taken of additional fuel usage with one or two reheats failed.*
  - *If the total temperature exceeds approx. 60ºC before reheat is selected off, the engine will automatically return to the dry climb values of N_2 N_1 and EGT but the reheat system will continue to function normally.*

CHRONO . . . . . START . . . . . Main

FUEL TRANSFER . . . . . TRANSFERING AFT . . . Fuel Panels (CTRL+SHIFT+5/6)

- *Set or check TRIM TRANS AUTO MASTER sel to REARWARD.*
  - *Observe:*
    - *Tank 9 pumps low pressure lights illuminate then extinguish*
    - *Tank 10 pumps low pressure lights illuminate*
    - *tank 11 INLET VALVES MIS (2) inline.*
    - *Tank 11 quantity increasing*
    - *Tank 9 quantity decreasing*
    - *CG moves rearwards*
  - *If The CG position approaches within 0.25% of the AFT bug set the TRIM TRANS AUTO MASTER sel OFF until the CG position is midway between the FWD and AFT bugs then set the TRIM TRANS AUTO MASTER sel to REARWARD. Repeat as necessary.*

NOTE: Because the next steps in the FUEL TRANSFER checklist are extensive and never carried out before the Mach 1.7 checklist, ***I have manually moved the rest of the fuel transfer checks after that checklist.***

PRESSURISATION . . . . . CHECK/SET. . . . . Cabin Pressure

- *IF A SUBSONIC LEG HAS BEEN FLOWN*
  - *On system 1 check knob B to 1013 and rotate knob A to set cabin altitude to that required.*
    - *Verify altitude shown in lower window is higher than the highest flight level planned for the cruise. For a ceiling of 60,000 feet, 5,500ft should be selected.*
  - *Repeat action, using system 2 cabin alt sel.*

ENGINE CONTROL SCHEDULE . . . . . NORM . . . Engine Control (CTRL+SHIFT+2)

- *I have included this check because when a subsonic leg is flown, it is easy to forget to change the selector from "Flyover" to Normal, as required.*

FUEL & CG MANAGEMENT FOR SHORT SUPERSONIC FLIGHTS. . Fuel Panels (CTRL+SHIFT+5/6)

NOTE: Normal procedures and limitations apply throughout with the following additional guidelines:

- *During acceleration TANKS 9 and 10 contents are transferred into TANK 11 achieving a CG approaching 59%.*
- *Transfer fuel from TANK 5A and Tank 7A.*
- *When COLLECTOR TANK contents reduce to 2500 KG, transfer fuel from TANK 11 bringing the CG forward to 57.5% as per normal procedures.*

  NOTE: If "A" TANKS are still transferring the drift forward of CG could go forward of 57.5% if TANK 11 transfer ceased at the forward CG limit of 57.5%.
- *Continue with NORMAL PROCEDURES.*
- *Note: If TANKS 5A and 7A are still transferring during the DECELERATION, the Pump Low Pressure lights will come on before the tanks are empty. This is due to the attitude of the aircraft. The remaining fuel can be transferred when subsonic.*

At M 1.0

PRESS STATIC HEATERS . . . . . OFF . . . . . .Aft Overhead (SHIFT+3)

NOTE: The pressurisation static vent heaters should not be operated in supersonic flight as there is a risk of heater damage.

ENGINE ANTI-ICE. . . . . OFF . . . . . .

- *Observe IGV PRESS lights off.*

WING & INTAKE ANTI-ICING . . . . . OFF . . . . . .

TRANSPARENCY DE-ICE, DEMIST. . . . . OFF . . Forward Overhead (SHIFT+4)

Verify DV DE-MIST sws OFF, VISOR DE-ICE sws OFF, W/SHIELD DE-ICE sels OFF

MAX CLIMB . . . . . SET . . . . . Glareshield

Once you're through Mach 1 (M1.03), select MAX CLIMB on the AFCS.

At M 1.1

SECONDARY NOZZLES . . . . . 0-5 . . .Engine Ctrl (CTRL+SHIFT+2)

- *Observe SECONDARY NOZZLE instruments indicate 0-5 deg.*

NOZZLE OVERRRIDE LIGHTS . . . . . OFF. . . . . .

At M 1.3

INTAKES . . . . . CHECKED . . . .Air Intakes (CTRL+SHIFT+4)

- *Observe ramp position moves to approximately 10% to 20%*

At M 1.7 or 15 min since reheat

REHEAT . . . . . OFF. . . . . Upper Pedestal (SHIFT+6)

- *Set reheats OFF in symmetric pairs (CTRL+F4 twice)*
- *Observe*
  - *Engine FUEL flow drops by approximately 35%*
  - *FUEL instrument flag reads FE*
  - *Reheat selected lts off*
  - *ENGINE CONTROL SCHEDULE HI lts (white) on Engine Panel (CTRL+SHIFT+2)*
  - *ENGINE CONTROL SCHEDULE MID lts Off . . Engine Panel (CTRL+SHIFT+2)*

CHRONO . . . . . STOP/RESET . . . . . Main

AFCS. . . . . SET . . . . . Glareshield

- *Dial 60000 feet*
- *Select ALT ACQ*
- *Engage AT1*
- *Confirm that the same system AP, AT and FD are selected i.e. No.1 AP, No.1 AT and No.1 FD.*

FUEL TRANSFER AFT DURING NORMAL SUPERSONIC FLIGHTS . . Fuel Panels (CTRL+SHIFT+5/6)

- *When tank 11 contents equal the load limit initial cruise quantity observe:*
  - *Tank 11 INLET VALVES MIs (2) crossline and contents remain at the initial cruise quantity.*
  - *Tank 5 and tank 7 inlet valves MIs (2) inline.*
  - *Contents of tanks 5 and 7 increasing.*

  NOTE: In the event of tank 5 and/or tank 7 reaching high level the respective inlet valve(s) will shut until the level falls.
- *When tank 9 contents are approximately zero observe:*
  - *Tank 9 PUMPS LOW PRESS lts (2) yellow on.*
  - *Tank 10 pump LOW PRESS lts (2) off and quantity decreasing*

  NOTES: There is a 4 sec. delay between tank 9 Low Pressure lights illuminating and tank 10 pumps starting in order to prevent tank 10 pumps responding to a transient low pressure. Tank 9 low pressure lights remain on until its pumps are switched off or trim transfer is complete.
- *When tank 9 LOW PRESS lts (2) (yellow) have been on steady for 20 secs set tank 9 PUMP sels to OFF.*

  NOTE: The pumps are normally left operating for 20 secs after the LOW PRESS lights are on steady in order to scavenge the tanks.
- *When tank 10 is empty and the tank 10 low pressure lights have been on for 20 seconds:*
- *Set the TRIM TRANS AUTOMASTER sel to OFF and guarded*
- *Set tank 9 PUMP sels to AUTO*
  - *Observe:*
    - *Tank 10 pumps low pressure lights off.*
    - *Tanks 5 & 7 Inlet Valves MIs crossline.*
    - *Indicated CG position between 58% and 59.0%.*
    - *If the Indication is not between these limits the tank 11 INITIAL CRUISE QUANTITY should be checked and the actual CG computed to determine If the CG Indicator Is In error.*

- *Set the tank 9 and 10 load limit control to 8000 kg*
- *Set the tank 11 load limit control to the load sheet LANDING BALLAST FUEL TANK 11 value.*

Note: When tank 9 and 10 Load limit control is set to 8000 kg. and the tank 11 load limit control is set to the LANDING BALLAST FUEL TANK 11 value, the trim transfer system is ready for an emergency forward transfer by the TRIM TRANS AUTO MASTER selector providing the associated PUMPS and INLET VALVES selectors are at AUTO. FUEL FWD TRANS SW overrides the load limit control settings.

- - - - - - - - - WHEN FUEL TRANSFER IS COMPLETE - - - - - - - - -

FUEL TANK PRESSURE . . . . . CHECKED. . Secondary Engine Instruments

- *During the climb above 44,000 feet the air pressure in the fuel tanks will slowly increase to a maximum of between 1,2 psi and 1.5 psi.*

DE-AIR PUMPS . . . . . OFF. . . . . .

- *Set tank 10 de-air pump to OFF.*
- *Set tanks 6 and 8 right hand pumps to OFF.*

TANK 9 + 10 LOAD LIMIT CONTROL (LLC). . . . . SET 8000 KG . . . . . .

- *Check tank 9 PUMP sels to AUTO*
- *Set this value to allow override sw to transfer fuel fwd from T11 without a reverse transfer occurring when override switch placed back to normal. Ensure zero Kg selected in T11 LLC (Load Limit Control)*

TANK 5A AND TANK 7A . . . . . TRANSFER . . . . . .

- *Set TRANS VALVE 5A-5 and 7A-7 sws to OPEN.*
  - *Observe TRANS VALVE 5A-5 and 7A-7 MI(s) show inline.*

  NOTES: This transfer should be made as early as possible after the completion of the trim transfer to prevent excessive kinetic heating of the fuel in tank 5A and tank 7A. In the event of tanks 5 and/or 7 reaching high level the respective inlet valve(s) will close until the level falls.

TANK 1&4 sw . . . . . AFT TRIM (AS REQ) . . . . . .

WARNING: Do not select aft trim on short sectors

- *Once the aft trim operation is initiated should not be interrupted.* ***If during the aft trim operation the elevons should move down greater than one degree, or the CG move aft of 59%, do not stop the aft trim:***
- *Set TANK 5 & 7 INLET VALVES OPEN*
- *Set TANK 11 PUMPS ON and monitor CG position.*
  - *WHEN CG is 59%*
    - *Set TANK 11 PUMPS to AUTO*
    - *Set TANK 5 & 7 INLET VALVES to AUTO*

At FL500 / Mach 2.0

ENG FLIGHT RATING . . . . . CRUISE . . . . . Aft Overhead (SHIFT+3)

Set ENGINE FLIGHT RATING sws (4) to CRUISE.

- *On the main panel, observe CRS lt (white) on, CLB lt off, N1, N2 EGT are sensibly in line.*

AT1 & MAX CLIMB/MAX CRUISE/MACH HOLD . . . . . CHECKED . . . . . Glareshield

SUPERSONIC CRUISE

INS DME UPDATE . . . . . AS REQUIRED. . . . . .

No. 1 DME provides data to No.1 INS and No.2 DME provides data to No.2 INS.

- *Rotate the Data Selector to WAY PT.*
- *Right-click the keypad 7 then right-click the keypad 9. This puts the INS into DME updating mode.*
- *Select a waypoint number to store the DME station using the waypoint selector wheel.*
- *Enter the Lat and Long for the DME station and click INSERT.*
- *Right-click the keypad 3 then right-click the keypad 9. This shows the altitude of the DME station.*
- *Press the keypad 2 (N). Round up or down the DME station altitude in thousands of feet up to 9,000. For example, for an altitude of 2,600 ft, press keypad 3.*
- *Press the WY PT CHG button.*
- *Select the waypoint number on the keypad used to store the DME station and press INSERT.*
- *Rotate Data Selector switch to POS. The orange RNAV light will come on within a couple of seconds.*

  NOTE: The RNAV light will be on only while DME up-dating is taking place. When INS 1 or INS 2 is receiving DME data it will pass the data to the other two systems. If these systems are in Mix mode (MI=4), they will independently perform the DME update function.

  NOTE: Tuning both VHF NAV on the same frequency will not improve the single DME updating both in efficiency and velocity. The most efficient method being to dual DME update with one DME on your track and the other at least 15nm off track.

TANK 5A AND TANK 7A . . . . . TRANSFER . . . . . .

- *When tank 5A and 7A PUMPS LOW PRESS lts (Yellow) have been on for 20 seconds,*
  - *Set PUMPS sws to OFF and*
  - *Observe:*
    - *Contents indicators read approximately zero.*
    - *PUMPS LOW PRESS lts off.*

  NOTE: The pumps are normally left operating for about 20 seconds after the tanks are empty in order to scavenge the tanks.
- *Set TRANS VALVE 5A-5 sw and TRANS VALVE 7A-7 sw to SHUT.*
  - *Observe TRANS VALVE 5A-5 MI and TRANS VALVE 7A-7 MI show crossline.*

FUEL AND CG MANAGEMENT . . . . . DURING CRUISE . . . Fuel Panels (CTRL+SHIFT+5/6)

- *Throughout the cruise phase of flight apply as necessary the conditional procedures, **CG Aft of 59%**, Longitudinal and lateral Trim*
- *Monitor the CG position*

  NOTE: Subject to the CG being at or forward of 59% the optimum elevon angle is half a degree down.

- *Monitor the elevon displacement in pitch and roll on the flight control position indicator.*

  NOTE: Pitch and roll displacement of the elevons increases the aircraft drag.

  - ***To trim the aircraft longitudinally**, fuel is transferred from rear to front tanks or by reduced level operation in tanks 1&4, thus allowing the elevons to obtain the optimum position of the half a degree down.*
  - ***To trim the aircraft laterally**, fuel is transferred between left and right wing tanks thus allowing the elevons to return to the roll neutral position.*

- *When tank 5 and 7 PUMPS LOW PRESS lts (yellow) are on or their contents indicator read zero:*
  - *Set tank 6 and tank 8 PUMPS sws (4) to ON.*
  - *Observe tank 6 and tank 8 PUMPS LOW PRESS lts (tellow) on momentarily then off.*

  NOTE: This continues the main transfer. Thank 6 is replenishing tank 1 via the left-hand pump and tank 2 via the right-hand pump. Tank 8 is replenishing tank 3 via the left-hand pump and tank 4 via the right-hand pump.

- *When tank 5 and 7 PUMPS LOW PRESS lts (yellow) have been on for 20 seconds set thank 5 and 7 PUMPS sws (4) to OFF.*
- *Observe PUMPS LOW PRESS lts off.*

FUEL AND CG MANAGEMENT . . . . . END OF CRUISE . . . Fuel Panels (CTRL+SHIFT+5/6)

- ***When tanks 6 and 8** reach a level approximately equal to the level difference between tanks 2&3 and tanks 1& 4 (**approx. 2200kgs)** set the **pump switches for tank 6>2 and tank 8>3 to OFF.***

  NOTE: This procedure enables the most aft CG position to be maintained for as long as possible.

- ***When tanks 6 and 8 PUMPS LOW PRESS lts** (yellow) have been on for 20 seconds*
  - *Observe tank 6 and 8 contents indicators read approximately zero.*
  - *Set PUMPS sws (4) to OFF and observe PUMPS LOW PRESS lts off.*

- ***When any collector tank contents fall to 1000 kg:***
  - *Set tank 5 and 7 INLET VALVE sels to OPEN.*
  - *Observe tank 5 and tank 7 INLET VALVE Mls show inline.*
  - *Set tank 11 Electric Pumps ON.*

- *When tank 5 and tank 7 contents are greater than 100kg:*
  - *Set tank 5 and tank7 PUMPS sws and sels to ON*

  NOTE: 100 kg in each tank 5 and 7 is the minimum quantity at which both pumps in each tank are sure to be submerged. Waiting for this quantity ensures that the pumps do not start dry.
  NOTE: Transferring cool fuel from tank 11 through tanks 5 and 7 to the collector tanks ensures adequate pump performance in the event of loss of tank pressurisation.

  NOTE: Normal supersonic cruise operation can be continued provided the fuel tank pressure is greater than 1.2 and the minimum quantity in any collector tank is 1000kgs.

- ***When CG reaches 57.5%:***
  - *Set tank 11 Electric Pumps to AUTO.*
  - *Set tank 5 and 7 INLET VALVE sws and sels to AUTO.*
  - *Observe tank 5 and 7 INLET VALVE Mls show crossline.*

- ***Before deceleration set the TANKS 1&4 switch to NORM.***

  NOTE: Setting TANKS 1&4 switch to NORM arms the tank1 and tank4 U/FULL lights.

TEMPERATURE REFENCE TABLE

TEMPERATURE **Warmer** **than ISA -10°C**

FLIGHT LEVEL	FUEL (KG)	TIME (MIN)	DISTANCE COVERED NM		
			40 KT TAIL	ZERO WIND	40 KT HEAD
600	2.10	20.3	233	220	206
590	2.04	19.9	227	213	200
570	1.94	19.2	215	202	189
550	1.88	18.7	207	194	182
530	1.85	18.3	199	187	175
510	1.82	17.9	193	181	169
490	1.76	17.2	183	171	160
470	1.67	16.4	170	159	148
The highlighted area includes deceleration from cruise to 350 knots					
550	1.38	15.6	152	141	131
530	1.33	15.0	144	134	124
510	1.27	14.5	136	126	117
490	1.21	14.0	129	119	110
470	1.15	13.4	121	113	104
450	1.09	12.9	115	106	97
430	1.02	12.3	108	100	91
410	0.97	11.7	101	94	86
390	0.91	11.2	95	88	80
370	0.85	10.7	89	82	75
350	0.80	10.1	84	77	70
330	0.76	9.7	79	73	66
310	0.72	9.2	73	67	61
290	0.67	8.5	67	62	56
270	0.62	7.9	62	56	51
250	0.57	7.2	56	51	46
230	0.52	6.6	50	46	42
210	0.47	6.0	45	41	37
190	0.42	5.4	40	36	32
170	0.37	4.8	35	31	28
150	0.33	4.1	30	27	24
130	0.28	3.6	25	23	20
110	0.23	3.0	21	19	17
90	0.19	2.4	16	15	13
70	0.14	1.8	12	12	10
50	0.10	1.3	8	8	7
30	0.05	0.7	4	4	3

TEMPERATURE **Colder** **than ISA -10°C**

FLIGHT LEVEL	FUEL (KG)	TIME (MIN)	DISTANCE COVERED NM		
			40 KT TAIL	ZERO WIND	40 KT HEAD
600	1.99	20.0	216	203	189
590	1.97	19.9	214	200	187
570	1.97	19.6	210	197	183
550	1.97	19.3	205	192	179
530	1.98	19.0	200	188	175
510	1.99	18.7	196	183	171
490	2.02	18.3	190	178	165
470	2.00	17.7	180	169	157
The highlighted area includes deceleration from cruise to 350 knots					
550	1.41	15.8	147	137	126
530	1.35	15.2	139	129	119
510	1.28	14.6	131	121	111
490	1.22	14.0	123	114	104
470	1.15	13.4	116	107	98
450	1.09	12.8	109	101	92
430	1.03	12.2	103	94	86
410	0.97	11.7	96	88	81
390	0.90	11.1	90	82	75
370	0.84	10.5	84	77	70
350	0.79	10.0	79	72	65
330	0.75	9.5	74	68	62
310	0.70	8.9	69	63	57
290	0.66	8.3	63	58	52
270	0.61	7.7	58	53	48
250	0.56	7.1	53	48	43
230	0.51	6.5	47	43	39
210	0.46	5.9	42	38	34
190	0.41	5.3	37	34	30
170	0.37	4.7	32	29	26
150	0.32	4.1	28	25	22
130	0.27	3.5	23	21	19
110	0.23	2.9	19	17	15
90	0.18	2.3	15	14	12
70	0.14	1.8	12	10	9
50	0.10	1.2	8	7	6
30	0.05	0.7	4	4	3

DECELERATION & DESCENT CHECKLIST

LANDING WEIGHT (x1000 kg)	VREF Knots
96	150
98	152
100	154
102	155
104	157
106	158
108	160
110	161
111	162
115	165
120	168
125	172
130	175
135	179
140	182
145	185
150	188
155	191
160	194
165	197
170	201
175	204
180	207

BRIEFING . . . . . STATED . . . . . REVIEW

- *Review with crew the briefing sheets, procedures and drills relating to the approach and landing*
- *Aide Memoir: Decl. Point, ADD's/MEL, AIS/ATIS, Sig. Wx., Terrain/SSA/MSA, Transilion Level, STAR, Approach/Go-around/Radio Aids, R/W State/Stopping/Airlield, Fuel Capability/Alternate, AWO*

SAFEFY ALTITUDE . . . . . CHECKED . . . . . .

Check the safety height for each leg of the descent and ensure that adequate terrain clearance is maintained at all times.

ASI BUGS . . . . . SET . . . . . Main

- *Set ASI bugs for landing*

ALTIMETERS . . . . . SET . . . . . .

- *Standby flags clear.*
- ***Set bugs to DA and airfield elevation.***

RADIO ALTIMETERS . . . . . .DH SET . . . . . .

- - - - - AT DECELERATION POINT - - - - - -

ENGINE RECIRCULATION VALVES sws. . . OPEN . ENGINE CONTROL (CTRL+SHIFT+2)

Prior to but not more than 5 minutes before retarding the throttle levers set ENGINE RECIRCULATION VALVES SWS (4) to OPEN.

WARNING & LANDING DISPLAY. . . . . CHECKED . . . . . Main

- *Press and hold the Captains Warning & Landing Display TEST push button.*
  - ***VERY IMPORTANT**: **If this test is not performed, the VFE *WILL NOT* set the TLA as required.***
  - *While at supersonic cruise **you can manually set the desired TLA** using the mouse scroll wheel at the sides of the Throttle in the 2D panel (SHIFT+6) and then activate using CTRL+F5*
  - *Observe AP light (red), AT light (red), ILS boundaries exceedance warnings (white), aircraft symbol (amber) and LAND 2 and LAND 3 lts (green) and DH lt (amber) on.*
  - *Observe brief audio warning (cavalry charge) and AUTOLAND lt (red) on*
  - *Release TEST pb*
- ***Within 10 minutes Press F2 key command at the deceleration point**. AT1 disengages and the VFE, **even if disabled**, will slowly close the throttles to 18°TLA (75%).*
- *NOTE: If you prefer to **control the throttles manually, DO NOT PRESS F2**. Instead, set the **TLA using the mouse wheel** at the sides of the Throttle (SHIFT+6) and then press **CTRL+F5**.*
- *At 360 knots engage ALT ACQ and at 350 knots select IAS HOLD*
- *After engaging IAS HOLD remember to select ALT ACQ again*

THROTTLES (TLA) . . . . 18°/24º . . . . Upper Pedestal (SHIFT+6)

- *Observe the temperature deviation from ISA*
  - *IF temperature warmer than ISA -10 ºC retard the throttles (4) to 18 degrees*
  - *IF temperature colder than ISA -11 ºC Retard the throttles (4) to 24 degrees*

NOTE: An adequate throttle lever position is required to ensure adequate surge margins at speeds greater than M = 1.6.

TANKS 1&4 . . . . NORM . . . . Fuel Panel (CTRL+SHIFT+5)

TANK 11 HYDRAULIC PUMPS . . . . OFF . . . .

- *Set both hydraulic pumps to OFF to prevent CG moving forward too quickly*

FUEL TRANSFER. . . . . TRANSFER FWD. . . . . Fuel Panels (CTRL+SHIFT+5/6)

- *Set tank 9 + 10 load limit sel to landing value*
  - *Observe the CG position and Mach number.*
  - *IF the CG is forward of or equal to 57.5% and speed is above M = 1.5*
    - *Wait until the speed reduces to M=1.5*
  - *IF the CG is rearward of 57.5% and the speed is above M = 1.5*
    - *Set the TRIM TRANS AUTO MASTER sel to FORWARD*
    - *Observe the CG moves forward*
    - *When the CG reaches 57.5% observe the Mach number*
      - *IF the speed is above M = 1.5 set the TRIM TRANS AUTO MASTER to OFF and wait until the speed reduces to M = 1.5.*

ENG FLIGHT RATING . . . . CLIMB . . . . Aft Overhead (SHIFT+3)

Observe CLB lt (white) on, CRS lt off.

At M 1.5

THROTTLES (TLA) . . . . CHECKED 32° . . . . . Upper Pedestal (SHIFT+6)

- *The throttle lever position of 32 deg. ensures adequate air conditioning flows at speeds greater than M = 1.0.*

FUEL TRANSFER. . . . . TRANSFER FWD. . . . . Fuel Panels (CTRL+SHIFT+5/6)

- *Verify the TRIM TRANS AUTO MASTER sel at FORWARD*
- *Observe the CG moves forward*
- *When the CG reaches 55% observe the Mach number*
  - *IF the speed is above M = 0.93 set the TRIM TRANS AUTO MASTER sel to OFF until the speed reduces to M=0.93. Then, providing a subsonic cruise leg is not planned, set the TRIM TRANS AUTO MASTER to FORWARD*
- *When tank 9 contents equal the preset load limit, observe tank 9 INLET VALVE MIs (2) show crossline and tank 5 and tank 7 INLET VALVE MIs show inline.*
- *When contents of tank 5 and tank 7 are over 100 Kg verify tank 5 and tank 7 PUMPS sels and sws to ON*
- *Control tank 5 and tank 7 PUMPS to achieve equal quantities in the collector tanks.*
- *Verify tank 11 contents are equal to the preset landing ballast quantity.*
- *Observe tank 5 and tank 7 INLET VALVE Mis show crossline*

- *Set the TRIM TRANS AUTO MASTER sel to OFF.*
    - *Observe the CG is forward of 53.5%*

When tank 5 and tank 7 LOW PRESS lts (yellow) have been on steady for 20 seconds, set tank 5 and tank 7 PUMPS sels and sws to OFF.

OPTIMAL SUBSONIC FLIGHT LEVEL TABLE

SUBSONIC LEG FLIGHT LEVEL . . . . . .AS REQUIRED/SET. . . . . Glareshield

- ***If a subsonic leg is required,*** *check the following table for setting the optimum flight level*

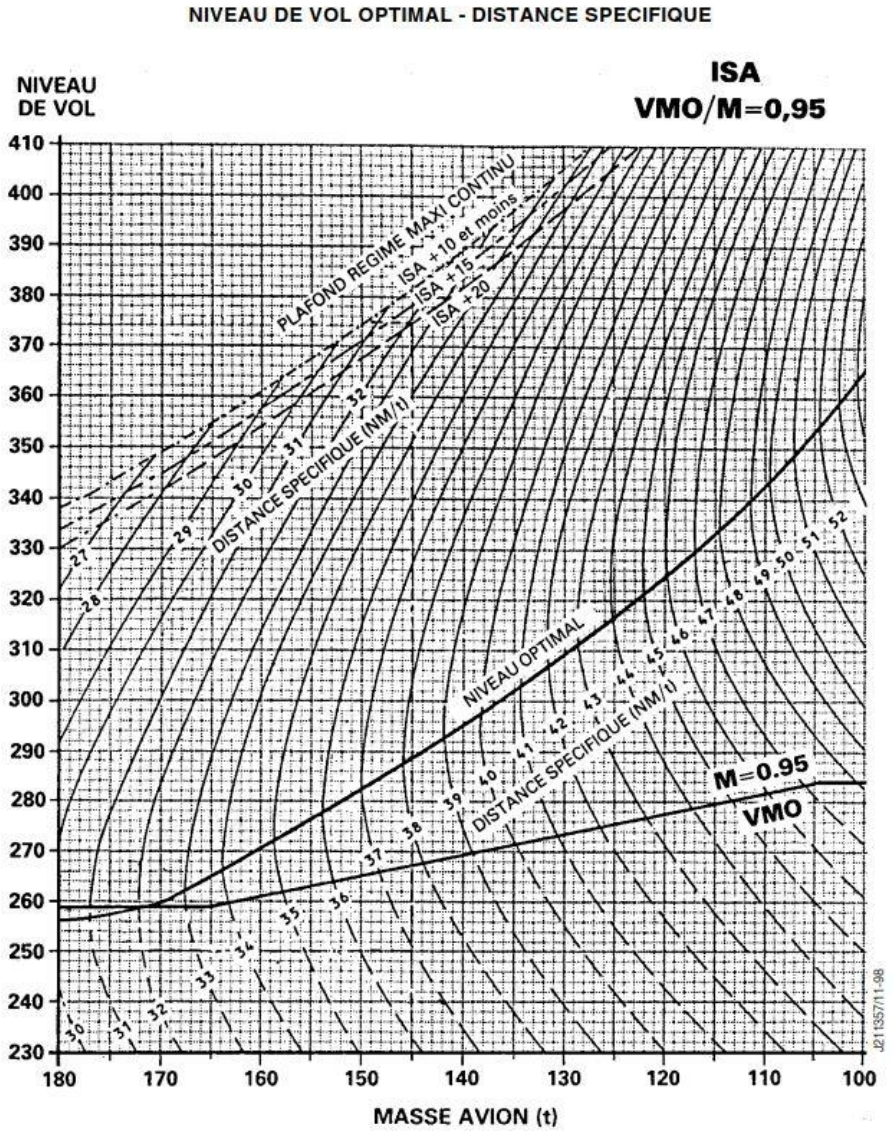

Table used by Air France. Shared by Pierre Chassang in FSLabs' forum.

At M 1.3

INTAKES . . . . . CHECKED . . . Air Intakes (CTRL+SHIFT+4)

Ramp position should go back to 0º

At M 1.0

THROTTLES . . . . . .IDLE. . . . . Upper Pedestal (SHIFT+6)

- *Retard the throttles (4) to idle, or carry out 86% procedure at M =0.97 or at M =1.10 if only cleared to FL410 or FL390*

  NOTE: During the latter stages of the descent and subsequent approach it is possible that rapid movement of the throttles may cause transient operation of the auto ignition system. This will cause the RH IGN and LH IGN lights and the associated START PUMP light to come on momentarily.

PRESSURISATION . . . . . SET. . . . . Cabin Pressure

- **If continuing descend to final destination:**
  - On SYS 1 cabin alt sel. rotate knob B and set QNH
  - Rotate knob A to set destination airfield height
  - Rotate knob R to set cabin rate of descent, white dot is 400 ft/min.
- **If descend to subsonic leg:**
  - Rotate knob A to subsonic stablished subsonic altitude
  - Rotate knob R to set cabin rate of descent, white dot is 400 ft/min.

PRESS STATIC HEATERS . . . . . ON . . . . . .Aft Overhead (SHIFT+3)

THROTTLE MASTER switch . . . . . .OTHER SELECTION . . . . . .

- *Observe all THROT lights off in the Upper Pedestal (CTRL+6)*

TRANSPARENCY DE-ICE, DEMIST . . . . . ON . . Forward Overhead (SHIFT+4)

- *Set W/SHIELD DE-ICE sels (2) to LOW.*
  - *Observe O/HEAT lts (2) off.*
- *Set VISOR DE-ICE sws (2) to ON*
  - *Observe O/HEAT lts (2) off.*

  NOTE: The visor heater operates only when the visor is locked up.
  - *Set DV DE-MIST sws (2) to ON*
  - *Observe O/HEAT lts (2) off.*

SUBSONIC LEG

SUBSONIC LEG FLIGHT LEVEL . . . . . .CHECK/SET. . . . . Glareshield

- ***CLICK HERE** TO GO BACK TO THE FLIGHT TABLE CHART*

SUBSONIC SPEED & CG . . . . . SET. . . . . .

- *During the subsonic leg, maintain a **speed of M=0.95 and a 55% C.G.***

ENGINE CONTROL SCHEDULE . . . . . CHECK . . . . . .Engine Ctrl (CTRL+SHIFT+2)

- *When a subsonic leg is to be flown, rotate ENGINE CONTROL SCHEDULE sel. to FLYOVER (F/O)*
- *Observe correct response on N1 and Area gauges and the fours F/O lights are on.*

ENGINE RECIRCULATION VALVES sws. .. . . SHUT . ENGINE CONTROL (CTRL+SHIFT+2)

- ***When a long subsonic is to be flown***

SUBSONIC DESCENT

ENGINE RECIRCULATION VALVES sws. . . . CHECK/OPEN . ENGINE CONTROL (CTRL+SHIFT+2)

PRESSURISATION . . . . . SET. . . . . Cabin Pressure

- At the end of the subsonic leg:
  - On SYS 1 cabin alt sel. rotate knob B and set QNH
  - Rotate knob A to set destination airfield height
  - Rotate knob R to set cabin rate of descent, white dot is 400 ft/min.

FUEL TRANSFER. . . . . TRANSFER FWD. . . . . Fuel Panels (CTRL+SHIFT+5/6)

- *Check or set the TRIM TRANS AUTO MASTER sel at FORWARD*
- *When tank 11 contents are equal to the preset landing ballast quantity.*
  - *Observe tank 5 and tank 7 INLET VALVE Mis show crossline*
  - *Set the TRIM TRANS AUTO MASTER sel to OFF.*
  - *Observe the CG is forward of 53.5%*
  - *When tank 5 and tank 7 LOW PRESS lts (yellow) have been on steady for 20 seconds, set tank 5 and tank 7 PUMPS sels and sws to OFF.*

APPROACH CHECKLIST

CABIN CREW (STEWARD) CALL . . . . . "15 MINUTES" . . . . . Aft Overhead (SHIFT+3)

EMERGENCY LIGHTS . . . . . CHECKED ARM . . . . . .

SEAT BELL SIGNS . .. . ON . . . . . .

ENG RATING MODE . . . . . TAKE OFF . . . . . .

- *Observe T/O lt (white) on, CLB lt off.*

TAXI TURN LTS. . . . . ON . . Forward Overhead (SHIFT+4)

RAD/INS SWS . . . . . .SET. . . . . Glareshield

- *If both RAD/INS sws set to RAD observe on both HSI that RAD and MAG displayed.*

BRAKE FANS . . . . . OFF . . . . . Brake Controls

ENGINE CONTROL SCHEDULE . . . . . .APPROACH . . .Engine Ctrl (CTRL+SHIFT+2)

- *Rotate ENGINE CONTROL SCHEDULE sel to APPROACH*
  - *Observe correct response on N1 and Area gauges and MID lts on.*

NOTE: The MID engine control schedule is used for noise abatement during approach to touchdown.

ENGINE RECIRCULATION VALVES . . . . . SHUT . . . . . .

SECONDARY AIR DOOR sws . . . . AUTO. . . . . .

ENGINE FEED PUMPS . . . . . ALL ON . . . Fuel Panels (CTRL+SHIFT+5/6)

- *Observe ENGINE FEED PUMPS sws ON and LOW PRESS lts OFF*

FUEL CROSSFEED VALVES . . . . . SHUT. . . . . .

- *Verify CROSSFEED rty sels at crosslined position·*
  - *Observe CROSSFEED Mis show crossline.*

CAUTION: THIS ACTION MUST BE DELETED WHEN THE PROCEDURE "MANAGEMENT WITH ABNORMALLY LOW FUEL QUANTITY" IS BEING USED.

SSB . . . . . AS REQUIRED . . . . . AC Electrics (SHIFT+7)

- *If **LAND 3 is required and 4 main generator channels operating**, set the **SSB switch to OPEN***
  - *Observe that the SSB MI shows crossline.*
- *If LAND 3 is required and 3 main generator channels operating, and for **any other landing**, verify that the **SSB switch is** at **CLOSE***
  - *Observe that the SSB MI shows Inllne.*

BATTERIES / D.C. SPLIT switch. . . . . AS REQUIRED . . . . . DC Electrics (SHIFT+8)

- ***If LAND 3 is required and 4 main generator channels operating**, set the **Battery selectors to ESS/MAIN SPLIT***
  - *Observe ESS/MAIN SPLIT Mls show crosslIne.*

NOTE: Setting the DC SPLIT switch to SPLIT opens both essential/main relays and overrides the charge control of both batteries.

- *If LAND 3 Is required and 3 main generator channels operating, and **for any other landing,** verify that the Battery selectors are at **BATT ON**.*
  - *Observe ESS/MAIN SPLIT Mls show inline.*

FUEL / WEIGHT / CG . . . . . CHECKED . . . . . Main

- *Update landing data card fuel and weight figures as required.*
- *Verify CG within the landing limits*

ASI BUGS . . . . . UPDATE/SET . . . . . .

LANDING VREF SPEEDS

ZFW + Fuel Rem. = Landing Weight

When calculating the RELAND reference speed for the data card, use a landing weight equal to take-off weight minus 3,500 kg

LANDING WEIGHT (x1000 kg)	VREF Knots
96	150
98	152
100	154
102	155
104	157
106	158
108	160
110	161
111	162
115	165
120	168
125	172
130	175
135	179
140	182
145	185
150	188
155	191
160	194
165	197
170	201
175	204
180	207

DISTANCE TO TOUCHDOWN	RECOMMENDED SPEED	MAXIMUM SPEED
15-20 miles	250 knots	300 knots
12-14 miles	210 knots	250 knots
8 - 11 miles	VREF + 30 knots (minimum 190 knots)	210 knots
5 - 7 miles	VREF + 15 knots	VREF + 30
0 - 4 miles	VREF For reduced noise and better handling it's recommended to use **VREF+7**	VREF MAX
Visual traffic pattern	VREF + 50	Speeds up to 250 knots may be used in a visual traffic pattern in order to reduce noise and fuel consumption.
ILS beam interception	VREF + 30 (minimum 190 knots)	

CONFIGURATION	ABNORMAL INCREMENT	VT MAX
3 ENGINE	5	10
2 ENGINE	7	17
NO AUTOTHROTTLE	7	17
TOTAL LOSS OF: • ELECTRIC TRIM OR • PITCH AUTOSTAB OR • ELECT. FLIGHT CONTROL	10	10

VISOR / NOSE . . . . . DOWN / 5 DEG . . . . . .

- *Set the Visor/Nose lever to VIS/O*
- *Observe*
  - *Visor moves downwards*
  - *Unlock light on then off*
  - *Visor MI reads DOWN*
  - *5 deg. lock light is off*
- ***CAUTION: THE SIMULTANEOUS SELECTION FROM VISOR UP TO NOSE 5º IS PROHIBITED IN FLIGHT UNLESS THE LIMITATION FOR NOSE AT DOWN IS OBSERVED.***
- *Set the Visor/Nose lever to 5 DEG*
- *Observe*
  - *Nose moves downwards*
  - *Unlock light on then off*
  - *Nose MI reads 5 DEG.*
  - *5 deg. lock light remains off*

ALTIMETERS/RAD ALTS. . . . . QNH SET: UPDATE . . . . . .

RAD / INS switch. . . . . AS REQUIRED . . . . . Glareshield

Observe on both HSI that RAD and MAG displayed

AUTOPILOT CHANGE OVER . . . . . CHECKED . . . . . .

- *With both autopilots engaged, disengage AP1 sw and observe AP1 lt off and AP2 remains engaged and operating.*
  - *Observe on both Warning and Landing displays LAND 3 lt off and LAND 2 lt (green) on.*
- *Set AP1 sw to engage and observe AP1 lt (green) on and sw remains at engaged position.*
  - *Observe on both Warning and Landing displays LAND 3 lt (green) on, if electrics split.*
- *NOTE: On re-engagement of AP1 it will engage in the LAND mode provided at least one flight director is engaged.*

DISTANCE TO TOUCHDOWN	RECOMMENDED SPEED	MAXIMUM SPEED
15-20 miles	250 knots	300 knots
12-14 miles	210 knots	250 knots
8 - 11 miles	VREF + 30 knots (minimum 190 knots)	210 knots
5 - 7 miles	VREF + 15 knots	VREF + 30
0 - 4 miles	VREF For reduced noise and better handling it's recommended to use **VREF+7**	VREF MAX
Visual traffic pattern	VREF + 50	Speeds up to 250 knots may be used in a visual traffic pattern in order to reduce noise and fuel consumption.
ILS beam interception	VREF + 30 (minimum 190 knots)	

LANDING CHECKLIST

LANDING GEAR . . . . . .DOWN 4 GREENS . . . . . Main

- *Move the guard to the left and set the L/GEAR lever to DOWN.*
- *Observe LH, NOSE, T and RH arrow lts (green) (4) on and LH SHORT, RH SHORT, UPPER LOCKS and transit lts off at end of the lowering sequence.*
- ***NOTE: Before extending the landing gear by normal control the visor uplock must be released to restore the green system hydraulic supply to the landing gear and door selectors.***

NOSE . . . . . DOWN & GREEN . . . . . .

- *Set VISOR/NOSE lever to DOWN*
- *Observe 5 DEG L lt on then off, unlock lt on then off, down lt (green arrow) on, NOSE MI reads DOWN*

BRAKES . . . . . .CHECKED / NORMAL . . . . . Upper Pedestal (SHIFT+6)

- *Verify the brakes lever is at NORM.*
- *Press and release brake pedals.*
    - *Observe BRAKES FAIL lt off.*

  NOTE: This test will confirm that normal brake pressure is available.

ANTI-SKID. . . . . CHECKED . . . . . Main

- *Observe brakes ANTI-SKID R lts (white) on*

  NOTE: The anti-skid system allows brake applications before touchdown if all eight release (R) lights are on.
    - *If one R lt off on any one landing gear apply brakes only after touchdown and use with care to prevent burst tyres.*

  NOTE: NORMAL brake system can still be used with three R lights off.
- *If four or more R lts off, apply procedure USE OF EMERG BRAKES*

AUXILIARY INLET MIs . . . . OPEN or X-HATCH . . . . . Air Intakes (CTRL+SHIFT+4)

YELLOW SYSTEM . . . . . CHECKED . . . . . Hydraulic Panel

- Observe *YELLOW hydraulic system PUMPS MIs (2) read ON and YELLOW system contents and pressure normal*

CABIN CREW (STEWARD) CALL . . . . . 3 PRESSES . . . . . .Aft Overhead (SHIFT+3)

LANDING/TAXI/TAXI TURN LTS. . . . . AS REQUIRED. . . . Forward Overhead (SHIFT+4)

- *If lights required set LIGHTS MAIN LANDING sws (2) to ON and EXTEND (2).*
    - *Observe EXTENDED lt (blue) on.*
- *If additional lighting required set LIGHTS LANDING TAXI sws (2) to ON and EXTEND (2)*
    - *Observe EXTENDED lt (blue) on.*
- *NOTE: Some buffeting may be experienced with the landing/taxi lights extended in flight*

SECONDARY AIR DOORS sels . . . . . .SHUT. . Engine Control (CTRL+SHIFT+2)

- *When the speed is less than 220 knots set SECONDARY AIR DOORS sels (4) to SHUT*
    - *Observe SECONDARY AIR DOORS Mis (4) read SHUT*
- *NOTE: This prevents the secondary air doors cycling, should the aircraft speed vary around M = 0.26 on the approach*

DISTANCE TO TOUCHDOWN	RECOMMENDED SPEED	MAXIMUM SPEED
15-20 miles	250 knots	300 knots
12-14 miles	210 knots	250 knots
8 - 11 miles	VREF + 30 knots (minimum 190 knots)	210 knots
5 - 7 miles	VREF + 15 knots	VREF + 30
0 - 4 miles	VREF For reduced noise and better handling it's recommended to use **VREF+7**	VREF MAX
Visual traffic pattern	VREF + 50	Speeds up to 250 knots may be used in a visual traffic pattern in order to reduce noise and fuel consumption.
ILS beam interception	VREF + 30 (minimum 190 knots)	

AUTOLAND MAX WINDS	
HEAD	25 knots
TAIL	10 knots
GROSS	15 knots

AFTER LANDING CHECKLIST

TYRE LIGHT . . . . . OBSERVE . . . . . Main

- *If Flight Engineer's Tyre Light illuminated, bring the aircraft to a halt and summon ground assistance, including Airport Fire Services. Paying particular attention to the possibility of consequential fuel/hydraulic leaks call for an external inspection to determine if it is safe to proceed to the ramp.*

NOSE . . . . . 5 DEG . . . . . .

Observe 5 deg lt on then off, NOSE MI reads 5 deg, unlock lt on then off, down lt off.

BRAKE FANS . . . . . AS REQUIRED . . . . Brake Controls

MASTER WARNING . . . . . INHIBIT . . . . . MWS Panel

FLIGHT CONTROL INVERTERS.. . . . . .OFF INV . . Forward Overhead (SHIFT+4)

- *Set BLUE INVERTER sel to OFF INV and observe flight control channel MIS (8) read G.*
- *Set GREEN INVERTER sel to OFF INV and observe flight control channel Mis (8) read M.*

LANDING/TAXI/TAXI TURN LTS. . . . . AS REQUIRED. . . . . .

SSB . . . . . CLOSED . . . AC Electrics (CTRL+SHIFT+7)

RAMP SPILL MASTERS sws . . . . . MAN . . . . . Air Intakes

NOTE: This prevents random indications of failure should the electrical supply to the air intake system be interrupted.

REVERSE ASOVs . . . . . CHKD/18°·24°/NORM . . . . . Aft Leg/Nozzle Override

- *27° Security Switches Test NTRC.*
- *Associated Blue Warning lts ON*
- *Set all 4 throttles to idle.*
- *Set both NOZ AIR SOV & WIND DOWN test sets. direct to E and check:*
  - *all 4 Reverse lts. flashing*
  - *all 4 Wind Down lts. on*

  NOTE: N_2s may Increase or decrease slightly.
- *Set throttle levers to mid travel*
  - *Observe N_2s do not Increase by more than 6%*
- *Set throttle levers to Idle.*
- *Select reverse idle on all 4 engines and check.*
  - *Buckets rotate to between 27° and 37° then stop*
  - *Wind Down lts. extinguish .. Engine Control (CTRL+SHIFT+2)*
  - *Reverse lts. continue to flash*
  - *N_2 Increases to reverse idle*
- *Cancel reverse by maintaining a steady downward pressure on the reverse levers. The forward baulk will remain engaged until the following action is taken.*
- *Rotate both test sels. through D to OFF and check:*
  - *buckets return to between 18° and 24°*
  - *27° Security Switches NORM*
  - *Associated Blue Warning lts OFF*
  - *Reverse lts. extinguish*
  - *Reverse levers fully down*
  - *N_2 at Idle*

  NOTE: Position D opens the electrical latch circuit on the ASOVs thus permitting them to re-open.

INBOARD ENGINES. . . . . SHUT . . . . . Aft Overhead (SHIFT+3)

- *When clear of runway and at taxiing speed shut down inboard engines to reduce thrust, if system status permits.*
  - *Cancel MWS ENG2&ENG4*

    CAUTION: Ensure Non-Handling Pilot monitors this action.

AUTO IGNITION . . . . . OFF . . . . . Aft Overhead (SHIFT+3)

PRESS STATIC HEATERS . . . . . OFF . . . . . .

ADS AND STBY HEATERS. . . . . OFF . . . . . .

DRAIN MAST HEATERS. . . . . AS REQUIRED . . . . . .

- *Check the total air temperature gauge Upper Pedestal (SHIFT+6).*
  - *If TAT is above 0 degrees Celsius, set DRAIN MAST HTRS to OFF.*
  - *If TAT is below 0 degrees Celsius, set DRAIN MAST HTRS to ON.*

WING & INTAKE ANTI-ICING . . . . . OFF . . . . . .

TRANSPONDER. . . . . XPDR . . . . . Lower Pedestal (SHIFT+7)

PRESSURIZATION . . . . . CHECKED . . . . . Cabin Pres

Observe GROUND PRESSURE RELIEF VALVE MI reads OPEN and SYS 1 and SYS 2 discharge valves position indicators FWD and AFT at OPEN.

SECONDARY AIR DOORS. . . . . AUTO, SHUT and LIGHTS OFF . . . . . .

BATTERY / D.C. SPLIT switches . . . . . ON / NORMAL . . . . . DC Electrics (SHIFT+8)

BRAKE TEMP lights . . . . . CHECKED . . . . . Brake Controls

- *Observe the BRAKES TEMP FWD and REAR lts (red) (4) are on.*
- *Press each BRAKES TEMP FWD and REAR lt in turn.*
    - *Observe temperature when lt pressed.*

  NOTES If any reading differs significantly from the others (either above or below) the affected brake must be inspected in accordance with the Maintenance Manual instructions before the next flight. The non-illumination of a BRAKES TEMP light and an abnormally low brake temperature indicate lack of braking on that wheel.

TANK 9 SHUT DOWN FUEL . . . . . 4000 KG . . . . . .

- ***Observe tank 9 contents are 4000 kg or more***

  NOTE: 4000 kg in tank 9 ensures stability of the aircraft during unloading of payload and crew.
    - *IF tank 9 contents less than 4000kg and fuel is available in tanks 1,2,3 and 4*
        - *Verify tank 11 INLET VALVES MIS show crossline*
        - *Verify JETTISON MASTER VALVES MIS show crossline*
        - *Set tanks 9 INLET VALVES MAIN sel to OPEN*
        - *Set tanks 1,2,3 and 4 jettison valves sws to OPEN*
        - *Observe tank 9 contents increasing*
        - *When tank 9 contents reach 4000 kg*
            - *Set tanks 1,2,3 and 4 jettison valves sws to SHUT*
            - *Set tank 9 INLET VALVES MAIN sels to AUTO*
        - *NOTE: If fuel is not available to increase tank 9 contents to 4000 kg, on first contact with ground request message given to duty officer that tank 9 contents are less than 4000 Kg.*

FLIGHT DIRECTORS . . . . . OFF . . . . . .

PARKING CHECKLIST

BRAKES . . . . . PARK . . . . . Lower Pedestal (SHIFT+7)

- *Observe dual BRAKES pressure gauge indicating full scale and BRAKES EMERG lt (amber) on.*

LIGHTS & TRANSPARENCIES . . . . . OFF / RETRACT: OFF . . Forward Overhead (SHIFT+4)

- *Set the MAIN LANDING LIGHTS, LANDING-TAXY LIGHTS and TAXY-TURN LIGHTS to RETRACT and OFF.*
- *Verify:*
    - *WINDSHIELD DE-ICE sels at OFF*
    - *VISOR DE-ICE sws at OFF*
    - *DV DEMIST sws at OFF..*

NOSE / VISOR . . . . . AS REQUIRED . . . . . Main

- *Observe nose then visor move upwards, unlock lt on then off, NOSE MI reads UP, VISOR MI reads UP*

EMERG GENERATOR selector . . . . . AUTO . .DC Electrics (CTRL+SHIFT+8)

- *Set the Emergency Generator selector to AUTO to prevent the generator attempting to run as Engine No.1 is-shut down*

HP VALVES . . . . . SHUT . . . . . .Aft Overhead (SHIFT+3)

- *Retard THROTTLE LEVERS (4) to idle.*
- *Set HP VALVE 1 to SHUT*
  CAUTION: Before shutting down engines 1&4 observe tank 9 contents are 4000 kg or more
- *Cancel MWS ENG 1, ENG 2 & ENG 3*
- ***IMPORTANT: Make sure ONLY ENGINE 4 IS RUNNING before requesting Ground Power***
- *Observe HP MIs SHUT, engine(s) run down.*
  - *If engine does not run down*
    - *Set LP VALVE sel to SHUT 1 & SHUT 2.*
    - *NOTE: When the LP VALVE is used to shut the engine down from idle, up to 20 sees may elapse before an engine run down is positively indicated.*

GROUND POWER . . . . . ON . . . .AC Electrics (CTRL+SHIFT+7)

- *Request Ground Power (FSLabs Menu)*
- *Observe GRND PWR AVAILABLE lt (white) on.*
- *Set ground power sw to CLOSE and release and generator sels of live generator(s) to off*

HP VALVE ENGINE 4. . . . . SHUT . . . . . .Aft Overhead (SHIFT+3)

THROTTLE MASTERS . . . . . OFF . . . . . .

ANTI-COLLISION lights . . . . . OFF . . . . . .

FASTEN SEAT BELTS . . . . . OFF . . . . . .

DRAIN MAST HEATER . . . . . CHECK/SET . . . . . .

ENGINE ANTI-ICING . . . . . OFF . . . . . .

IGNITION . . . . . OFF . . . . . Fwd Leg (CTRL+SHIFT+1)

GROUND CONDITIONING . . . . . SHUT (GRND SUPPLY). . . . . Air Bleed (CTRL+SHIFT+3)

- *Observe BLEED VALVES MIs (4) show crossline.*
- *Set BLEED VALVES sws (4) to SHUT.*
- *Observe COND VALVE MIS (4) show Crossline.*
- *Set COND VALVE sws (4) to OFF.*
- *Request ground staff connect pre-conditioned air truck*

FUEL PANEL . . . . . GROUND STATE . Fuel Panels (CTRL+SHIFT+5/6)

- ENGINE FEED PUMPS sws (12) at OFF
- Tank 9 INLET VALVE MAIN sels at AUTO, O/RIDE sels at OFF
- Tank 9 PUMP sels at AUTO
- Tank 10 DE-AIR SW at OFF
- Tank 10 PUMP sels (2) at AUTO
- TRIM TRANS AUTO MASTER sel at OFF and guarded
- Tank 11 INLET VALVES MAIN sels at SHUT, O/RIDE sels at OFF
- Tank 11 PUMP sels (4) at AUTO
- Tank 11 DE-AIR SW at OFF
- STANDBY INLET VALVES sws (9) at SHUT
- Tanks 5A and 7A PUMPS SWS at OFF
- TRIM PIPE DRAIN swat SHUT
- TRANS VALVE 5A-5 and 7A-7 SWS at SHUT
- Tanks 5 and 7 PUMPS sels at OFF and guarded
- Tanks 5 and 7 PUMPS sws at OFF
- Tanks 5 and 7 INLET VALVE MAIN sels at AUTO, O/RIDE sels at OFF
- Tanks 6 and 8 PUMPS sws at OFF
- INTER CON VALVE (6-7) and (5-8) sws at SHUT
- Fuel jettison transparent covers shut and JETTISON MASTER VALVES Mis (2) crossline.

BATTERIES . . . . . CHECKED. . .DC Electrics (CTRL+SHIFT+8)

- *Set both BATERIES to OFF.*
    - *Observe BATT ISOLATE lts (2) (amber) on, battery MIS (4) show crossline and MWS ELECT lt (amber) operates.*

INS . . . . . POST FLT INFO . . . . . CDU1 (SHIFT+8)

NOTE: Mode Selector must remain in NAV.

- *Enter ramp co-ordinates as waypoint and select select TEST/AUTO/MAN.*
- *Switch to MAN to prevent auto sequencing beyond waypoint.*
- *Select WYPT CHG.*
- *Press 0 and the waypoint number of the ramp co-ordinates.*
- *Press INSERT button.*
- *Select DIST/TIME.*
    - *The distance is the terminal error of the INS and is used with the block time to extract the drift rate from the chart.*
- *Select DSTRK/STS. This will give the direction of the drift.*
- *Key 1 and INSERT.*
- *Repeat the above procedure for INS in unaided mode.*
- *Press TEST button to obtain any malfunction codes present.*
- *Record all data on the reverse side of the Fuel Flight Plan.*
- *Record that the INS sets are operating within the allowed tolerance of 3 + 3 nm where t is the time in hours that the INSs have been in Nav mode. If there is an error outside tolerance, a Tech Log entry must be made to that effect.*

TRANSPONDER. . . . . STANDBY. . . . . Lower Pedestal (SHIFT+7)

BRAKE FANS . . . . . AS REQUIRED . . . . . Brake Control

- *Brake fans should be left running until the brake temperature indicator reads below 100°C.*

INS . . . . . RELOAD . . . . . Fwd leg (CTRL+SHIFT+1)

- *Set each MSU to STBY then ALIGN. Load Present Position into each INS.*
- *Set each MSU to OFF if the flight deck will be left unattended*

FLIGHT DECK DOOR . . . . . UNLK/OPEN . . . . . Aft Overhead (SHIFT+3)

ELAPS CLOCK . . . . . STOP/RESET . . . . . Main

STOPOVER CHECKLIST

This check must be performed whenever the planned turn round time is greater than 5 hours.

AIR DATA COMPUTERS. . . . . OFF . . . . . Lower Pedestal (SHIFT+7)

- *Observe:*
  - *AUTO STAB No.1 PITCH, ROLL and YAW sws at OFF*
  - *AUTO STAB No.2 PITCH, ROLL and YAW at OFF.*
  - *ARTIFICIAL FEEL No. 1 PITCH, ROLL and YAW at OFF.*
  - *ARTIFICIAL FEEL No,2 PITCH, ROLL and YAW at OFF.*
  - *ELECTRIC TRIM No. 1 and No. 2 sws at OFF.*
- *Observe flags visible on associated instruments*
- *Cancel MWS ADS*

INS 1, 2 and 3. . . . . OFF . . . . FWD Leg (CTRL+SHIFT+1)

FLIGHT CONTROL INVERTERS . . . . . PWR OFF. . Forward Overhead (SHIFT+4)

- *Unlock the blue and green guards*

EMERGENCY LIGHTS . . . . . OFF . . . . . .Aft Overhead (SHIFT+3)

- *Provided all passengers have left the aircraft set LIGHTS EMERG sel to OFF. Observe sel lt (yellow) on.*

  NOTE: The OFF position is selected before normal shutdown of electrical power. This isolates the battery supplies in the lighting units and prevents the emergency lights from coming on when ground power is removed thus preventing discharge of the lighting unit batteries.

ROOF AND PANEL LIGHTS . . . . . AS REQUIRED . . . . . Aft Overhead (SHIFT+3)

NAV LIGHT . . . . . OFF . . . . . .

BRAKE FANS . . . . . AS REQUIRED . . . . . Brake Control

GROUND POWER . . . . . TRIP . . . . . AC Electrics (CTRL+SHIFT+7)

- *Set ground power sw to TRIP and release.*
- *Observe GRND PWR AVAILABLE lt on and cockpit panels are electrically dead.*

PANEL STATE . . . . . SAVED . . . . . FSLabs Menu

This optional step will allow you to load Concorde-X in your next flight with all the switches, knobs and other settings exactly in the same state as you left them. This is way more realistic than always loading the predictable default states.
TIP: Use a new name for this panel state such as "LastFlight" or similar.

DEFAULT FLIGHT . . . . . SAVED . . . . . Scenario -> Save

This will make your current airport and parking position/gate as the default Scenario, so that you can continue your next flight exactly from where you left it.

VERSION HISTORY

v3.0.7 - 06/November/2020

- Added ENG FLIGHT RATING -> CRUISE check during 100% subsonic flights

v3.0.6 - 21/August/2020

- *Some typos fixed*

v3.0.5 - 11/August/2020

- *Added Engine Recirculation Valve checks for final subsonic legs*
- *TRIMS, PFDIS/Marilake Controller and BRAKES checks moved just before taxiing.*
- *ENGINE CONTROL SCHEDULE check repositioned in At M 0.7 CLIMB CHECKLIST to avoid a "panel jump"*

v3.0.4 - 30/Jul/2020

- *Procedure for short supersonic flights updated*
- *Added maximum wind speeds allowed for autoland*
- *After Landing checklist revised with some corrections*
- *ANTI-SKID 'R' lights test and PFDIS/Marilake Controller order change to make them more logical in a 1-member crew*
- *Some typos fixed*

v3.0.3 - 22/Jul/2020

Added some notes explaining the use of the Flight Directors after take-off and before touchdown

v3.0.2 - 21/Jul/2020

- *Fixed wrong mouse button press for fast INS alignment*
- *Added the disconnection from ground equipment (GRND CALL)*
- *N2 noise limitation tables relocated*
- *GRD IDLE switches set now "as required", depending on whether 4 engines are started at the gates (LO) or using Cross-Bleed start procedure (HI)*
- *Added "de-air" reminder for long or subsonic-only flights*
- *Added "IF THE ELEVONS ARE DOWN MORE THAN 1 DEG" or "CG AFT OF 59%" procedure*
- *Added a reminder to check tank 9 contents are 4000 kg or more before shutting down engines*
- *Several other minor corrections*

v3.0.1 - 11/Jul/2020

Some corrections in the Engine Start procedure.

v3.0 - 10/Jul/2020

As with every .0 version, it is very likely that this v3.0 checklist will contain some errors and/or typos that will need to be fixed during following revisions. Your feedback will be greatly appreciated. Thank you.

http://simulaciondevuelo.com/concorde-x-checklists