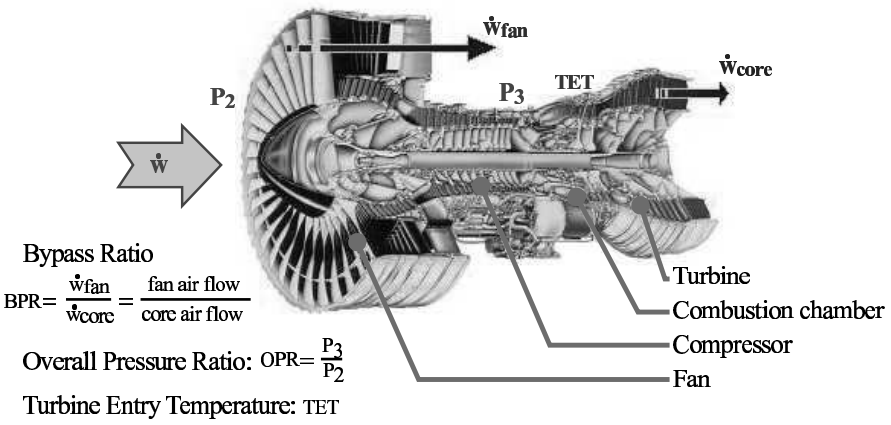
Chapter 1

List of variables

Symbols	: **Designation**	**Units**
BPR	: Engine bypass-ratio at static sea level. It is the rate of air flow moving through the fan and through the core.	
Composition	: Fan / LPC / HPC / HPT / IPT / LPT Stages	
	: Fan - Number of fan stages	
	: LPC - Number of low-pressure compressor stages	
	: HPC - Number of high-pressure compressor stages	
	: HPT - Number of high-pressure turbine stages	
	: IPT - Number of intermediate-pressure turbine stages	
	: LPT - Number of low-pressure turbine stages	
	: Sometimes, capital letters appear : "B" means Booster stage (The low-pressure compressor is fixed on the fan shaft.), "C" means centrifugal compressor, "G" means the fan and the low-pressure compressor have different rotational speed thanks to a gear box, "R" means radial turbine.	
D	: Engine diameter (max width)	m
D_{fan}	: Fan diameter	m
FPR	: Fan Pressure Ratio	
h_{cr}	: Cruise altitude	m

Symbols	: **Designation**	**Units**
L	: Engine length	m
M_{cr}	: Cruise Mach number	
Nb of shafts	: Number of shafts	
OPR	: Overall Pressure Ratio at static sea level	
OPR_{cr}	: Overall Pressure Ratio in cruise	
SFC_{ssl}	: Specific Fuel Consumption (mass of fuel needed to provide a given thrust for a given period) at static sea level	$(kg/s)/N$
SFC_{ssl}^{AB}	: Specific Fuel consumption with afterburner	$(kg/s)/N$
SFC_{cr}	: Specific Fuel Consumption in cruise	$(kg/s)/N$
TET	: Turbine Entry Temperature at static sea level	K
T_{cr}	: Cruise thrust (at cruise Mach M_{cr} and altitude h_{cr})	N
T_{ssl}	: Static sea level thrust without afterburner	N
T_{ssl}^{AB}	: Static sea level thrust with afterburner	N
W_{eng}	: Engine mass (without pod or equipments)	kg
$\dot{w}_{cr}$	: Air flow in cruise	kg/s
$\dot{w}_{ssl}$	: Air flow at static sea level	kg/s



PW4000 cross-section