A few weeks after getting my Type Rating in the B-737 200, here is my description of what it is like flying the most popular jetliner...

The 737 is very pitch sensitive. Pitch control inputs are translated through an "Elevator Feel Computer." In other words, as you apply pressure to the controls, you are really controlling hydraulic actuators, and the computer feeds back what you'd expect to feel, in terms of pressures. Also when you trim, the control column stays put. It does not move like the way the control wheel moves forward and aft with trim changes. This is deliberate, because of the extreme range of the CG!

Managing thrust is initially tricky, because of the delay when a change in performance is commanded. Costs a lot more to operate, but you can probably rent one for what I paid, just $60.00 per minute.

Preflight is pretty standard. You walk around and look for things that are out of the ordinary, especially blocked static ports, frayed cables, normal pressures on the fire extinguisher gauges, blown or fractured indicator discs on the oxygen bottles, security of the access doors, latches lined up with the painted marks. You look for static discharge wicks, and vortex generators. You should know what every door and opening is for, such as forward outflow valve, forward E&E panel, ram air inlet door and deflector to the air conditioning packs, etc. You look at the fueling access panel, APU air inlet door, lavatory service door, thrust reverser latch off-center cams, engine inlet guide vanes, compressor blades, you know...jet stuff. Also you have to look at the brake wear indicators, wheels and tires, and you can stand up inside the wheel wells, and inspect the hydraulic fluid reservoirs, pumps valves and accumulators, and look for stuff that is out of order.

After the preflight, there are a string of cockpit inspections which must be memorized. Eighty three items to be exact. During the string of inspections, all the systems are checked, or set for flight. Everybody does the preliminary flows in the same sequence. During the sequence, you are looking for abnormal indications, or for items that do not check or test properly, such as each and every indicator light. During the checks, the airspeed and EPR (exhaust pressure ratio) "bugs" are set so the correct pressures and speeds can be referenced when later needed.

During engine start you are looking for abnormal indications, such as a hot or hung start, or a failure of a system during the starting sequence. The after start procedure comes more memory stuff, or flows as they are called, but cool stuff like fuel heat, generators, pitot heat, engine anti-ice, air conditioning and pressurization, APU, and start levers! Checklists are called for and the items are executed. The checklists contain a line, and the items are completed "to the line" and after a procedure is run, items "below the line" are called for.

The takeoff roll is constant acceleration throughout the rotation and initial climb. Rotation is generally at a speed faster than the max cruise speed of a 172. The 737 keeps accelerating after rotation and lift off. The nose is raised and held at around 15-17 degrees! The speed is nailed at V2 plus 15 up to 1000 feet AGL then the

aircraft is accelerated to 220 Kts. near the airport, then 250 Kts. up through 10,000 MSL, then 280 Kts. cruise. The aircraft cruises normally with the nose about 5 degrees above the horizon.

You don't use rudders during turns, because the three-seven incorporates spoilers as well as ailerons. In a right bank for example, instead of that downward aileron on the left creating lots of drag, spoiler panels on the right wing are raised, and guess what happens? The right wing looses lift, and the aircraft starts to bank to the right.

What are the stalls like? There are three different stalls we had to demonstrate. 1- Clean; 2- Flaps 15 Gear down 20 degree bank; and, 3- Flaps 30 gear down straight ahead. The trick is scanning the IVSI, and making the necessary inputs before the altimeter moves. You can hold you altitude in the stalls, because you recover when the stick shaker comes on only a few knots above the stall. You throw thrust levers full forward and command "Set Max Continuous Thrust" then you apply the necessary control pressure to hold the altitude exactly, and allow the aircraft to accelerate to the speed at which you can start raising the flaps in increments, from 30 to 25. You call "positive rate gear up." You then call for flaps 15, then flaps 5 then flaps 1 then flaps up, all on speed cues, while holding altitude within 100'. You have to memorize the minimum and maximum speeds for each increment of flaps, and apply them accordingly during acceleration on climb, and during deceleration during the approach. There is no "White Arc." Instead, you set reference bugs all over the place, depending on your weight, and what kind of approach you are executing. (Engine-inoperative approaches for example, are at faster reference speeds.)

You have to learn all the calls that are made to the PNF (pilot not flying) during the various phases of flight. Learning the calls can be much work. Each and every pilot operation, challenge and response is highly choreographed and rehearsed. This was not like any other flying I've ever done, nothing even came close. We practiced and performed procedures for rapid depressurizations, engine fires, circle to landing approaches, single-engine go-arounds, V1 cuts, single engine landings, systems malfunctions, and ILS approaches with the flight management systems as installed in the particular aircraft.

As captain, you call for the correct checklist after performing or verifying the appropriate "Recall Items" from memory. Then the PNF either performs or verifies the items were completed properly, and the captain supervises. Then the necessary adjustments are made to the configuration, and the Captain makes decisions based on the awareness of the situation and the circumstances.
Here is an example of one of fifteen items that had to be memorized and recited:

**Passenger Evacuation**
CAPTAIN:
PARKING BRAKE……SET
SPEED BRAKE LEVER……..……DOWN DETENT
START LEVERS……CUTOFF
EVACUATION……..INITIATE
ENGINE AND APU FIRE
WARNING SWITCHES …..……OVERRIDE AND PULL
FIRST OFFICER:
FLAP LEVER……..…..…….……40
STANDBY POWER SWITCH...……BAT
OUTFLOW VALVE(if required)……...OPEN
TOWER……..NOTIFY

Here is an small example of some of the many limitations that had to be memorized, and incorporated into the flying:

Pitot Heat On For Takeoff; Gravel Protect Switch: Anti-Ice position when using Engine Inlet Anti-Ice.
No Brakes till after Touchdown; Depressurize Hydraulic System “A” When Towing; Autobrakes OFF for Takeoff; Antiskid ON for Gravel Takeoff.

VREF is the specific approach speed which is calculated for an approach based on your weight. You loose 6,000 pounds during the first hour, and 5,000 pounds each hour afterwards, so the numbers change during each approach! During the landing you are moving at about 200 feet per second. You must fly the VASI or the ILS. If you are just 50 feet high when you cross the threshold, you will take an additional 800' of runway to land! The aircraft has to be flown at all times with extreme precision, mainly because of the mass, and because there is less tolerance for error.

So there you have a bit of what it is like to get a type rating in the 737. I hoped you enjoyed reading about what it was like for me. Yes, I want to fly it some more, and Yes, I want to get really good at landings!

See you later,

-Tom