Correct speed approaching destination is crucial because it's a vital part of ATC's traffic management, it dictates how tight your aircraft will turn and it also dictates your performance in a descent. You also need to adhere to the speed limits you encounter as you charge down the STAR and if you're too fast to start with then you're putting yourself in a corner .

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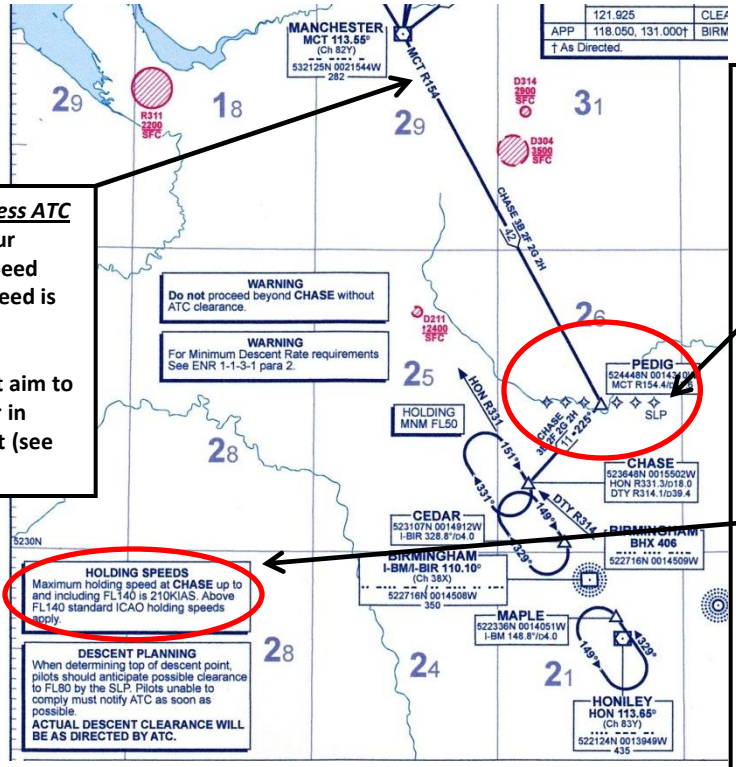
v.3 dated 08/03/11

Extracts from Birmingham STARS via CHASE chart. I suggest obtaining the chart to put this extract into context.
Full chart available free from http://www.nats-uk.ead-it.com/public/index.php.html

Example is a typical STAR, this one into EGBB, the Chase 3B. The same one used in the earlier parts of the "Vectors" series.



Coming down this bit, still a long way out, ***unless ATC tell you otherwise*** then descent speed is at your discretion BUT you need to be aware of the speed limits that are coming up soon so that your speed is under control approaching them.

Initially c300-310kts would be 'normal-ish' but aim to be getting back to c280kts and slowing further in order to meet the first 250kts speed constraint (see 'Speed Limits' box).

Speed Limits.

There are 3 on this approach, 2 are marked on the chart and 1 is pretty much universal.

1. Below FL100 your speed must be <250kts indicated. Almost universal that one!
2. The Speed Limit Point (SLP), the row of diamonds across the STAR. Irrespective of your Flight Level you must be <250kts IAS by this point. As you descend towards it you must ensure that your aircraft is slowing, you don't want to be at 310kts with 5nm to go to the SLP so plan ahead for it and start slowing down early
3. Holding speed limit. You will note the box far left saying Holding Speed. Even if you're not entering the hold you still need to be at or near this speed as you leave that fix, it is most likely the speed at which you will be vectored onwards so aim to hit that Holding Fix (CHASE) within spitting distance of 210kts IAS. Not all Holds have the same limit so check your chart!

In all cases any speed control given by ATC overrides the above

HINT: Occasionally ATC will nudge you to reduce your speed to match a given constraint, remember that they can only see your Ground Speed on their screen, they can't see your Indicated Airspeed (IAS) and all speed control relates to your Indicated Airspeed. They may believe that you're going too fast when you're not!

Approaching the start of the STAR you will most likely be flying on Mach number and not Knots. The point where you switch from Mach to IAS (typically around FL240) is known as 'transition' (not to be confused with transition altitude!). Sometimes ATC will ask what your "speed on transition" will be, they're asking what your intended speed will be after switching from Mach to Knots Indicated Airspeed (KIAS). Sometimes they may tell you "on transition make your speed 280kts", so as soon as you switch to knots, get your speed under control.

More speeding tips on Page 2

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Speed control closer to the airport.....

Approaching the Holding Fix. We've passed the SLP so should now be at <250kts and we have a speed limit on the Hold of 210kts so we should be slowing right down. If we're joining the Hold then 210kts is the target, if ATC says "leave CHASE heading 180 degrees" then they will probably give a speed too, most likely 210kts to 220kts.

Pretty much everywhere in the UK expects c.210-220kts from the last fix on the STAR so in the absence of ATC or further information you can safely assume 220kts from here onwards so plan for it.

Now on the downwind leg, probably at c.220kts and descending. Our next speed constraint will be turning onto base leg. Since you're descending here your speed might start to increase, keep a close eye on it and adjust your rate of descent if necessary because very shortly you'll need to lose more speed and if you've let it run away then you'll get in a mess

Turning Base Leg. You may get an instruction of 180kts for Base Leg, if you don't get given a speed then do it anyway. *Again it's a safe assumption that Base Leg should be flown at about 180kts pretty much everywhere.* You'll still be descending so again keep a close eye on it because if you get too fast then you won't make the turn to Final and probably miss your descent as well!

Established on Final. Assume an initial c. 160kts unless told otherwise and you'll settle into the approach OK, get slower as you get closer if your aircraft is able. Read the notes on Final speeds in Part 4 of this Vectors series.

Speeds you can safely assume in the absence of ATC or other information (there are exceptions to these like Concorde or very heavy heavies where the slower speeds may not be achievable)

1) From the SLP or below FL100 (whichever comes first) speed c.240kts <u>indicated</u> and slowing
2) From the last Fix on the STAR, speed c.210-220kts IAS. Check the chart for the Hold speed limit.
3) Downwind, speed 210-220kts IAS
4) Base Leg, speed 180kts IAS
5) Established on Final, speed max 160kts to 4 DME (if capable) then slow to your Final Approach Speed

Assume the above and you won't go far wrong. <u>ATC speed control always over-rides the above</u> BUT they may not give any to you, in which case assume something like the above. Just because they havn't told you to slow down does not mean that you shouldn't!

Appropriate speed for phase of flight is <u>YOUR</u> responsibility unless ATC give you specific speeds to fly at, do NOT assume that they will control it for you because they may not!

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