

Chapter 1

List of variables

Symbols	Designation	Units
A/C	Aircraft	-
APU	Auxiliary Power Unit	-
CG_x	Engine center of gravity location with down exhaust - Aft of front mount centerline	m or in
CG_y	Engine center of gravity location with down exhaust - Right side of the centerline	m or in
CG_z	Engine center of gravity location with down exhaust - Below engine centerline.	m or in
Composition	Composition of the engine (N_{shaft}) LPC/HPC/CC/HPT/IPT/LPT N_{shaft} - Number of shafts (FT means Free Turbine) LPC - Number of low-pressure compressor stages HPC - Number of high-pressure compressor stages CC - Combustion Chamber type: "An" for Annular, "Ca" for Cannular HPT - Number of high-pressure turbine stages IPT - Number of intermediate-pressure turbine stages LPT - Number of low-pressure turbine stages Sometimes, "C" capital letter appears in LPC and HPC. It means centrifugal compressor.	-

... to be continued ...

Symbols	Designation	Units
	The minus sign “-” means that it is not applicable (no shaft).	
DECU	Digital engine Electronic Control Unit	-
FADEC	Full Authority Digital Electronic Control	-
H	Engine height	m or in
L	Engine length	m or in
M_{eng}	Engine mass (dry, without pod or equipments)	kg or lb
NAA	National Airworthiness Authorities: ANAC Agência Nacional de Aviação Civil - Brazil (http://www.anac.gov.br) ARMAK Aviation Register of the MAK - (Межгосударственный авиационный комитет) - Interstate Aviation Committee) - Russian Federation (http://www.mak.ru/) Austro Control Österreichische Gesellschaft für Zivilluftfahrt - Austria (http://www.austrocontrol.at) BAZL Bundesamt für Zivilluftfahrt, FOCA (Federal Office of Civil Aviation) - Switzerland (http://www.bazl.ch) CAA Civil Aviation Authority - Norway (http://www.caa.no) CAA Civil Aviation Authority - New Zealand (http://www.caa.govt.nz) CAA Civil Aviation Authority, UPCL (Úřad Pro Civilní Letectví) - Czech Republic (http://www.caa.cz) CAA UK Civil Aviation Authority - United Kingdom (http://www.caa.co.uk) CAAK Civil Aviation Authority of the republic of Kosovo, alias AACK (Autoriteti i Avionit Civil i Republikës së Kosovës) - Kosovo (http://www.caa-ks.org) CASA Civil Aviation Safety Authority - Australia (http://www.casa.gov.au) DGAC Direction Générale de l'Aviation Civile - France (http://www.aviation-civile.gouv.fr)	-

... to be continued ...

Symbols	Designation	Units
	<p>DGCA Directorate General of Civil Aviation - India (http://dgca.nic.in)</p> <p>DJPU Direktorat Jenderal Perhubungan Udara) DGCA (Directorate General of Civil Aviation) - Indonesia (http://hubud.dephub.go.id)</p> <p>EASA European Aviation Safety Agency - Europe (http://www.easa.europa.eu)</p> <p>ENAC Ente Nazionale per l'Aviazione Civile, formerly RAI (Registro Aeronautico Italiano) - Italia (http://www.enac.gov.it)</p> <p>FAA Federal Aviation Administration - United States (http://www.faa.gov)</p> <p>JCAB Japanese Civil Aviation Bureau, MLIT (Ministry of Land, Infrastructure and Transport) - Japan (http://www.mlit.go.jp/koku/)</p> <p>LBA Luftfahrt-Bundesamt - Germany (http://www.lba.de)</p> <p>LFV LuftFartsVerket - Aviation Authority - Sweden (http://www.lfv.se)</p> <p>МТРФ Министерство Транспорта Российской Федерации - Russian Federation (http://www.mintrans.ru/)</p> <p>RLD RijksLuchtvaartDienst - Netherlands</p> <p>TCCA Transport Canada Civil Aviation - Canada (http://www.tc.gc.ca)</p>	
OPR	Overall Pressure Ratio at static sea level	-
P_{ssl}	Take-off Power at static sea level	W or shp
$P_{ssl,eq}$	<p>Equivalent Take-off Power at static sea level. It is the sum of the shaft power P_{ssl} and the power from the jet thrust T_{ssl}. This last power can be deduced by applying a numerical factor to the thrust. This factor depends on the exhaust gases speed and the efficiency. A mean value can be considered and differs from the reference sources: 2.5 usually (at least for FAA TDCS).</p> $P_{ssl,eq} = P_{ssl} + \frac{T_{ssl}}{2.5}$	W or $eshp$

... to be continued ...

Symbols	Designation	Units
RPM	Rotations Per Minute of the shafts: $RPM_{CT} / RPM_{IT} / RPM_{PT} \# RPM_O$ RPM_{CT} - RPM of the Compressor Turbine RPM_{IT} - RPM of the Intermediate Turbine RPM_{PT} - RPM of the Power Turbine RPM_O - RPM of the Output (after gearbox)	rpm
SFC_{ssl}	Specific Fuel Consumption (mass of fuel needed to provide a given power for a given period) at static sea level	$(kg/s)/W$ or $(lb/hr)/shp$
Status	Engine development status. It can be: <ul style="list-style-type: none"> • abandoned survey (never been produced) • under consideration survey • in production • no more in production 	-
TDCS	Type Certificate Data Sheet	-
TET	Turbine Entry Temperature at static sea level	K or °C
T_{ssl}	Static sea level thrust. In addition to the shaft power, the engine also develops a small amount of thrust due to the exhaust gases.	N or lbf
Type	Type of engine The first set of letters provides the compressors characteristics: “A” means Axial, and “C” means Centrifugal. The second set of letters explains if it is a “S” turboshaft, a “P” turboprop or a “Pf” propfan.	-
w	Engine width	m or in
\dot{w}_{ssl}	Air flow at static sea level	kg/s or lb/s