McDonnell-Douglas MD-11(F)

Checklist / Flow-Procedure

including basic Flight-Planning-Charts

for PMDG MD-11(F)

with Microsoft Flight Simulator / Prepar3D

created by Carsten Rau

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Version 7.0
Print Notice: Page size DIN A5. Print 2 pages per A4 or Letter page. This page is the front cover.
Attention:
You should have read the PMDG MD11 introduction, especially where you find all 7 click spots if you operate in 2D-mode like me.
I recommend setting the IRS alignment time to something like 180 seconds if you do not want to wait 10 minutes for the alignment.
You must have the AP Disengage Button Set! Standard Key: Z

Parking Position / Preparation:

<table>
<thead>
<tr>
<th>Action</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load &amp; Fuel (at Configurator)</td>
<td>Set</td>
</tr>
<tr>
<td>ZFW, ZFW-CG &amp; TO-CG</td>
<td>Note!</td>
</tr>
<tr>
<td>FSX</td>
<td>Start &amp; load/create 747-flight</td>
</tr>
<tr>
<td>Parkingbreak</td>
<td>Set</td>
</tr>
<tr>
<td>Dark &amp; Cold</td>
<td>Load D&amp;C panel setting</td>
</tr>
<tr>
<td>Fuel (at FSX)</td>
<td>Set</td>
</tr>
<tr>
<td>IVAP-Connection</td>
<td>Activate</td>
</tr>
<tr>
<td>Dep-Metar</td>
<td>Check &amp; note</td>
</tr>
<tr>
<td>Arr-Metar</td>
<td>Check &amp; note</td>
</tr>
<tr>
<td>Flight –Plan</td>
<td>Create at website (FS Build)</td>
</tr>
<tr>
<td>Weather Radar Switch</td>
<td>Off</td>
</tr>
<tr>
<td>Fuel Switches</td>
<td>Off</td>
</tr>
<tr>
<td>Spoiler</td>
<td>Retract / Detent &amp; Disarmed</td>
</tr>
<tr>
<td>Flaps</td>
<td>Set “Up/Retract”</td>
</tr>
<tr>
<td>Gear</td>
<td>Down</td>
</tr>
<tr>
<td>Dump / Fuel Dump</td>
<td>Stop &amp; Guarded</td>
</tr>
<tr>
<td>MANF Drain</td>
<td>Guarded</td>
</tr>
<tr>
<td>Emergency Power Selector</td>
<td>Off</td>
</tr>
<tr>
<td>Battery</td>
<td>On &amp; Guarded</td>
</tr>
<tr>
<td>--- BAT BUS OFF light should extinguish ---</td>
<td></td>
</tr>
<tr>
<td>Cockpit Lights</td>
<td>On, if required</td>
</tr>
<tr>
<td>Master Caution</td>
<td>Push / Off</td>
</tr>
<tr>
<td>--- If Ext Pwr Light illuminated ---</td>
<td></td>
</tr>
<tr>
<td>EXT PWR Switch</td>
<td>On</td>
</tr>
</tbody>
</table>
--- Check ---

- Ext Pwr Light: Illuminated
- AC and DC 1, 2 and 3 Off Lights: Extinguished
- Gen 1, 2 and 3 ARM Lights: Illuminated
- BUS Off Lights (pwrd busses): Extinguished

- Door(s): Open (via FMC Menu)
- Gangway: Enable (if available) (Ctrl + J)
- Galley (GLX) EXTR PWR: On
- Captains SIS Panel ➔ EIS Source: Aux

--- Verify normal presentation of AUX DEU on main displays ---

- Captains SIS Panel ➔ EIS Source: 1
- Static Air Selector: Norm (labeled “ELEC/AIR”)
- Display Units: Check powered and appropriate indications displayed
- Clock: Verify time correct, elapsed time to zero
- Radio Selector Switch: VHF-1
- FMC:
  - Init Page ➔ INIT
  - FMC-1 ➔ LSK L1
  - F-PLN INIT ➔ LSK R6
  - Check GNS Position ➔ Make corrections if needed
- NAV Light: On
- EMER LT (Light): Armed
- EMER LT TEST Switch: Push & Hold for 8 seconds

--- EMER LTS TST PASS (could be) displayed on EAD. ---
- No Smoke Lights: On
- Seat Belts Lights: Auto

--- Continue here after a turn-around / Cockpit not dark & cold ---

- ENG/APU Fire Test Button: Push & Hold
  --- Verify ENG1 Fire, ENG2 Fire, ENG3 Fire sounds played. ---
- ENG/APU Fire Test Button: Release
- APU PWR Button: On
--- Check

**APU PWR AVAIL Light**
Flash until available, then...

- **APU PWR AVAIL Light** Illuminated steady
- **AC / DC 1, 2, 3 OFF Lights** Extinguished
- **AC TIE 1, 2, 3 ARM Lights** Illuminated
- **GEN 1, 2, 3 ARM Lights** Illuminated
- **BUS OFF Lights (pwrd busses)** Extinguished
- **APU Start/Stop Light** Illuminated

--- If APU Start fails press APU Start/Stop switch. ---

--- BAT Charging Alert may be displayed, switches off after 2-5 minutes. ---

- **Trim Air Off Light** Verify Extinguished (AIR panel)
- **Annun LT Test Button** Push & hold
  --- Verify Annunciator Lights illuminated and aural overspeed warning ---
- **Cabin Press SYSTEM Light** Verify Extinguished (= cabin press auto mode active)
- **Cabin Outflow Valve** Verify Open
- **AIR ➔ APU Switch** On
  --- Verify Flow & Off Lights extinguished. ---
- **IRS Selectors 1-3** Nav
  --- Cargo Fire Test should be displayed on EAD. If not ➔ manual test. ---
- **Master Warnings** Push / Off
- **FMC**
  - Init Page ➔ INIT
  - ALIGN IRS ➔ LSK R4
    --- If position needs correction: ---
  - POS REF ➔ LSK R4
  - Enter corrected coordinates if needed ➔ LSK L1
  - Update ➔ LSK R1
    --- If “cruise level above max flight level” is indicated, correct crz lev. at INIT Page. ---
  - F-PLAN INIT ➔ LSK R6
    --- Continue here: ---
  - Enter Dep Airport / Arr Airport ➔ LSK R1 ➔ Return ➔ LSK R6
  - Enter Alternate Airport ➔ LSK R2 ➔ Return ➔ LSK R6
  - Enter Flight Number ➔ LSK L4
  - Enter Initial Cruise Level (and step climb level) ➔ LSK L5
  - Enter Cost Index (recommend 80 to 100) ➔ LSK R6
- Weight Init Page ➔ PAGE
- Use UFOB Block-Fuel ➔ LSK R1
- Enter ZFW (xxx.x) ➔ LSK R3
- Enter ZFW-CG (xx.x) ➔ LSK R6 (easy auto-mode: 1st right click, then left click)
- Enter TO-CG (xx.x) ➔ LSK R5 (easy auto-mode: 1st right click, then left click)
- F-PLAN Page ➔ F-PLAN
- Departure LAT REV Page ➔ LSK L1 (next to Dep Airport)
- SID ➔ LSK L1
- Choose Runway ➔ LSK Rx
  --- Now choose SID leading to the first waypoint of your route. ---
- Choose SID ➔ LSK Lx
- Insert ➔ LSK L6
- First Enroute Waypoint LAT REV Page ➔ LSK Lx (next to First Enr. Wayp. after SID)
- Airways Page ➔ LSK L2
- Enter first airway ➔ LSK L1
- Enter second airway ➔ LSK L2
  --- Continue with all airways in the same manner. ---
- Enter exit waypoint for the last airway (last enroute waypoint) ➔ LSK Rx
- Insert ➔ LSK L6
- Delete any discontinuities ➔ CLR LSK Lx
- F-PLAN INIT Page ➔ INIT
- WEIGHT INIT Page ➔ PAGE
- Note Block Fuel (xxx.x)
- FUEL INIT Page ➔ PAGE
- Enter Block Fuel as REFUEL QTY ➔ LSK L1
- TAKE OFF Page ➔ TO/APPR
- Enter Flex Temp (derated 50 to 70 non-derated) ➔ LSK L1
- Enter appropriate flap settings ➔ LSK L3
- Enter dep rwy slope (always 0) / rwy wind ➔ LSK R2
- Enter Outside Air Temperature (OAT) (xxC or xxF) ➔ LSK R3
- Confirm all V-Speeds ➔ LSK L4 ➔ LSK L5 ➔ LSK L6
  --- Check V-Speeds now indicated on the PFD. ---

- IVAP-flightplan Create
### Checklist + Flow-Procedure

**PMDG MD-11(F)**

<p>| <strong>•</strong> Speed at flightplan | Enter MACH |
| <strong>•</strong> Departure Time | Enter (UTC) |</p>
<table>
<thead>
<tr>
<th><strong>•</strong> IFR Clearence</th>
<th>Request</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>--- Note Squawk, initial Alt, SID, etc. ---</strong></td>
<td></td>
</tr>
<tr>
<td><strong>•</strong> Squawk</td>
<td>Set</td>
</tr>
<tr>
<td><strong>•</strong> Voice Recorder Test Button</td>
<td>Push &amp; Hold 5 seconds</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>•</strong> BUS FAULT Lights</td>
<td>Verify Extinguished</td>
</tr>
<tr>
<td><strong>•</strong> CARGO TEMP</td>
<td>Set FWD &amp; AFT</td>
</tr>
<tr>
<td><strong>•</strong> ENG IGN OFF Light</td>
<td>Verify Extinguished</td>
</tr>
<tr>
<td><strong>•</strong> Hydraulic SYSTEM Manual Light</td>
<td>Verify Extinguished (= hyd system auto mode active)</td>
</tr>
<tr>
<td><strong>•</strong> HYD SYS 1, 2 &amp; 3 PRESS Lights</td>
<td>Verify Illuminated</td>
</tr>
<tr>
<td><strong>•</strong> HYD PRESS TEST Button</td>
<td>Push</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>--- HYD PRESS ALERT should be displayed on EAD. ---</strong></td>
<td></td>
</tr>
<tr>
<td><strong>--- Test will take about 1 minute, wait till TEST Light extinguished before proceeding. ---</strong></td>
<td></td>
</tr>
<tr>
<td><strong>•</strong> SMOKE ELEC/AIR Selector</td>
<td>Verify Norm</td>
</tr>
<tr>
<td><strong>•</strong> DRIVE 1, 2 &amp; 3 Switches</td>
<td>Guarded</td>
</tr>
<tr>
<td><strong>•</strong> CAB BUS Switch</td>
<td>Guarded</td>
</tr>
<tr>
<td><strong>•</strong> EMER PWR</td>
<td>Armed</td>
</tr>
<tr>
<td><strong>--- EMER PWR ON Light illuminates for 30sec during tests. ---</strong></td>
<td></td>
</tr>
<tr>
<td><strong>•</strong> Air MASK Switch</td>
<td>Verify Guarded</td>
</tr>
<tr>
<td><strong>•</strong> Fuel SYSTEM Manual Light</td>
<td>Off (= fuel system auto mode active)</td>
</tr>
<tr>
<td><strong>•</strong> Exterior Lights</td>
<td></td>
</tr>
<tr>
<td>o LDG LT</td>
<td>Ret</td>
</tr>
<tr>
<td>o NOSE LT</td>
<td>Off</td>
</tr>
<tr>
<td>o L &amp; R WING &amp; RWY TURNOFF</td>
<td>On / Extinguished</td>
</tr>
<tr>
<td>o NAV</td>
<td>Verify On / Extinguished</td>
</tr>
<tr>
<td>o LOGO</td>
<td>On</td>
</tr>
<tr>
<td>o BCN &amp; HI-INT</td>
<td>Off</td>
</tr>
<tr>
<td><strong>•</strong> FLAP LIMIT / ELEVEL FEEL</td>
<td>Auto &amp; all lights extinguished</td>
</tr>
<tr>
<td><strong>•</strong> Cabin Press Controller</td>
<td>Verify Auto</td>
</tr>
<tr>
<td><strong>•</strong> CABIN PRESS Valve</td>
<td>Verify Open (cabin press meter full upper position)</td>
</tr>
<tr>
<td><strong>•</strong> DITCHING Switch</td>
<td>Verify Guarded</td>
</tr>
</tbody>
</table>
• ANTI-ICE & DEFOG  All extinguished
  --- Next step only if refueling (after turn-around) is planned. ---
• FUEL USED RESET Button  Push
• FMA / Autopilot:
  o IN / HP  Set Barometer to IN or HP as required
  o BAROSET  QNH
  o Barometer  Set to atmospheric pressure
  o MINIMUMS Control Knob  RA
  o HDG Readout  MAG (indicated on ND)
  o ND / PFD  Set as desired (Range, Map, etc.)
  o IAS/MACH  250 (or alternate initial speed)
  o HDG / TRK  HDG (indicated on ND)
  o HDG on ND / Standby Comp.  Cross Check
  o Bank Angle Selector  Auto
  o AFS OVRD OFF Switches  Up
  o Altitude  Set assigned initial Altitude
• Oxygen Mask Test/Reset Switch  Push & verify oxygen flow
• ND clock  Verify correct time displayed
• Gear Lights  Verify 4 green
• CTR GEAR NORM/UP Light  Verify extinguished
• System Display  Open
• System Display Config Page  Config
• Gear Test  Push & Hold (Gear Lever down)
  --- Verify 4 red lights. --- Release. --- Verify four green lights. ---
• System Display  Close
• Throttle 1 Test  ➔ Full Up  ➔ Verify Warning Horn Sounds  ➔ Idle
• Throttle 2 Test  ➔ Full Up  ➔ Verify Warning Horn Sounds  ➔ Idle
• Throttle 3 Test  ➔ Full Up  ➔ Verify Warning Horn Sounds  ➔ Idle
• Flap T.O. Selector  Rotate Wheel to required setting
• HDG  Set HDG of departure runway
• Auto Break  Select T.O. position
• Auto Break ABS disarm Light  Verify extinguished
• Gangway  Disable (Ctrl + J)
• Doors  All closed (via FMC FS Shortcuts Menu)
- Doors Slides  
  Arm all (via FMC FS Shortcuts Menu)

**Engine s/u & Pushback:**
- Engine s/u & Pushback p/b clrc request
- Beacon Light On
- AUX HYD PUMP 1 On
- ENG IGN A or B Push
- Fuel SYSTEM Manual Light Verify Extinguished (= fuel auto mode active)
- Air SYSTEM Manual Light Verify Extinguished (= air auto mode active)
- Parking break Off (Push the brakes)
- Pushback Start (via FMC FS Shortcuts Page)

- Engine 3 START Switch Pull
  --- Observe switch light illuminates. Wait till 15% N2. ---
- Engine 3 FUEL Switch On
  --- Wait till N1 & N2 stabilized. EGT & ENG OIL in normal range. ---
- Engine 1 START Switch Pull
  --- Observe switch light illuminates. Wait till 15% N2. ---
- Engine 1 FUEL Switch On
  --- Wait till N1 & N2 stabilized. EGT & ENG OIL in normal range. ---
- Engine 2 START Switch Pull
  --- Observe switch light illuminates. Wait till 15% N2. ---
- Engine 2 FUEL Switch On
  --- Wait till N1 & N2 stabilized. EGT & ENG OIL in normal range. ---

--- If CARGO DOOR TEST FAIL alert is displayed, perform manual test. ---
- Cargo Door Test Button Push & Hold for 4 seconds
- Engine & Airfoil Anti-Ice On if required (< 10° TAT)
- AIR APU Off (Verify on light extinguishes)
- APU Verify Off (On light extinguished)
- GLY EXT PWR Off
- EXT PWR Off
--- If FADEC Alternate Mode is displayed and not desired. ---

- FADEC MODE Switches 1 - 3: Open, Push, Guard
- Nose Light: Taxi
- Landing Light: Ext Off
- Logo Light: On
- Pushback: Finish
- IRS / PFD: Verify “TAXI” indicated

**Taxi:**
- Taxi-Clr: Request
- Taxiways: Note (if needed)
- Ground-Guidance: Request (if needed)
- Flaps: Select (as filled in FMC)
- Spoilers: Arm
- PFD: Verify flap setting indicated correctly
- TCAS: TA/RA
- Stabilizer Trim: Set as indicated on TO/APP Page
- FMC T/O Page: Check
- NAV Mode: Push / Arm

**h/p:**
- Hand-off GND to TWR: Change frequency
- l/u & t/o clrc: Request (rdy for dep h/p xx)
- Landing Lights: On
- HI-INT Lights: On (= Off Light extinguished)
- IVAP-Transponder: On
- AUTOFLIGHT: Arm

--- Attention: Applying more then 65% N1 thrust activates auto-thrust now! ---

- EAD: Verify “Green Box” displayed (=t/o config)

--- “Green Box” will not be displayed with parking break set. ---

- Position & hold: Taxi & stop on rwy
**Ready to Takeoff:**

- Parkingbreak Set
- Thrust Levers Forward
  --- Move forward till „T/O Thrust“ is displayed on the PFD. ---
- Parkingbreak Release
  --- Verify “T/O Clamp” indicated; following “T/O Thrust”. ---
- V1 Takeoff abortion impossible
- VR Lift nose up
- V2 Lift-off

**Takeoff:**

- Trim settings Adjust (when needed)
- Gear Up (at positive climb rate >500ft)
- Speed Verify V2+10kts maintained (by nose pitch)
  --- Verify blue AP1 or 2 light illuminated & AP off extinguished (PFD). ---
  --- After 1500ft RA: ---
- PROF On
- Speed FMS
  --- verify Thrust in magenta color on PFD ---
- Airborne Publish airborne when on Unicom (no ATC)
  --- After 3070 ft RA: ---
- Flaps Retract (on schedule; PFD displaying “-FR”)
- Slats Retract (on schedule; PFD displaying “-SR”)
- Start time Note (if required)
- Hand-off TWR to APP(DEP) Change frequency

**Climb:**

- VS / Vertical Speed Set manually if higher climb rate desired
- Landing-/Taxi Lights Off
- Spoiler Disarm
<table>
<thead>
<tr>
<th>Checklist + Flow-Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMDG MD-11(F)</td>
</tr>
</tbody>
</table>

- **Autobreak**: Off
- **FMA Altitude**: Readjust to next cleared / final Flight Level
- **Hand-off APP to CTR**: Change frequency
- **Anti-Ice (all)**: On (under 10°C OAT, see FMC PROG page)
- **Altimeter**: Readjust (above 18000ft)
- **Landing Lights**: Ret
- **Seat Belts**: Off (depends on weather)

**Cruise:**
- **Radio / ATC contact**: Maintain / Check continuously
- **FMA (Autopilot) / FMC**: Check permanently
- **FMC**: Check PERF & PROG pages [ETA & EFOB(fuel)]

**Descent & Approach:**
- **Descent preparations**: Begin 30 to 50nm before T/D (Top of Descent)
- **Airport-/Meta-Information**: Retrieve
- **FMC:**
  - F-PLAN Page ➔ F-PLAN
  - Last EnRoute Waypoint Lat Rev Page ➔ LSK Lx
  - STAR & App Selection Page ➔ LSK R1
  - Choose Arrival Runway ➔ LSK Rx
  - Choose corresponding STAR ➔ LSK Lx
  - Insert ➔ LSK L6
  - Select App Transition if available & desired ➔ LSK Rx
  - Check F-PLAN for discontinuities
- **Seat Belts**: On
- **Descent**: Request start of descent
- **FCP / Autopilot Altitude**: Reset to next (cleared) Flight Level

--- Verify airplane starts descent at T/D ---
--- Repeat last step whenever cleared to next FL ---

- **FMC**
  - TO/APPR Page ➔ TO/APPR
  - Set landing flaps or leave default setting (35°) ➔ LSK L4
  - Note Final Approach Speed ➔ LSK L5
  - Verify Landing Wight under Maximum LW ➔ LSK R1
--- If magenta ADD DRAG message appears: ---
- Speedbrakes / Spoiler Up (if required)
- Altimeter Readjust (under 18000ft)
- Hand-off CTR to APP Change frequency
- Landing lights On
- Taxi light Land
- Speedbrakes / Spoiler Off & Arm
- Autobreaks Set
--- After STAR, entering Approach / overflying Transition: ---
- Flaps 15 (or as required)

Final approach & Landing (Autoland):
- FCB Autopilot APPR/LAND Arm
  --- Verify LAND ARMED indicated on PFD. ---
- Flaps Lower as required till reaching 35° after “Gear Down”
  --- Stabilize on glide slope /ILS app. ---
- ILS captured Announce
  --- Verify white “LOC” & “G/S” indicated on PFD. ---
- Hand-off APP to TWR Change frequency
- Gear Down
- Landing clrc Request

- Verify 1400ft above ground:
  o PFD ➔ Speed at App Speed
  o PFD ➔ Green DUAL LAND indication
  o PFD ➔ Flaps 35
  o EAD ➔ Green Box
- Throttles Idle (Important: Before flare & touchdown!!)
  --- Flare & Touchdown: ---
- Verify on PFD:
  o White RETARD
  o Green FLARE
- Thrust reversers Engage (if needed)
- Thrust reversers Disengage (at 60kt) (idle fwd)
### Autopilot (FCP)
- Disengage (AP Disengage B tn)

### Warnings
- Off

### Brakes
- Disable auto-break

### Runway
- Vacate („rwy vacated“)

#### Final approach & Landing (w/o Autoland):
- **Flaps**
  - Lower as required till reaching 35° after “Gear Down”
- **ILS captured**
  - Announce
- **Gear**
  - Down
- **Hand-off APP to TWR**
  - Change frequency
- **Autopilot (FCP)**
  - Disengage (AP Disengage B tn)
- **Warnings**
  - Off
- **Continue approach & landing manually – hand-flying:**
  - **Trim settings**
    - Adjust (when needed)
  - **Landing clrc**
    - Request
  - **Touchdown:**
    - **Throttles**
      - Idle
    - **Thrust reversers**
      - Engage (if needed)
    - **Thrust reversers**
      - Disengage (at 60kt) (fwd idle)
    - **Brakes**
      - Disable auto-break
    - **Runway**
      - Vacate („rwy vacated“)

#### Taxi:
- **Transponder**
  - Stdby
- **Hand-off TWR to GND**
  - Change frequency
- **Taxiways**
  - Note and follow
- **( Ground-Guidance**
  - Request if required)
- **Flaps**
  - Set 0
- **Speedbrakes**
  - Disengage
- **Autobrakes**
  - Off
- **Landing lights**
  - Off
- **Taxi Light**
  - On / Taxi
- **HI-INT Light**
  - Off
- **Landing time**
  - Note (if needed)
• APU PWR On
  --- Verify AVAIL Light flashing indicating APU start. ---
• Air APU Bleed On

Parking Position:
--- Before turning into gate / parking position: ---
• Taxi Light Off
  --- At parking position: ---
• Parking brake Set
• ATC contact End (state “on blocks”)
• Engine 1 & 3 Fuel Flow Switches Off
  --- Verify APU AIR/ELEC On” alert on EAD: ---
• Engine 2 Fuel Flow Switch Off
• Seatbelts Off
• Doors Disarm all (via FMC)
• Doors Open
• Gangway Enable (Ctrl + J)
• IRS Selectors 1 – 3 Off
• All exterior lights (expect NAV) Off
• EXT PWR On
• GLY EXT PWR On
• TCAS Stdby
• Anti-Ice All Off
• Cargo Temp Off
• APU Off

--- Aircraft ready for turn-around /next flight. ---
--- Continue if “Cold & Dark” required: ---
• EMER LT Off
• NAV Light Off
• GLY EXTR PWR Off
• EXT PWR Off
• Cockpit Lights All Off
• Battery Off
MD-11F --- Fuel Planning Charts:
MD-11 see next page!

<table>
<thead>
<tr>
<th>Distance (nm)</th>
<th>Fuel (lbs) at FL 290/300</th>
<th>Fuel (lbs) at FL 310/320</th>
<th>Fuel (lbs) at FL 330/340</th>
<th>Fuel (lbs) at FL 350 - 430</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>12.000</td>
<td>≈ 97% of FL290</td>
<td>≈ 96% of FL290</td>
<td>≈ 95% of FL290</td>
</tr>
<tr>
<td>200</td>
<td>16.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>21.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400</td>
<td>25.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>29.000</td>
<td>≈ 97% of FL290</td>
<td>≈ 96% of FL290</td>
<td>≈ 95% of FL290</td>
</tr>
<tr>
<td>600</td>
<td>33.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>700</td>
<td>37.000</td>
<td>≈ 96% of FL290</td>
<td>≈ 95% of FL290</td>
<td></td>
</tr>
<tr>
<td>800</td>
<td>41.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>900</td>
<td>45.000</td>
<td>≈ 95% of FL290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>49.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td>68.000</td>
<td>≈ 95% of FL290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>91.000</td>
<td></td>
<td>≈ 95% of FL290</td>
<td></td>
</tr>
<tr>
<td>2500</td>
<td>109.000</td>
<td>≈ 95% of FL290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3000</td>
<td>135.000</td>
<td></td>
<td>≈ 95% of FL290</td>
<td></td>
</tr>
<tr>
<td>3500</td>
<td>156.000 *</td>
<td>≈ 95% of FL290</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After 3500nm Payload has to be traded for fuel.

<table>
<thead>
<tr>
<th>Distance (nm)</th>
<th>Fuel (lbs) at FL290</th>
<th>Fuel (lbs) at FL290</th>
<th>Fuel (lbs) at FL290</th>
<th>Fuel (lbs) at FL290</th>
</tr>
</thead>
<tbody>
<tr>
<td>4000</td>
<td>172.000</td>
<td>≈ 97% of FL290</td>
<td>≈ 96% of FL290</td>
<td>≈ 95% of FL290</td>
</tr>
<tr>
<td>4500</td>
<td>191.000</td>
<td>≈ 96% of FL290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5000</td>
<td>210.000</td>
<td>≈ 95% of FL290</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5500</td>
<td>228.000</td>
<td>≈ 95% of FL290</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After 5500nm Payload has to be traded for range (max. fuel capacity reached).

<table>
<thead>
<tr>
<th>Distance (nm)</th>
<th>Fuel (lbs) at FL290</th>
<th>Fuel (lbs) at FL290</th>
<th>Fuel (lbs) at FL290</th>
<th>Fuel (lbs) at FL290</th>
</tr>
</thead>
<tbody>
<tr>
<td>6000</td>
<td>245635</td>
<td>≈ 97% of FL290</td>
<td>≈ 96% of FL290</td>
<td>≈ 95% of FL290</td>
</tr>
<tr>
<td>7000</td>
<td></td>
<td>≈ 95% of FL290</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* At MZFW the maximum range of 3500nm can only be achieved with additional reserves limited to 16.500 lbs (instead of 21.000 lbs), otherwise MTOW of 630.500 lbs will be exceeded.

➔ Additional 2000 lbs of taxi fuel can be loaded a GW of 632.500 lbs. These 2000 lbs have to be consumed with APU & taxi before takeoff.

** Flying in higher altitudes - consuming less fuel - it is possible to carry the same payload over a longer range with the trade-off between the fuel, range and payload affecting the aircraft after a longer distance.
### MD-11 --- Fuel Planning Charts:

<table>
<thead>
<tr>
<th>Flightplan Fuel only (lbs)</th>
<th>CI = 80</th>
<th>MZFW 461,300 lbs</th>
<th>Break Release to Landing</th>
<th>Climb: 250 / 300 kt</th>
<th>Cruise: M 0.82</th>
<th>Descend: 290 / 250 kt</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Winds! MZFW!</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PMDG MD-11(F)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MD-11 max. Range at MZFW: ≈ 4500nm

<table>
<thead>
<tr>
<th>Distance (nm)</th>
<th>Fuel (lbs) at FL 290/300</th>
<th>Fuel (lbs) at FL 310/320</th>
<th>Fuel (lbs) at FL 330/340</th>
<th>Fuel (lbs) at FL 350 - 430</th>
</tr>
</thead>
<tbody>
<tr>
<td>100****</td>
<td>12,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200</td>
<td>16,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>21,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400</td>
<td>25,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>29,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>600</td>
<td>33,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>700</td>
<td>37,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>800</td>
<td>41,000</td>
<td>≈ 97% of FL290</td>
<td>≈ 96% of FL290</td>
<td>≈ 95% of FL290</td>
</tr>
<tr>
<td>900</td>
<td>45,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>49,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td>68,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>90,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2500</td>
<td>110,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3000</td>
<td>130,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3500</td>
<td>150,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4000</td>
<td>171,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4500</td>
<td>191,000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After 4500nm Payload has to be traded for fuel. ***

| 5000          | 208,000                  |                         |                          |                           |
| 5500          | 227,000                  |                         |                          |                           |
| 6000 **       | 254,200                  |                         |                          |                           |

After 6000nm Payload has to traded for range (max. fuel capacity reached). ***

| 6500         | 245635                   | ≈ 97% of FL290          | ≈ 96% of FL290           | ≈ 95% of FL290           |
| 7000         |                          |                         |                          |                           |

* At MZFW the maximum range of 3500nm can only be achieved with additional reserves limited to 11,500 lbs (instead of 21,000 lbs), otherwise MTOW of 630,500 lbs will be exceeded.

➤ Additional 2000 lbs of taxi fuel can be loaded a GW of 632,500 lbs. These 2000 lbs have to be consumed with APU & taxi before takeoff.
** At a payload of $\approx 100,000$ lbs the maximum range of 6000nm can only be achieved with additional reserves limited to 10,000 lbs (instead of 21,000 lbs), otherwise MTOW of 630,500 lbs will be exceeded.

➔ Additional 2000 lbs of taxi fuel can be loaded a GW of 632,500 lbs. These 2000 lbs have to be consumed with APU & taxi before takeoff.

*** Flying in higher altitudes - consuming less fuel - it is possible to carry the same payload over a longer range with the trade-off between the fuel, range and payload affecting the aircraft after a longer distance.

**** For a distance of 100nm altitudes of 15000ft maximum are assumed.

---

**Fuel planning notes --- MD-11 & MD-11F:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Operating Weight (OEW) 11F:</td>
<td>248.500</td>
<td>LBS</td>
</tr>
<tr>
<td>+ Payload (passengers &amp; cargo)</td>
<td>XXX.XXX</td>
<td>LBS</td>
</tr>
<tr>
<td>= Zero Fuel Weigh (ZFW) max 461.300 LBS</td>
<td>XXX.XXX</td>
<td>LBS</td>
</tr>
<tr>
<td>+ Minimum Landing Fuel</td>
<td>008.000</td>
<td>LBS</td>
</tr>
<tr>
<td>+ Alternate Fuel (200nm distance)</td>
<td>005.000</td>
<td>LBS</td>
</tr>
<tr>
<td>+ Contingency Fuel (holding, taxi, etc.)</td>
<td>008.000</td>
<td>LBS</td>
</tr>
<tr>
<td>= Planned Landing Weight (PLW) max 491.500 LBS</td>
<td>XXX.XXX</td>
<td>LBS</td>
</tr>
<tr>
<td>+ Flight Plan Fuel (fuel for route)</td>
<td>XXX.XXX</td>
<td>LBS</td>
</tr>
<tr>
<td>= Planned Takeoff Weight (PTOW) max 630.500 LBS</td>
<td>XXX.XXX</td>
<td>LBS</td>
</tr>
</tbody>
</table>

➔ Flight Plan Fuel + 21,000 LBS = Total Fuel = Block Fuel

➔ Total fuel = Enough fuel for route, 1h contingency (holding & taxi), problematic winds, alternate fuel for 200nm and a minimum landing fuel (1h+). Modify alternate value as needed.

➔ Load all wing tanks with same amount of fuel; outer tanks full ➔ inner tanks ➔ center tanks.