Welcome to the Airbus A380 Basic Manual for Virtual Air Cadet Airlines.

Performance figures:

Max operating speed: 340kts / M0.89

Max gear speed: 250kts / M0.55

Max flap speeds:

Code: Select all

Flaps	Speed (kt)
1	263
1+F	222
2	220
3	196
Full	182

Max takeoff weight (MTOW): 1,124,400 - 1,254,400 lbs (depending on variant)

Max landing weight (MLW): 862,010 - 868,620 lbs (depending on variant)

Range at maximum structural payload: 6,500nm

Range with zero payload: 9,500nm

Service ceiling: 43,000ft

Standard climb profile: 250kts / 320 kts / M0.85

Standard cruise speed: M0.85

Standard descent profile: M0.85 / 300 kts / 250 kts

*Approach speed, required landing distance, required take-off distance, and many other performance-related graphs are available in the "Airplane Performance" section of the following document: http://www.airbus.com/fileadmin/media_g ... 111101.pdf

Model specifics:

The flaps are selected through the 5 settings incrementally. Assuming you start at flaps 0, every time you hit F7 the flaps will go to the next setting on the chart.

The default load-out for all our A380 models is a 90% load (assuming a 471 seat configuration). Since FS always loads aircraft with 100% fuel by default, if you don't make adjustments in the fuel editor your aircraft WILL be overweight (and therefore won't fly too well..). The A380 cannot have 100% fuel when loaded with passengers. Depending on the variant, you'll probably have to reduce fuel to around 75-80% to get below MTOW, unless you reduce the passenger load in the payload editor instead. The default payload editor indicates an overweight condition with red letters on the main payload screen.

Takeoff:

The proper flap settings for takeoff are either:

1+F (use with a long runway, or with a light load)

2 (normal takeoff)

3 (short takeoff, use in case of a short runway)

Depending on weight and flap setting, your rotation speed (Vr) will be anywhere from 140 to 170 kts. While I can't give specific numbers for every possible situation, I can tell you that at MTOW with flaps 2, Vr will probably be around 155 kts or so.

If you're using the default 747 panel, it's important to note that you shouldn't push your throttles all the way up, as this will result in about 110% N1. Ideally, set the throttles to achieve anywhere from 90%-100% N1 as necessary.

Once airborne, continue rotation to approximately 15 degrees nose up, or as required to achieve a smooth acceleration towards 250kts. Flaps should only be retracted at 1000ft, and gradually if possible. Finally, be careful not to overspeed your flaps as you accelerate (refer to the chart above).

Climb:

Standard climb profile: 250kts / 320 kts / M0.85

Once you've reached 1000ft and begun the flap retraction, reduce engine N1 to around 90% for the first portion of the climb and leave it there. Excessive thrust is not required as the 380 has ample power at low altitudes. Activate the autopilot, and adjust the climb VS as required to hold 250 kts. This is important; large aircraft climb at relatively constant thrust settings, and vary their VS or pitch as necessary to maintain proper airspeed. You will notice that at 2000ft you'll likely need 4000fpm or more to maintain 250 kts, whereas at 10000ft that might drop to 3000fpm.

I don't recommend using the autothrottle at all during climb, unless ATC forces you to level off. The default autopilot can't climb with reference to IAS, therefore it ends up constantly adjusting your thrust to hold airspeed, when it really should be adjusting your VS. This isn't so much an issue at low altitudes, but when you get up high it causes problems for a lot of people.

Now, once you've reached 10000ft, it's time to accelerate to 320kts. Simply reduce VS to around 500fpm-1000fpm and watch the speed increase. Once you've got 320kts, increase VS as required to hold it (you'll probably need around 2500-3000fpm depending on your weight). As you climb higher, reduce VS as necessary to maintain 320kts. If you don't reduce VS as you climb, you'll see the speed start to bleed off (eventually resulting in a stall). It is acceptable to increase engine thrust to 95-98% N1 to aid climb performance, though you should never exceed 100% N1.

By the time you reach FL290, you've probably had to reduce VS to about 1000fpm. Now, start keeping an eye on your Mach speed. As you maintain 320kts in the climb, you'll notice the equivalent Mach speed will increase. Once it hits M0.85, it's time to forget about indicated airspeed (IAS) and instead focus on holding M0.85. The method is the same, simply adjust VS in the climb to hold M0.85. You'll notice as you climb higher, your IAS will start to drop off. This is normal at these altitudes, as long as you're holding M0.85 there's nothing to be worried about.

At these altitudes (above FL290), required VS will probably be around 600-1000fpm for the remainder of the climb, depending on weight of course.

It's important to note that at MTOW, the A380 normally tops out at FL330. As weight decreases however, you can make it progressively higher. You'd probably have to be almost empty to make it all the way to FL430.

Cruise:

Standard cruise speed: M0.85

I should think this is pretty straight-forward. Once level, enable the autothrottle and have it hold M0.85. You can now leave the autothrottle on until landing if you so desire.

It might be advantageous to step climb on long haul flights. Basically, if you levelled off at FL330 due to a heavy load, wait an hour or so in cruise to burn off fuel, and then try stepping up to FL350. Since you have less fuel aboard (and therefore weigh less), it's now possible to climb higher. Once at FL350, level off and wait some more before stepping up to FL370. Repeat as often as you need to. Airliners use this method regularly to take advantage of reduced fuel burn at high altitudes.

Descent:

Standard descent profile: M0.85 / 300 kts / 250 kts

Reserved.

Approach and landing:

Approach/landing speeds at full flaps vary from 125kts (at empty weight) to 145kts (at MLW). A graph is available in the PDF document linked to above.

Landings are performed at either Flaps full or Flaps 3. If using Flaps 3, you should probably increase the speeds referenced above by at least 5 kts. The best landing method is probably to approach at landing speed + 10kts. Once you cross the threshold and begin to flare, slowly reduce airspeed to achieve landing speed at touchdown.

If using the default passenger / payload setting, you'd probably need to be below 20% fuel to satisfy the MLW.

Final notes:

I hope that sheds some light on proper operating procedures. If you're having issues flying the A380, the culprit is most likely either taking off overweight or not using the correct climb profile. Please verify you've properly performed these steps before reporting handling issues.

On a final note, the real A380 automates most of the complicated climb process. If you don't want to be constantly changing the VS yourself, I suggest investing in a payware panel. I hear the PSS A340 panel works very well with our model, but I haven't heard anything about the Wilco A340 yet.

Thanks for reading,