

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 **BASED ON**:

1. **FSLabs' checklists** included in their tutorials/manuals
2. **A real British Airways Concorde flying manual** (rev. 4th September 1978)

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

- **Adding real notes and comments** to the steps to help understand the systems and the reason for every procedure.
- **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 interaction of a virtual cockpit 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 while trying to respect an adequate and logical sequence.
- I have also reordered some sequences to follow a **left-to-right** and **up-to-bottom pattern** within a same panel (as when reading), trying to make the sequences more intuitive and logical.

I don't claim this checklist is better than any other, but I find it especially useful and I simply want to share in case it may be of interest for other Concorde-X pilots.

You can find a simplified version of this checklist at <http://simulaciondevuelo.com/concorde-x-checklists>

IMPORTANT NOTES:

1. I have used this grey colour for items in the checklist that do not require any action (usually just a visual check) because they are never used or changed in a normal flight. For example, except in the case of a problem with the hydraulic systems, the Yellow and Black Rotary Selectors (Power Flight Control and Servos) in the aft overhead panel will never be moved from their NORMAL position.

Other items such as light bulbs tests, for example, 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.

Unless you are looking for maximum realism, skipping these items can help you speed up the checklist and/or focus on the most important items during your flights.

2. **Because the Virtual Flight Engineer (VFE) is enabled by default**, all the actions performed by the VFE are coloured in grey. **This means that, unless you manually disable the VFE, you can safely skip all of those items. You can easily distinguish them because, unless other items in that same grey colour, they are in bold and preceded by a star (*).**

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

PANEL STATE **LOADED** **FSLabs Menu**

If you saved the panel state at the end of your previous flight, this optional step will allow you to load Concorde-X with all the switches, knobs and other settings exactly in the same state as you left them, making this checklist more realistic and not as "boring" and predictable as the default states.

COCKPIT SAFETY CHECK

LIGHTS **AS REQUIRED** **Aft Overhead (SHIFT+3)**

- Rotate the **LIGHTNING STORM**, **LIGHTING GLARESHIELD** and **LIGHTING CENTRE CONSOLE PANEL** rotary selector to the required position. Observe lighting as selected
- Set **ROOF LIGHTS** as required
- Set **EMERG LIGHTS** selector to **ARM**
- Verify **ANTI-COLLISION LIGHTS** switch at **OFF**
- Set **NAV LIGHTS** as required

PRESS STATIC HEATERS **OFF**

ADS/ENGINE PROBE HEATERS **OFF**

- Verify **ADS 1**, and **ADS 2**, sels at **OFF** and **STBY SW** at **OFF**
- Observe all **ADS/ENGINE PROBE HEATERS** lts (yellow) on after Ground Power connection

***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.

ENGINE ANTI-ICING **OFF**

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

WING INTAKE ANTI-ICING TEST **OFF**

FUEL FWD TRANS switch **GUARDED**

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

ALT RPTC **OFF**

NOSE & VISOR STBY CONTROL **OFF/GUARDED** **Upper Pedestal (SHIFT+6)**

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

v2.0.5 - 27/May/2020 - For updates, feedback and more info, visit <http://simulaciondevuelo.com/concorde-x-checklists>

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

*TANK 11 INLET VALVES sets AUTO/OFF

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

*STANDBY INLET VALVES switches 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

RAM AIR TURBINE switches 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 MWS (Main Warning System) lights off
- Observe GRND PWR AVAILABLE It (white) on.
- Set ground power sw to CLOSE and release.
- Observe general lighting up of panels.

NOTE: 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.

- **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 Its go off.
- Observe AC MAIN BUS Its are off.
- **Move to the DC Electrics panel (CTRL+SHIFT+8)**
- Observe AC ESS BUS Its are off.
- Observe DC MAIN BUS It off and DC ESS BUS Its off.
- Observe DC ESS/MAIN split MIs inline.
- Verify battery sels at BATT OFF
- Observe battery MIs crossline and BATT ISOLATE Its (amber) on.

VISOR/NOSE lever **AS CONFIGURATION** **Main**

Verify that VISOR/NOSE lever position coincides with visor/nose configuration. This check prevents any uncontrolled movement of the droop nose and visor when the green hydraulic system is pressurized.

LANDING GEAR NORMAL lever **DOWN**

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

GEAR O/RIDE **GUARDED**

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. (in Concorde-X the value won't be 0 if ground air was requested)*
- *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.*

Although no listed in either FSLabs' or BA's checklists, 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 ambience 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

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

- *Observe FLOW Its 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 Its remain OFF*
 - *Flow Indicator reads 0.7 to 0.85 kgs/sec*
- *Set Fans 1 and 3 sel to OFF.*
- *Observe*
 - *Flow Its 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 Its and MWS AIR may be on or off*
- *Set fans 1 and 3 sel to AUTO*
- *Observe*
 - *Forward Extract MI reads ON*
 - *Flow Its OFF*
 - *MWS AIR OFF*

On the REAR EXTRACT panel

- Set LH and RH fans to OFF
- Observe
 - LH and RH Mis read OFF
 - Flow It ON
 - MWS AIR (amber) ON
- Set STANDBY fan to ON
 - Observe Flow It 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/SETAft 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 0°C. set DRAIN MAST HTRS sels to OFF.
 - IF total air temperature below 0°C set DRAIN MAST HTRS sels to ON.

RELAY JACK PANEL CHECK/TEST

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

INS 1, 2 & 3 ALIGN, TEST, PRESENT POS

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
- Press CTRL+I for **auto align**. For **manual alignment**, follow the next steps in grey.

NOTE: In both cases, the airplane must not be towed or taxied during INS alignment.

- Set the mode rty sel on MSU 1, 2 and 3 to STBY
 - Open CDUS 1, 2 & 3 (SHIFT+7/8/9)
 - Test INS circuits status:
 - Press TEST switch
 - 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 Concorde-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.
- Repeat test on each module.

Check INS malfunctions:

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

Load INS Field Position Data:

- 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, S27°9.59' 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.

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

- Set rty sel at ALIGN, BAT It off and READY

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

- 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 DSRTK/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

COCKPIT DOOR NORM Aft Overhead (SHIFT+3)

GRND CALL push button OFF

SEAT BELT/NO SMOKING SIGN ON

SERVO CONTROL PANEL CHECK/SET

- Observe Black and Yellow rotary selectors are at NORMAL
- Observe Blue Jam and Green Jam lights off
- Press the Blue Jam Test pb light.
 - Observe Blue Jam light (red) and MWS PFC (red) on.
 - Cancel MWS PFC
 - Repeat, using Green Jam Test pb light.
- Observe Green Low-Pressure light (red) and Blue Low-Pressure light (red) on.
- Pull and rotate the Yellow rty sel towards the Blue Low-Pressure light.
 - Observe
 - - Yellow Blue pea lights (green) on.
 - - Green Only pea lights (green) on
 - - Green Low Pressure and Blue Low-Pressure lights remain on.
- Lift the guard and press the Yellow Level Test pb
 - Observe
 - - Yellow Blue pea lights off
 - - Yellow Green pea lights (green) on

NOTE: Pressing the Yellow Level Test pb with the Yellow rty sel away from Normal checks the first low level cut off of yellow supply to the selected system and the auto-change to the non-selected system when low pressure exists in that system.

- Release the Yellow Level Test pb
 - Observe
 - - Yellow Blue pea lights (green) on
 - - Yellow Green pea lights off.
- Pull and rotate the Yellow rty sel to Normal.
 - Observe
 - - Yellow Blue pea lights off
 - - Green Only pea lights off
- Pull and rotate the Yellow rty sel towards the Green Low-Pressure light
 - Observe
 - - Yellow Green pea lights (green) on
 - - Blue Only pea lights (green) on.
- Lift the guard and press the Yellow Level Test pb.
 - Observe
 - - Yellow Green pea lights off
 - - Yellow Blue pea lights (green) on
- Release the Yellow Level Test pb and reset the guard.
 - Observe
 - - Yellow Green pea lights (green) on
 - - Yellow Blue pea lights off.
- Pull and rotate the Yellow rty sel to Normal
 - Observe
 - - Yellow Green pea lights off
 - - Blue Only pea lights off

***ENGINE FLIGHT RATING CLIMB**

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 ON**

AUTOTHROTTLE SWITCHES ON

***ENGINE RATING MODE TAKE-OFF**

HP VALVES SHUT

Verify **HP VALVE** sws at **SHUT** and **MIs** read **SHUT**

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 intact*
- *Observe FIRE FLAPS light off*

NO.1 AUTOSTABS **CHECK**

- *Verify that the No. 1 Autostabs will latch at the engage position. This confirms that the EMERGENCY CONTROLS push button is not in the engaged position.*
- *Set back No. 1 Autostabs to the OFF position*
- *Cancel MWS STAB*

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.

RAT SWITCHES (Ram Air Turbine) CHECK/TEST

- *Observe RAT It 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

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)
- Observe lights ON
- Release to HI or LO.
- Observe lights OFF

BRAKES ACCUMULATOR AS REQUIRED

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).

BRAKES OVERLOAD CHECK

Observe BRAKES OVERLOAD MI shows black

BRAKES TEMPERATURE TEST

- Press and hold BRAKES TEMP TEST push button
- Observe BRAKES TEMP gauge reads approx. 270°C, 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**

- Observe INTAKE lts (red) and all other AIR INTAKES panel lts off except for HYD (4)
- Verify LANE rty sels at AUTO A or AUTO B position as required for the flight.
- Verify HYD sels at AUTO.
- Observe AUX INLET MIs agree with the position of the auxiliary inlet vane observed during the external check.
- Verify the RAMP/SPILL MASTER SWS at AUTO
- Observe RAMP indicators pointers at 0%,
- SPILL indicators pointers at 0%

*** CABIN PRESSURE CONTROLCHECK/TEST Cabin Pressure Control**

- *Observe GROUND PRESSURE VALVE MI reads OPEN*
- *Verify GROUND PRESSURE RELIEF VALVE selector at AUTO*
- *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 It.*
 - *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*
- *Press to test O/PRESS It.*
 - *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 (towards OPEN in Concorde-X)*
- *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 1 and SYS 2 at AFT SHUT.*
- *Observe cabin rate of climb indicator reads 0.*

***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 HI

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 SHUT**

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* It 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*

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 °C but may be up to 90°C 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 EMERG GEN O/HEAT and SELECTED lights off*
- *Observe EMERG GEN KVA meter condition and indicating 0*
- *Observe AC ESS BUS lights (4) off*
- *Verify AC Essential Busbar 1-4 switches at NORM*
- *Verify EMERG GEN isolate switch at NORM and guarded*
NOTE: The NORM position arms the emergency generator for subsequent automatic operation.
- *Observe EMERG GEN FAIL light off*
- **Verify EMERG GEN control selector at AUTO**
- *Verify TRU 1-4 switches at NORM*
- *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 O/HEAT lights (4) off*
- *Observe ESS main isolate MIs show inline*
- *Observe ESS Main split MIs show crossline*
- *Observe DC ESS BUS and DC MAIN BUS lights off*
- *Set the left-hand battery selector to BATT ON, then to BAT OFF.*
 - *Observe BATT ISOLATE light (amber) on, MWS ELEC light (amber) on*
NOTE: This tests the BATT ISOLATE light and its connection to the master warning systems
- *Repeat this test for the right-hand battery selector*
- **Verify WATER HTRS switch at ON**
- **Verify GEN 1&3 and GEN 2&4 GALLEYS switches at ON**

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

- *Observe REFUEL MI reads FLT.*
- *Observe standby inlet valves MIs for tanks 1, 2, 3, 4 and 10 read SHUT.*
NOTE: Once refuelling is complete and the REFUEL MASTER selector is set to OFF/DEFUEL (this selector is managed by the ground crew outside), control of all the standby inlet valves reverts to the STANDBY INLET VALVES switches.
- *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.

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

v2.0.5 - 27/May/2020 - For updates, feedback and more info, visit <http://simulaciondevuelo.com/concorde-x-checklists>

- 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 3000 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
 - TOTAL CONTENTS indication increases by approximately 7200 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 mach meter (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 Mach meter 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 lts (red) on, the CG indicator pea lts (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 e.g. indications return to their original readings and all warning lts off.
- Rotate the FQI test. rty sel to MIN A
- Set and hold the FQI test sels to TEST.
 - Observe the appropriate 9, 10 and 11 lts (yellow) on.
- Set the FQI test sel to CANCEL and release.
 - Observe the 9, 10 and 11 lts off.
- 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.
- Set and hold the FQI test sel to TEST.
 - Observe CG channel 1 lt (amber) on, MWS CG (amber) on and channel A 11 lt (yellow) on. Channel A 9 and 10 lts (yellow) may also be on.
 - Tanks 1, 2, 5, 5A and 6 content, indication increases.
 - The CG digital display shows approx 1% aft movement.
 - On captain's and first officer's mach meters 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 1 to MAX A.
- Set the FQI test sel to CANCEL and release
 - Observe CG channel 1 lt off and channel A, 9,10 and 11 lts off.
 - Observe the FQI and c.g. indications return to their original readings and all warning lts off.
 - On captain's and first officer's mach meters 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 rty sel at 2 and with reference to tanks 4, 3, 7, 7A and 8.

- Rotate the FQI test rty sel to MIN B.
- Set 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 sels to OFF.
 - Observe CG digital display is within tolerance
- Rotate the GG channel rty sel to 1
 - Observe CG digital display is within tolerance
- Rotate the CG channel rty 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.
NOTE: Once refuelling is complete and the REFUEL MASTER selector is set to OFF/DEFUEL control of tank 11 left hand inlet valve reverts to AUTO setting of the INLET VALVES MAIN selector and signals from the fuel quantity packs are restored to the flight deck FQI. The M It (amber) may be on, indicating a CG discrepancy until all the FQI agree with their tank contents.
 - 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 pilot's TOTAL CONTENTS indicator repeats the indication.
- Sign the refuelling sheet.

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

CAPTAIN'S COCKPIT PREPARATION

STEERING LIGHT ON Main

AUTOLAND light OFF

RAD/INS switch RAD

VHF/NAV controller CHECK/SET

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 only works IF you either use the panel states provided by FSLabs (Cold and Dark or ConcordeX_Preliminary) OR if you load Concorde-X directly from the Scenario Startup Screen. If you load first a flight with the Trike/J3 Cub and engines running the test is inconsistent (does not always work)**
- 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 IAS HOLD pushbutton light off and AT1 light (red) flashing
- Press the AT instinctive disconnect pushbutton
 - Observe AT light (red) off
- Retard throttle levers to the idle position

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

WARNING AND LANDING DISPLAYTEST

- 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

ASI (Air Speed Indicator) CHECK/SET

- Verify ASI mode switch at N
- Observe mode flag reads ADC and no failure flags visible on ASI

ADI (Attitude Director Indicator) CHECK

- *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*

VSI CHECK

- *Observe no failure flags visible on VSI*

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*

STANDBY HORIZON CHECK/SET

- *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 indications

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*

INCIDENCE INDICATOR CHECK

- *Observe no failure flags visible on the incidence indicator*

STANDBY ASI/MACHMETER CHECK

- *Observe no failure flags visible on the Standby ASI/Machmeter indicator*

MACHMETER **CHECK**

Observe no failure flags visible on the Machmeter indicator

HSI (Horizontal Situation Indicator) **CHECK/SET**

- *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*

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*

ENGINE RATING LIGHTS **CHECK**

Observe T/O light on

DME **DME**

Observe sensible readings

VOR/RMI **CHECK**

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

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

C.G INDICATOR CHECK

Observe no failure flag visible on C.G. indicator

AIR DATA COMPUTERS CHECK Lower Pedestal (SHIFT+7)

- *Observe ADC1 and ADC2 and TEST lights off and no failure flags visible on associated instruments*
- *Set ADC 1 TEST rotary selector to 1*
 - *Observe ADC 1 light (amber) on, audio warning (two tones) and MWS ADC (amber) on*
- *Set ADC 1 rotary selector to NORM and press ADC 1 light (amber) to reset*
 - *Observe instruments readings return to previous values, and no failure flags visible, MWS ADC light off, no audio warning, TEST light off, ADC 1 light 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*
- *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 (you need to move the switches twice)*
- *Observe MECH JAM It (red) on*

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 (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

W/SHIELD DE-ICE MI OFF

WINDSHIELD DE-ICE **OFF**

DV DE-MIST **OFF**

TAXI LIGHTS **RETRACT/OFF**

- Verify **LIGHTS LANDING TAXI** sws at **OFF** and **RETRACT**.
- Observe **EXTENDED** It 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 warning 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.

TAKE-OFF MONITOR **DISARM** **Main**

Pull T/O MONITOR control button.

AFCS LIGHTS **AS REQUIRED**

TOTAL FUEL CONTENTS INDICATOR **CHECKED**

*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 0, over limit pointers 110% and no flag across digital counters (4).
- Observe **N1** pointers (4) and digital counters (4) at 0, 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 0, 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 It 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.

WHEEL O/HEAT LIGHT **CHECKED**

*Observe the **WHEEL O/HEAT** light is **OFF** providing the wheel brake temperature is less than 200 degrees C.*

FLIGHT CONTROL INDICATORS CHECKED

- 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.

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.

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

AUDIO SELECTOR PANELS CHECKED Upper Pedestal Panel (SHIFT+6)

TRIM WHEELS SET

Verify YAW, PITCH and ROLL trims at neutral.

THROTTLES CHECKED

- Advance throttle levers (4) to fully forward and return to the idle stop.
- Observe no undue force is required

WINDSHIELD WIPERS CHECKED

- 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.

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.

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 CHECK/STBY

- Verify ATC ALT RPTC SW set at 1.

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.*

LANDING GEAR HORN TEST.....

- *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 its return to system status.*

BEFORE START CHECKLIST

COCKPIT PREPARATION 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 AS REQUIRED 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*

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.*

BRAKESPARK CHECKED Main&Upper Pedestal (SHIFT+6)

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

THROTTLESIDLE ... Main&Upper Pedestal (SHIFT+7)

NAV LIGHTS AS REQUIREDAft Overhead (SHIFT+3)

THROTTLE MASTER ON

Confirm THROTTLE MASTER sels are at MAIN or ALTERN

***SECONDARY AIR DOORS AUTO ... Engine Control Panel (CTRL+SHIFT+2)**

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

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

- *Set Data Selector to DSRTK/STS position on CDU1, 2 & 3*
- *Observe INS status on CDUs*

NOTE: First digit is the NAV Mode status. The number 1 indicates the unit is in NAV mode. Fifth digit is the AI. The number will be 5 or less, depending on the accuracy of the alignment. 0 indicates most accurate alignment. The sixth digit is the MI. The number 4 indicates that DME Updating is currently active.

- *Verify AUTO/MAN switch at AUTO.*

INS 1, 2, and 3 ALIGNMENT CHECKEDFwd leg panel (CTRL+SHIFT+1)

- *CHECK READY/NAV green light on*
- *Rotate the MSU knobs to the NAV position*

INS 1, 2 and 3 LOAD FLIGHT PLAN

- 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.
- You can view individual waypoints (1-9) with the **WAYPOINT/DME** selector (CDU selector **WAY PT**).
- Click the screw in the lower left corner the CDU. The Route Reader utility will close.

INS 1, 2 & 3LOADING 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 Folder.
- Verify that this position is displayed on their 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 logs.
- Read the latitude and longitude of that waypoint.
- Verify that displays agree with this position and circle the waypoint number on flight logs.

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

ASI BUGS SET Main

PITCH INDEX SET

REHEAT PLACARD 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**.

FUEL FLOW SET

ENGINE (P7) SET Secondary Engine Panel

TLA BUGS SET Throttle Pedestal (SHIFT+6)

PFDIS **SET** **Upper Pedestal (SHIFT+6)**

NOTE: In the original checklist the PFDIS is set at the end of the taxi checklist. But instead of doing this step while burning valuable fuel I prefer to set it now.

- Right-click the DTG SET switch to increase the numerical value (x 10) or left-click to decrease
- 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.

LOADSHEET **CHECKED**

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

- Confirm that the ZFW and ZFCG settings agree with the load sheet values.

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

***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** ... **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)**

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

CLEARANCE TO START FROM GROUND **OBTAIN**

PUSHBACK CHECKLIST

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.
- For pushback departures starting order is 3 and 2 on the ramp, then 4 and 1 (cross bleed) when away from the ramp.
 - Starting order without pushback is 3, 4, 2, 1.

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 It off
 - START PUMP It (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.*
- **When N2 is between 10-12% set HP VALVE sw to OPEN - Aft Overhead (SHIFT+3)**
- **Observe**
 - RH IGN or LH IGN It (green) on
 - Engine shut down handles lts (red) on - Fwd Overhead (SHIFT+4)
 - THROT It off - Throttle Pedestal (SHIFT+6)
 - TI ENGINE PROBE HEATER It 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 It (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 It coming 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 TI 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 It (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**
- **Set DEBOW SW to NORMAL**
 - 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 It (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. It is permissible to run the engine in the debow condition for up to 3 minutes provided that icing conditions do not exist. Icing conditions for debow are when the ambient temperature is below 3 deg C and visibility is less than 1,000 metres when debow must be limited to 1 minute.

- 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.
- Set DEBOW SW to NORMAL
- Observe N2 rises then returns to idle, ENGINE DEBOW SW It 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 It off.*
 - *IF START PUMP It (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. If during engine start an AMBER vibration warning occurs it may be ignored providing the level of vibration reduces to 2 1/2 ins/sec within 1 min after 25% N2 is achieved and the warning can be cancelled by reset switch action when engine achieves idle speed. After start or during taxiing, engine operation in the range 88% to 93% NI must be of a transient nature in order to minimise LP compressor blade vibration. There must be no steady state running within this speed band and operation must be kept to the minimum possible. After start or during taxiing, engine 4 must not be operated above 90% N2 for more than 30 seconds with Eng 4 T/O NI limiter switch set at 88%. If it is necessary to carry out more than one operation above 90% N2 a cooling period of at least 5 minutes must elapse at idle between such operation.

ENGINE NUMBER 2 START.....

BRAKE FANS ON Brake Panel

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**
 - *Observe CSD It off. (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 pumps L/PRESS Its for ENG 2 and 3 off.*
- *Observe green, yellow and blue system pressure gauges read normal.*
- *Cancel PFC MWS*

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

CROSSBLEED VALVES 2 & 3 OPEN

Observe pressure gauge indicator approximately 20 psi.

GROUND EQUIPMENT CLEAR

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.

----- **PUSHBACK** -----

CROSSBLEED VALVES 1 & 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.

NOs 4 & 1 ENGINES **START**

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

- Set appropriate main ENGINE FEED PUMPS to ON
 - Observe the pumps LOW PRESS lts OFF
 - Scan the engine instruments

IGNITION **OFF** Forward Leg (CTRL+SHIFT+1)

- Set ignition rty sel to OFF.

SECONDARY NOZZLE **CHECKED** ... Engine Controls (CTRL+SHIFT+2)

Observe SECONDARY NOZZLE instruments indicate 18-24 deg.

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
- RESTART ENGINE

ENG 1-4 & ENG 2-3 IDLE switches **LOW** Engine Controls (CTRL+SHIFT+2)

NOTE: This helps reducing the fuel consumption during taxi

***FUEL LP PROTECTION** **CHECK** . Upper Fuel Panels (CTRL+SHIFT+5/6)

When 1 and 4 engines are stabilised at idle switch engines 1 and 4 Feed Pumps OFF

- Observe
 - pumps Low Pressure lts on
 - 1 and 4 Acc lts on
 - 1 and 4 Bypass Valve MIs read OPEN.
- Switch engines 1 and 4 main Feed Pumps ON
 - Observe
 - pumps Low Pressure lts off
 - 1 and 4 Ace lts off
 - 1 and 4 Bypass Valve Mis show black.

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 It off and STEERING Its (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 It (red) and the two STEERING Its (red) come on.
- Set and hold NOSE WHEEL test sel at TEST 1.
 - Observe NOSE WHEEL It (red) and STEERING Its (red) on.
- Release test sel.
 - Observe NOSE WHEEL It and STEERING Its 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 It off.
 - NOTE: The MECH JAM light has remained locked on, even though the elevons have moved to an aligned position.

TRIMS

- Rotate YAW TRIM knob to neutral mark.
 - Observe rudders inline at 0 deg.
- Rotate pitch trim wheel to neutral mark.
 - Observe elevons in line at 0 deg.
- Rotate ROLL TRIM knob to neutral mark.
 - Observe elevons inline.
- 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 CHANNEL

- With pitch control at neutral, apply full left wing down control.
 - Observe that control stiffness is normal and, on the flight control position indicator, the elevons sensibly follow the control movement to full roll deflection:
 - Left middle and outer elevons at 20 deg up
 - Left inner elevon at 14 deg up
 - Right inner elevon at 14 deg down
 - Right middle and outer elevons at 20 deg down

NOTES: Applying full left wing down control tests the mechanical channel in roll, the rate of operation of the PFC 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 overridden 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 ELECTRICAL CHANNELS AND AFCS

- *Check the O & M ELEVONS selectors, the IN ELEVONS selector & RUDDER selector to GREEN.*
 - *Observe on the FCPI channel MIs (8) read M*
- *Press the RESET pbs for O & M ELEVONS, IN ELEVONS & RUDDER.*
 - *Observe the O & M ELEVONS, IN ELEVONS & RUDDER selector moving to BLUE*
 - *Observe the FCPI channel MIs (8) read B*
- *Check AUTO STAB No. 1 PITCH and ROLL SWS at OFF.*
 - *Observe ANTI STALL SYST 1 FAIL lt (amber) on.*
- *Verify the AUTOPILOT TURN knob is centred*
- *Set No. 1 AP sw to engage*
 - *Observe sw remains engaged AP lt (green), PITCH HOLD pb lt (white) and HDG HOLD pb lt (white) on.*
- *Set AP 2 sw to engage*
 - *Observe sw remains engaged, AP 2 lt (green) on, AP 1 sw drops to OFF and AP 1 lt off.*
 - *Manually disconnect AP 2 UNLESS you continue with the rest of the tests (in grey)*
 - *Observe warning sound (cavalry charge) and instinctive disconnect pushbutton light (red) flashing*
 - *Press instinctive disconnect pushbutton and observe light (red) off*
- *Rotate the SERVO CONTROLS yellow rty sel to YELLOW GREEN - Aft Overhead (SHIFT+3)*
- *Press the RESET pbs and observe on the flight control position indicator the flight control channel Mis (8) read B.*
- *Rotate the SERVO CONTROLS yellow rty sel to YELLOW BLUE*
- *Press the RESET pbs and observe on the flight control position indicator the flight control channel Mis (8) read B.*
- *Rotate the SERVO CONTROLS yellow rty sel to NORMAL*
- *Press the RESET pbs and observe on the flight control position indicator the flight control channel MIs (8) read B.*

NOTE: This check of the PFC hydraulic shuttle valves is made to confirm their electrical and hydraulic response to changeover.
- *Rotate the SERVO CONTROLS black rty sel to GREEN ONLY*
 - *Observe the GREEN ONLY pea lts (2) (green) on, BLUE L. PRESS lt (red) on and flight control channel MIs (8) read G.*
 - *Observe MWS PFC (red) on*
- *Cancel MWS PFC (red)*
- *Rotate the SERVO CONTROLS black rty sel to BLUE ONLY*
 - *Observe the BLUE ONLY pea lts (2) (green) on, GREEN L. PRESS lt (red) on and flight control channel Mis (8) read M.*
 - *Observe AP 2 sw drops to OFF, warning sound (cavalry charge) and instinctive disconnect pushbutton light (red) flashing*
 - *Observe MWS PFC (red) on*
- *Rotate the SERVO CONTROLS black rty sel to NORMAL*
 - *Observe GREEN L. PRESS lt off.*
- *Press the RESET pbs and observe the flight control channel Mis (8) read B.*

NOTE: This verifies the depressurisation capability of the PFC green and blue hydraulic systems
- *Cancel MWS PFC (red)*

STAB & FEELENGAGED .. 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 REQUIREDAft Overhead (SHIFT+3)

Engine anti-ice must be selected ON after engine start and left on for taxi and take-off whenever the ambient temperature is below +3°C and visibility less than 1000 metres

BRAKE FANS ON Brake Control

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

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

- 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.
- Observe GCB MIs show inline.

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

- Set EMERG GEN sel to GROUND BYPASS
 - Observe SELECTED lts 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.
- 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 EQUIPMENTCLEAR

TAXI CHECKLIST

VISOR / NOSE **DOWN / 5 DEG** **Main**

BRAKES **CHECKED / NORM**

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

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

- Set *W/SHIELD DE-ICE* sels (2) to *HI* or *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.

C.G. MANAGEMENT **TRIM TRANSFER** .. **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 *TRIM TRANS AUTO MASTER* sel to *FORWARD*

- Observe tank 11 quantity decreasing

- When tank 11 quantity reaches the loadsheet value, 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*.

- 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 11 INLET VALVES MIs show inline, tank 11 quantity increasing and tank 9 quantity decreasing.
 - 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 e.g. indicators show the required T/O C of G.
 - Set tank 11 load limit control to initial supersonic cruise value. Should a taxi 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.

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

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

- Observe flight control channel MIs read B and no warning lights.
- Apply full left wing down control, then full right wing down control and return to neutral.
 - Observe that control stiffness is normal and the elevons sensibly follow the control movement to full deflection while the rudders deflect 8 deg. Then all surfaces return to neutral.
- Push control column fully forward, then pull fully rearward and return to neutral.
 - Observe that control stiffness is normal and the elevons sensibly follow the control movement to full deflection then return to neutral.
- Hold nosewheel steering handle and push the rudder pedals to full left, then to full right and return to neutral.
 - Observe that control stiffness is normal and the rudders (2) sensibly follow the control movement to full deflection and return to neutral.
 - Observe flights control channel Mis read B and no warning lights.

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.

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

***AUTO IGNITION.....ON...Aft Overhead Panel (SHIFT+3)**

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

- Set all Throttle Master sws to the other selection.
- Observe
 - all THROT Its 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 deg c.

***AIR INTAKES CHECKED / SET Intake Panel**

- Verify the LANE rty sels (4) are at the position required for the flight.
- Observe all AIR INTAKE panel lts off except lane in use lts (4) (green).
- Observe lane in use lts (4) (green) agree with the lane selected.
- Set the RAMP AND SPILL MASTER sws (4) to AUTO and set the guards.
 - Observe AUX INLET Mis (4) read OPEN.
- Observe RAMP and SPILL indicators show 0%

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.

Temperature Control CHECKED / SET Temp Control

- Observe on TEMPERATURE CONTROL panel MASS FLOW gauges (4) in the green band

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

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

***DE-AIR PUMPS ON ... Fuel Panels (CTRL+SHIFT+5/6)**

- 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.

***FUEL CONSUMED INDICATION 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**

***TRIM TANK CONTENTS CHECKED**

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.*

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

- *Set all 4 throttles to idle.*
- *Switch ENG 1&4 and ENG 2&3 from NORM to TEST NTRC - **Nozzle Override Panel***
- *Set both NOZ AIR SOV & WIND DOWN test sels. direct to E and check*
 - *all 4 Reverse lts. flashing*
 - *all 4 Wind Down lts. on.*

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 and check,*
 - *buckets rotate to between 27° and 37° then stop*
 - *Wind Down lts. extinguish*
 - *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 taken:*
- *Rotate both test sels. through D to OFF and check,*
 - *buckets return to between 18° and 24°*
 - *reverse lts. extinguish*
 - *reverse levers fully down*
 - *N2 at idle*

NOTE: Position D opens the electrical latch circuit on the ASOVs thus permitting them to re-open.

- *Switch ENG 1&4 and ENG 2&3 from TEST NTRC to NORM - **Nozzle Override Panel***

TAKE-OFF CG switchAS 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.

C.G. POSITION.CHECKEDMain or Lower Fuel

- Check that the CG position is correct for take-off
 - TAKE OFF CG POSITION OF 54% IF FUEL USED ON TAXY EXCEEDS THE PLANNED QUANTITY BY MORE THAN 2000 KGS. TAKE OFF AT CG POSITION OF 54% IS NOT PERMITTED. IN THIS EVENT 1500 KGS MUST BE TRANSFERRED FROM TANK 11 TO TANKS 5 & 7 TO ACHIEVE T/O CG OF 53.5%. T/O CG WARNING SWITCH MUST BE RESET TO NORMAL. AN EXCESS TAXY CONSUMPTION OF 2000 KGS WILL MORE THAN OFFSET THE PERFORMANCE PENALTY OF USING A T/O CG OF 53.5%. 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/CG It off
- CAUTION: TAKE-OFF MUST NOT BE ATTEMPTED WITH A M/CG LIGHT (RED) ON.

ANTI-SKID 'R' lights / TYRE lightsOFFMain

- When taxiing above 10 kts, observe all R lights remain off during gentle braking and when rolling freely

PFDISSETUpper Pedestal (SHIFT+6)

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

BEFORE TAKE-OFF

CABIN CREW (STEWARD) CALL3 PRESSESAft Overhead (SHIFT+3)

LANDING LIGHTSAS 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 It 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.SETLower Pedestal (SHIFT+7)

WHEEL O/HEAT LIGHTSOFFMain

- Observe the WHEEL O/HEAT It is off.
- CAUTION: TAKE OFF MUST NOT BE ATTEMPTED WITH WHEEL O/HEAT LIGHT ON.

BRAKES OVERLOAD MI BLACK

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

GROUND IDLE switches HI Engine Controls (CTRL+SHIFT+2)

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

FLIGHT DIRECTORS CHECKED

---- 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

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

- 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.

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

- Confirm
 - landing lights off and retracted and Extended light off
 - landing taxi lights off and retracted and 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 and Observe ADS/ENGINE PROBE HEATERS lts (15) off.

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

NO SMOKING SIGNS **OFF**

***ENG RATING MODE** **FLIGHT**

- Verify ENG RATING MODE sws (4) to FLIGHT.
- Observe CLB It (white) on, T/O It off, CRS It off.

***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

NOSE / VISOR **UP / LOCKED** **Main**

- Set VISOR/NOSE lever to UP.
 - Observe NOSE MI reads UP, VISOR MI reads UP and unlock It off.

ALTIMETERS **SET ALL**

Set subscale to required setting.

CLIMB POWER

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

- Set REHEAT sels (4) to OFF using the gang bar (SHIFT+F4)
- Set TLA as required for noise abatement

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

At M 0.7 CLIMB CHECKLIST

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

- Set Trim Trans Auto Master to REARWARD
- Observe
 - Tank 9 pumps LP lights flash on start up
 - Tank 11 Inlet Valves Mis go in line
 - Tank 11 LH pump stops.
- Set tank 11 De-air sw to OFF
 - Observe tank 11 LH pump LP light off
 - Observe
 - Tank 9 contents decreasing
 - Tank 11 contents increasing
 - CG moving aft
- When the CG is at 55% Set the Trim Trans Auto Master to OFF and guarded
 - Observe tank 11 Inlet Valves Mis crossline and transfer ceases

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

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

BRAKE FANS OFF Brake Control

ENGINE CONTROL SCHEDULE AS REQUIRED

- Set or leave it at Flyover during full subsonic flights or subsonic steps. Set to NORMAL for transonic acceleration.
NOTE: Make sure HI schedule lights are on and correct response on N1 and Area gauges.

*SECONDARY AIR DOORS OPEN

Observe secondary air doors Mis read OPEN

CAUTION: IF THE SECONDARY AIR DOORS ARE NOT OPEN ABOVE M0.95 NACELLE OVERHEATING WILL OCCUR.

FLIGHT DECK DOOR NORMAL Aft Overhead (SHIFT+3)

SEAT BELT SIGNS AS REQUIRED

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

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.

SUBSONIC CRUISE

- 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.
- The optimum flight level for subsonic cruise varies considerably with the aircraft weight. 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.
 - At heavy weights, as for example following a maximum weight take-off, the optimum subsonic flight level for specific range is initially FL250
 - At maximum landing weight the optimum level is about FL370.
 - 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

TRANSONIC CHECKLIST

ENGINE CONTROL SCHEDULE NORM Engine Ctrl (CTRL+SHIFT+2)

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 21°. See Cruise Control Manual for penalty.
Reheat must not be selected on any engine indicating a Secondary Nozzle angle greater than 15 degrees.

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.

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, FT flags appear and area increase: Con lights off, MID schedule lights on.
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. 80°C before reheat is selected off, the engine will automatically return to the dry climb values of N2 N1 and EGT but the reheat system will continue to function normally.

CHRONO START Main

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

- Set TRIM TRANS AUTO MASTER sel to REARWARD.
 - Observe tank 11 INLET VALVES MIS (2) inline.
 - Observe tank 9 contents decreasing towards zero, tank 11 contents increasing towards load limit.
 - Observe the CG moving rearwards towards the required value.
 - 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.

- 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.
 - Observe tank 5 and tank 7 inlet valves MIs (2) inline.
 - Observe the 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 Its (2) yellow on.
 - Observe tank 10 pump LOW PRESS Its (2) off

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.

- Observe the contents of tank 10 decreasing.
- When tank 9 LOW PRESS Its (2) (yellow) have been on steady for 20 sees 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 contents are zero observe tank 10 LOW PRESS Its off and tank 5 and tank 7 INLET VALVE MIS show crossline.
- Set the TRIM TRANS AUTOMASTER sel to OFF
 - Observe indicated CG position between 58% and 59.3%.

NOTE: At the completion of the rearward transfer the CG indicator should read between 58% and 59.3%. 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.

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 W/SHIELD DE-ICE sels OFF, VISOR DE-ICE sws OFF, DV DE-MIST sws 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. For continued supersonic flight with bucket angles between 0° and 27° see *Cruise Control Manual* section 5 for fuel penalty.

***INTAKE LANES** **NO.1&2 TO AUTO A, NO.3&4 TO AUTO B** **Air Intake**

- Rotate the intake lane rotary selector of engines 1 and 2 to AUTO A and engines 3 and 4 to AUTO B. Observe the lane in use lights (green) agree with the selected lanes. This selection avoids the use of control lanes which derive their Mach number from the right hand manometric system, thus avoiding the effects of known differences between the left- and right-hand systems. Cancel Intake Test Panel lights.
 - If for any reason the required intake lane is not used during the acceleration from $M = 1.1$ to the normal cruise Mach number the fact should be logged and reported.
 - During the acceleration between $M = 1.7$ and $M = 1.95$, i.e. with reheat off, the **INTAKE PRESSURE RATIO ERROR** indicator may show a significant error. The pointer will be to the left of the scale and at temperatures well below ISA the error may be sufficient for the pointer to enter the amber band. As speed is increased toward the normal cruise Mach number the pointer will move progressively back to give a zero-error indication.
-

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% and FUEL instrument flag reads FE
 - Reheat selected lts off
 - ENGINE CONTROL SCHEDULE HI lts (white) on (CTRL+SHIFT+2)
 - ENGINE CONTROL SCHEDULE MID lts Off.
-

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.

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

***FUEL TANK PRESSURE CHECKED. . . . Fuel Panel (CTRL+SHIFT+5/6)**

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 and tanks 6 and 8 right hand pumps to OFF.

***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.*
- When tanks 5A and 7A PUMPS LOW PRESSURE lts (Yellow) come on observe tanks 5A and 7A contents indicators read approximately zero.
 - When tank 5A and 7A PUMPS LOW PRESS lts (Yellow) have been on for 20 seconds, set PUMPS sws to OFF.
 - Observe 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.

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.

***INTAKE LANES ALL AUTO A OR B Intakes**

- Set the Intake Lanes to Auto A on outbound sectors and to Auto B on inbound sectors.
- Cancel Intake Test Panel lights

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.

***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 on the flight control position indicator.*

NOTE: Pitch 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.

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

NOTE: Roll displacement of the elevons increases the aircraft drag. 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 7 PUMPS sws (4) to ON.*

- *Observe tank 6 and tank 7 PUMPS LOW PRESS lts (yellow) on momentarily then off.*

NOTE: This continues the main transfer. Tank 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 tank 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 tank 6 or 8 contents indicator reads 4000 kg (or before top of descent) observe TANKS 1&4 sw position
 - IF TANKS 1 & 4 SW not at NORM
 - Set TANKS & 4 sw to NORM.
 - Observe TANK 1 & 4 MI reads NORM, tank 1 and tank 4 U/FULL lts (yellow) on.
 - Observe tank 1 & 4 contents indicators show contents increasing, tanks 1 & 4 U/FULL lts go off when tanks 1 & 4 contents indicators read approximately 3300 kg.

NOTE: If tank 1 & 4 low level Operation has been in use, setting TANKS 1 & 4 switch to NORM arms the tank 1 and tank 4 U/FULL light. The U/FULL light will go off when the underfull level is exceeded.

- When tanks 6 contents read 100 kg or immediately tank 6 left hand PUMPS LOW PRESS lts (yellow) set tank 6 left hand PUMPS sw to OFF.
 - When the tank 6 right hand and tank 8 PUMPS LOW PRESS lts (yellow) come on observe tank 6 and 8 contents indicators read approximately zero.
 - When tanks 6 and 8 PUMPS LOW PRESS lts (yellow) have been on for 20 seconds set PUMPS sws (4) to OFF and observe PUMPS LOW PRESS lts off.
 - When any collector tank contents fall to 2500 kg set tank 5 and tank 7 INLET VALVE sws to OPEN and observe tank 5 and tank 7 INLET VALVE MIs show inline.
 - Note tank 11 contents
 - Set tank 11 left hand and right-hand PUMPS sws to ON
 - When tank 5 and tank 7 contents are greater than 100 kg set tank 5 and tank 7 PUMPS sws and sws to ON
- NOTES: Maintaining 2500 kg in each collector tank ensures adequate pump performance, even in the event of loss of tank pressurisation. 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. 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.*
- When CG reaches 57.3% set tank 11 left hand and right-hand PUMPS sws to AUTO
 - Set tank 5 and 7 INLET VALVE sws and sws to AUTO and observe FUEL TANK PRESSURE indicator reading 1.2 PSI or greater.

NOTE: Normal supersonic cruise operation can be continued, provided the fuel tank pressure is greater than 1.2 psi until any collector tank content reduces to 1000 KG.

TEMPERATURE REFERENCE TABLES

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

*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.

SAFETY HEIGHT 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

ALT HOLD SET Glareshield

DESCEND ALTITUDE SET

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

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 will slowly close the throttles to 18°TLA (75%). If you are not using the VFE then manually activate using 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°/24° Upper Pedestal (SHIFT+6)

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

NOTE: The throttle lever position of 18 deg or 24 deg, depending on temperature, is necessary 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

***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 $M = 1.5$.
- 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 53.8%
- 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.

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

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

At M 1.6

THROTTLES (TLA) CHECKED 34° Upper Pedestal (SHIFT+6)

NOTE: The throttle lever position of 34 deg (34%) ensures adequate air conditioning flows at speeds greater than $M = 1.0$.

NOTE: You can manually set the desired TLA using the mouse scroll wheel at the sides of the Throttle in the 2D panel (SHIFT+6)

At M 1.3

INTAKES CHECKED Air Intakes (CTRL+SHIFT+4)

Ramp position should go back to 0°

At M 1.0

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

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**

- 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.

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.

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

- *If 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 four F/O lights are on.*

APPROACH CHECKLIST

FLIGHT DECK DOOR SW **OPEN** **Aft Overhead (SHIFT+3)**

CABIN CREW (STEWARD) CALL **"15 MINUTES"**

EMERGENCY LIGHTS **CHECKED ARM**

CABIN SIGNS **ON**

Set FASTEN SEAT BELT SW and the NO SMOKING SW to ON.

***ENG RATING MODE** **TAKE OFF**

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

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

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**

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

Observe ENGINE FEED PUMPS LOW PRESS Its 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.

BRAKE FANS OFF Brake Controls

SSB AS REQUIRED AC Electrics (SHIFT+7)

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

The Battery selectors must be set to ESS/MAIN SPLIT for cat 3 landings

FUEL / WEIGHT / CG CHECKED Main

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

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	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: <ul style="list-style-type: none"> • ELECTRIC TRIM OR • PITCH AUTOSTAB OR • ELECT. FLIGHT CONTROL 	10	10

ASI BUGS UPDATE

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 5° 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 SET.....

RADIO ALTS SET.....

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 It off and AP2 remains engaged and operating.
 - Observe on both Warning and Landing displays LAND 3 It off and LAND 2 It (green) on.
- Set AP1 sw to engage and observe AP1 It (green) on and sw remains at engaged position.
 - Observe on both Warning and Landing displays LAND 3 It (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.**

LANDING CHECKLIST

LANDING GEARDOWN 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.

NOSE DOWN & GREEN

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

CABIN CREW (STEWARD) CALL 3 PRESSESAft 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 It (blue) on.
- If additional lighting required set LIGHTS LANDING TAXI sws (2) to ON and EXTEND (2)
 - Observe EXTENDED It (blue) on.
- NOTE: Some buffeting may be experienced with the landing/taxi lights extended in flight

BRAKESCHECKED / NORMAL Upper Pedestal (SHIFT+6)

- Verify the brakes lever is at NORM.
- Press and release brake pedals.
 - Observe BRAKES FAIL It 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 It 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)

***SECONDARY AIR DOORS selsSHUT.. 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*

YELLOW SYSTEM CHECKED Hydraulic Panel

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

ELECTRIC TRIM AS REQUIRED

Note: I find much easier to hand-fly Concorde when I manually control the trim, so I like to disable the electric trim on manual landings. Of course, when disengaging the electric trim the autopilot goes off.

AFTER LANDING CHECKLIST

- MASTER WARNING** **INHIBIT** **MWS Panel**
- GRD IDLE sws** **LOW** . **Engine Control (CTRL+SHIFT+2)**
Set ENG 1-4 and ENG 2-3 GRD IDLE sws to LO
- *SECONDARY AIR DOORS** **AUTO, SHUT and LIGHTS OFF**
- *AUTO IGNITION** **OFF** **Aft Overhead (SHIFT+3)**
- 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.
- 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**
- 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**
- *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.*
- NOSE** **5 DEG** **Main**
- Observe 5 deg It on then off, NOSE MI reads 5 deg, unlock It on then off, down It off.*
- TRANSPONDER** **STBY** **Lower Pedestal (SHIFT+7)**
- SSB** **CLOSED** . . . **AC Electrics (CTRL+SHIFT+7)**
- BATTERY / D.C. SPLIT switches** **ON / NORMAL** **DC Electrics (SHIFT+8)**
- *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.*
- BRAKE TEMP lights** **CHECKED** **Brake Controls**
- Observe the BRAKES TEMP FWD and REAR Its (red) (4) are on.
 - Press each BRAKES TEMP FWD and REAR It in turn.
 - Observe temperature when It 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.*
- BRAKE FANS** **AS REQUIRED**

***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 It (amber) on.

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

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.

NOSE / VISOR AS REQUIRED Main

Observe nose then visor move upwards, unlock It on then off, NOSE MI reads UP, VISOR MI reads UP

BATTERIES (G-BOAG ONLY) ON . .DC Electrics (CTRL+SHIFT+8)

HP VALVES SHUTAft Overhead (SHIFT+3)

- Retard THROTTLE LEVERS (4) to idle.
- Set HP VALVE 1, 2 and 3 to SHUT
- **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 secs may elapse before an engine run down is positively indicated.

GROUND POWER ONAC Electrics (CTRL+SHIFT+7)

- Request Ground Power (FSLabs Menu)
- Observe GRND PWR AVAILABLE It (white) on.
- Set ground power sw to CLOSE and release and generator sels of live generator(s) to off

HP VALVE ENGINE 4. SHUTAft Overhead (SHIFT+3)

- THROTTLE MASTERS** **OFF**
- ANTI-COLLISION lights** **OFF**
- FASTEN SEAT BELTS** **OFF**
- DRAIN MAST HEATER** **CHECK/SET**
- ENGINE ANTI-ICING** **OFF**
- *AUTOIGNITION** .. **OFF**
- 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*
- TRANSPARENCY DE-ICE, DEMIST** **OFF**... **Forward Overhead (SHIFT+4)**
- *FUEL PANEL** **GROUND STATE** . **Fuel Panels (CTRL+SHIFT+5/6)**
- Tank 9 INLET VALVE MAIN sels at AUTO, O/RIDE sels at OFF
 - Tank 9 PUMP sels at OFF
 - Tank 10 DE-AIR SW at OFF
 - Tank 10 PUMP sels (2) at OFF
 - 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
 - ENGINE FEED PUMPS sws (12) at OFF
 - Fuel jettison transparent covers shut and JETTISON MASTER VALVES Mis (2) crossline.
- DC Panel** **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 It (amber) operates.*

INS **POST FLT INFO** **CDU1 (SHIFT+8)**

- *Mode Selector must remain in NAV.*
- *Enter ramp co-ordinates as waypoint.*
- *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*

BRAKE FANS **AS REQUIRED** **Brake Control**

- *Observe WHEELS O/HEAT It*
 - *IF WHEELS O/HEAT It off set BRAKE FANS SW to OFF.*

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*

ELAPS CLOCK **STOP/RESET** **Main**

STOPOVER CHECKLIST

This check must be performed whenever the planned turn round time is greater than 4 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 **OFF** **FWD Leg (CTRL+SHIFT+1)**

FLIGHT CONTROL INVERTERS **PWR OFF.** .. **Forward Overhead (SHIFT+4)**

NOTE: Unlock the blue and green guards

EMERGENCY LIGHTS **OFF** **Aft Overhead (SHIFT+3)**

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**

TRANSPONDER ALT RPG SWITCH **OFF** **Lower Pedestal (SHIFT+7)**

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 It 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.

PIPER J-3 Cub /Trike **LOADED** **Vehicle Select Menu**

If you want to return to your Concorde in the exact parking position or gate where you parked, then you need to save your flight.

However, NEVER use a complex aircraft, such as Concorde-X, as your default flight; EVEN IF YOU DON'T LOAD THE SCENERY. Instead, before saving the scenery, load a simple aircraft such as the Piper J-3 Cub/Trike.

PIPER J-3 Cub /Trike **START ENGINE** **CTRL+E**

This is a safety step to make sure Concorde load in the default state with started engines in the first place.

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

v2.0.5 - 27/May/2020

- Revised ADS/ENGINE PROBE HEATERS check during COCKPIT SAFETY CHECK
- INTAKE PANEL CHECK -> revised
- FWD LIGHTS test -> revised
- NOZZLE light off -> check revised
- Observe ESS main isolate MIs show inline -> Moved to DC Electrics Panel (was in AC Panel by mistake)
- AP light (red) and AT light (red) on revised on WARNING AND LANDING DISPLAY TEST
- MASTER WARNING LIGHTS TEST, relocated from "Main" to "Fwd Overhead VC"
- Correction of CROSSBLEED VALVES 1&4 and ENGINES 4&1 START sequence order
- Some minor typos fixed

v2.0.4 This update was skipped for the extended checklist. However, v2.0.5 includes the updates in v2.0.4.

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

v2.0.5 - 27/May/2020 - For updates, feedback and more info, visit <http://simulaciondevuelo.com/concorde-x-checklists>

v2.0.3 - 30/Dec/2019

INS DME UPDATE procedure improved by adding the altitude of the DME stations

v2.0.2 - 30/Dec/2018

AIR DATA COMPUTERS OFF during STOPOVER CHECKLIST revised

v2.0.1 - 30/Dec/2018

Minor typos corrected.

v2.0 - 30/Dec/2018

As with every .0 version, it is very likely that this v2.0 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>