Miltech Simulations U-2

Ground Checks

Autopilot, MFD and UFCD set-up before the engine start, once the AVP is up.

AUTOPILOT GROUND CHECK

On the ground before engine start, aircraft stopped, AC power on and the INS at least 30 s into its alignment.

BEFORE YOU START

1 AC POWER - EXTERNAL POWER ON (or engine running) Ground power unit connected on the EFB Ground tab; the AFCS runs on ESS AC - battery alone is not enough → Electrical and Avionics Power

2 INS ATTITUDE - VALID PFD horizon shown (30 s after ALN, or INS in NAV); without it ENGAGE is refused → Inertial Navigation System (INS)

AFCS PANEL (RIGHT CONSOLE)

3 AFCS POWER - ON → AFCS System (Autopilot)

4 AFCS PITCH POWER, AFCS ROLL, AFCS YAW - ON AUTOPILOT lamp goes out - it is lit while AFCS POWER is ON with any axis OFF (a cold start has all three OFF)

5 FLIGHT CONTROLS AND PUSH TO TURN - NEUTRAL / CENTERED PUSH TO TURN tooltip reads CENTERED - HEADING HOLD

6 AFCS ENGAGE - ENGAGED Panel switch; AP box on the PFD. Refused = tooltip OFF (NO AFCS POWER / ALL AXES CUT OFF, or no INS attitude)

Note
Note: On the ground the autopilot moves only the cockpit yoke and the sync bars, never the control surfaces, and it disengages by itself at lift-off (PITCH, ROLL and YAW DISC show).

PITCH

7 MACH - PRESS - MACH lamp ON (green) On the ground the PFD shows .100M

8 PITCH MACH WHEEL - ROTATE BOTH WAYS - control column follows Clockwise = column forward; it may creep a little; the PITCH sync bar beside the SFD moves with it

9 MACH - PRESS - lamp OFF

10 PITCH MACH WHEEL - ROTATE BOTH WAYS - control column follows Basic pitch hold

11 ALT - PRESS - ALT lamp ON (white), PRESS again - lamp OFF

ROLL

12 HEADING MARKER - SYNC TO PRESENT HEADING B1 FLT > T1 PFD > L3 HDG pressed twice quickly → Primary Flight Display (PFD)

13 HDG - PRESS - HDG lamp ON (green)

14 HEADING MARKER - MOVE LEFT AND RIGHT - yoke turns toward the marker L3 HDG, then UFCD knob or rocker; slow, about 20 deg of yoke at 10 deg off; ROLL sync bar follows

15 HDG - PRESS - lamp OFF

16 NAV - PRESS - NAV lamp ON, PRESS again - OFF With the INS in ALIGN or NAV; nothing is steered on the ground

17 PUSH TO TURN - ROTATE RIGHT AND LEFT - yoke follows, then CENTERED 5 deg of bank per click, 40 deg max

Note
Note: The sim has no autopilot clutch or overpower. Do not fight the autopilot with your controller - disconnect it.

TRIM AND DISCONNECT

18 PITCH TRIM MODE - MANUAL - AUTOPILOT MAN TRIM shows Right console; yellow caution with master CAUTION (no AUTOPILOT lamp)

19 AUTOPILOT DISCONNECT (yoke) - PRESS - PITCH DISC, ROLL DISC, YAW DISC show ENGAGE switch drops to OFF; AUTOPILOT MAN TRIM goes out

Note
Note: The DISC advisories stay until the autopilot is engaged again or AFCS POWER is switched OFF and ON.

20 PITCH TRIM MODE - AUTO

21 AFCS SELF TEST - AS DESIRED Autopilot off, aircraft stopped: one press runs one 22 s cycle that sweeps column, yoke and pedals, then stops; press again to stop it early. Failure = APCU FAULT (B6 STAT > T3 FAULT, APCU) → AFCS System (Autopilot)

Note
Note: Pitch trim moves only with hydraulic pressure (engine running), MANUAL TRIM POWER ON (yoke) and DC ESS power: 3.5 deg nose up to 1.5 deg nose down, about 1 deg per 3 s. Trim keys act as the yoke trim switch; with AUTO selected and the pitch axis engaged the autopilot trims and the switch is locked out.

ADF

22 ADF - SET AND CHECK B2 COM > T1 CNI > L2 EDIT to the ADF row: frequency 190-1749.5 kHz, PWR ON. No auto-tune. PFD R4 ADF shows the bearing; ADF SIGNAL = no station received. → Communication Pages (COM)

MFD PAGES

Before engine start, once the AVP is up (DISPLAY BUS OR AVP FAILURE gone). Any MFD; the UFCD knob or PAD can enter values.

FLT (B1 FLT > T1 PFD)

1 BARO - SET R2 BARO, then rocker, UFCD knob or PAD 2992 ENT; R1 = 29.92, R4 = HPA / INHG. The red ALT box and RESET BARO clear only when the setting really changes → Primary Flight Display (PFD)

Note
Note: The SFD has its own baro setting - set it with the SFD knob too. After R4 HPA it shows its own setting in hPa, 1 hPa per click.

2 BARO ALRT - SET Inside BARO press R3 ALRT: transition level FL010-FL240 or OFF (default FL180); crossing it turns the baro digits cyan

3 ALT BUG - AS REQUIRED R1 ALT, set in 100 ft steps, R1 again

4 ALIM - AS REQUIRED L1 A/S > L2 ALIM: low / high limit in kt; L3 switches it ON / OFF. AIRSPEED DEVIATION after 5 s outside, airborne only

5 MLIM - AS REQUIRED L1 A/S > L3 MLIM: low / high Mach; L2 switches it ON / OFF. MACH DEVIATION

6 A/S BUG - AS REQUIRED L1 A/S, 65-300 kt; L1 EXIT

7 HSI - AS REQUIRED Steering source L4 NAV / L5 TAC / L6 ILS / R4 ADF; R3 CRS (not with NAV); L3 HDG marker; R6 HSD map under the HSI

8 MAP - AS REQUIRED B1 FLT > T2 MAP: left rocker = scale 10 / 25 / 100 / 200 / 400 NM (default 100); L1 NORTH; L6 SMBL. All three MFDs share these settings → Map, Traffic and Checklists

SYS (B4 SYS > T1 PERF)

9 FUEL LOAD AND SUMP - CHECK TOTAL = fuel loaded; SUMP about 70 gal (red at 38 or less). LOAD: L4 EDIT four times, set, L5 YES (L6 500 = 500 gal shortcut) → Fuel System

10 FUEL BUGS - SET L4 EDIT = sump bug, L5 sets 35; L4 again = yellow, then red total bug (5 gal steps); L3 EXIT. Bugs start at 0 (off)

11 LOX QUANTITY - CHECK WITH GAUGE LOX 1 / LOX 2 (litres) on PERF against the LIQUID OXYGEN gauge left of the gear handle (needles 1 and 2) → Cabin, Oxygen and Hypoxia

Note
Note: B4 SYS > T6 CAL (ground only) runs a SUMP / LOX calibration; it changes no reading in this build and is not needed.

SYS (B4 SYS > T3 CNSUM)

12 AIRCRAFT CONFIGURATION - SELECT R2 CLN / R3 POD / R4 PEG (default PEG); shapes the plan curve only

13 FUEL LOAD (R1) - SELECT R1 steps R3 ... R12 (245 gal per step, R12 = 2,940 gal)

STAT (B6 STAT)

14 ICAW - CHECK T1 ICAW; INC/DEC turns the pages → Status Pages (STAT)

15 HIST - CLR T2 HIST, L1 CLR, L2 YES. R2 INHB can inhibit up to five nuisance alerts

16 FAULT - CHECK T3 FAULT: unit names green (grey = no power, white = warming up)

17 LOAD - CHECK T5 LOAD: route loaded, e.g. L2 ST2 - SIMBRIEF, R6 LOAD, status LOADED (SimBrief ID on the EFB Flight plan tab)

18 VERS - CHECK T6 VERS: every row shows the same version

NAV (B3 NAV)

19 INS - NAV T6 INIT: at LIM NAV READY or FULL NAV READY press R1 ACPT, R2 YES - N on the PFD. Moving before a READY restarts the alignment (ACFT MOVED) → Inertial Navigation System (INS)

20 DP FILES - LOADED AS REQUIRED T2 DPS: L1 FILE to ACTIVE and check the route; from a store file: L1 FILE to it, R2 LOAD, R1 YES → Navigation Pages (NAV)

21 STEERING MODE - SELECT T1 DATA, L2 EDIT: STR MODE F/T, T/T, T/F, TTD or TFD with the rocker, R1 ENT, L5 EXIT → Navigation System (INS Steering)

COM (B2 COM)

22 COM 1 AND COM 2 PRESETS - CHECK T3 COM1 / T4 COM2: 25 presets each; L1 SEL picks one, L2 EDIT changes one → Communication Pages (COM)

23 TACAN - SET AS REQUIRED T1 CNI, L2 EDIT to the TACAN row (or UFCD HOM LS3). TACAN volume knob off its stop, else TACAN FAULT

24 ILS - SET AS REQUIRED CNI ILS row, or UFCD HOM LS3 four times (localizer 108.10-111.95). ILS volume knob off its stop

25 IFF - STBY, CODES AS REQUIRED CNI L5 EDIT: MSTR STBY, Mode 3 code (IFF switch ON brings it up in STBY); NORM before takeoff

UFCD PAGES

Before engine start, after the UFCD and AVP are up.

1 UFCD - ON - BIT COMPLETE, no NO COM UFCD switch, right console; 9 s self-test; NO COM shows until the AVP is up → Up-Front Control Display (UFCD)

2 COMM CONTROL - NORMAL Audio panel; in BACKUP the backup radio owns the selected COM and UFCD tuning of it is undone

3 HOM PAGE - AS REQUIRED HOM key: LS1 / LS2 = COM1 / COM2 preset (0 = guard 121.500), press again for the frequency; LS3 = TACAN channel, X/Y, mode, ILS; LS4 = steering line. Type, then ENT

4 COM PAGE - COM 1 AND COM 2 - AS REQUIRED COM key, LS1 picks the COM1 / COM2 tab; LS2 CH and frequency (118.000-136.990, 8.33 kHz channels); LS4 GRD ON

5 IFF PAGE - STBY, CODES SET IFF key: MSTR STBY; LS2 Mode 3 code, ENT; C ON. MSTR to NORM before takeoff (LS3, then the knob)

6 TIME PAGE - SET AS NEEDED TIME key: LS1 GMT, type HHMMSS, ENT - this sets the sim clock; LS2 FT / ALERT interval; LS3 UP, LS4 DN timers

Related pages: AFCS System (Autopilot) · Multi-Function Displays (MFDs) · Up-Front Control Display (UFCD) · Engine Start and Taxi

Miltech Simulations U-2. SIMULATION USE ONLY. This documentation describes the simulated aircraft as delivered in the add-on and must not be used for real-world aviation.