

Glossary of

Aeronautical and astronautical terms —

Section 8: Power plant

UDC 001.4:629.7.064:621.4

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

BSI
Documents

AVA

Document Sharing Hub

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

This British Standard, having been approved by the Aerospace Industry Standards Committee, was published under the authority of the Executive Board of the Institution on 21 July 1970

© BSI 12-1999

The following BSI references relate to the work on this standard:
Committee reference ACE/1
Draft for comment 67/28248

ISBN 580 06441 7

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 17 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Amendments issued since publication

Amd. No.	Date	Comments

Contents

	Page
Section 8. Power plant	1
Subsection 81. Main classes of engine	1
Subsection 82. General	1
Subsection 83. Piston engines	6
Subsection 84. Gas turbines and jet propulsion	11

(Notes on the arrangement and scope of the glossary are contained in the Foreword to Section 1.)

Section 8. Power plant

Subsection 81. Main classes of engine

No.	Term	Definition
8101	composite engine	A combination of two engines of basically different thermodynamic cycles, such as a piston-turbine engine combination. Not to be confused with the general engineering term "compound engine".
8102	gas-turbine engine	An engine in which the working fluid is heated by internal combustion and expanded through a turbine.
8103	lift engine	An engine used primarily to provide lifting force on a VTOL or STOL aircraft.
8104	piston engine RECIPROCATING ENGINE	An engine in which the working fluid is expanded in a cylinder against a reciprocating piston.
8105	ramjet engine AEROTHERMODYNAMIC DUCT (ATHODYD)	An engine producing a jet by burning fuel in air which has been compressed, by forward speed alone, in an appropriately shaped duct and expanded in a nozzle.
8106	rocket ramjet	A ramjet engine having a rocket attached to it, usually mounted concentrically within the ramjet duct, the rocket being used to bring the vehicle up to the necessary operating speed for the ramjet.
8107	rocket motor	A device for producing thrust by the ejection of matter, usually in gaseous form, the thrust being generated from propellant carried in the system.
8108	vectored thrust engine	An engine in which the direction of thrust can be continuously varied.

Subsection 82. General

A. Miscellaneous terms

NOTE Numbering of engines. The method of numbering engines is specified in British Standard M. ..., "Methods of numbering propulsion units and describing their direction of rotation" (in course of preparation).

8201	accessory gearbox	An engine-driven gearbox for driving accessories.
8202	aero-engine AIRCRAFT ENGINE	An engine used to provide the main propulsive or lifting power for an aircraft.
8203	auxiliary power unit (APU)	An independent engine and ancillary equipment to provide power for auxiliary services.
8204	bootstrap	Applied to a self-sustaining process which needs to be started in operation by outside power or propellant.
8205	consumption	The total quantity of fuel or oil consumed per hour.
8206	specific consumption	1. Of engines driving propellers. The quantity of fuel or oil consumed per horsepower per hour. 2. Of jet reaction engines. The weight of propellant or fuel consumed per pound of thrust per hour.
8207	contingency rating	A special rating for power or thrust usable in emergency for particular classes of aircraft or conditions of flight.

No.	Term	Definition
	cooling	
8208	<i>film cooling</i>	Evaporative cooling of the inner wall of a combustion chamber or other surface by a coolant injected adjacent to the surface.
8209	<i>regenerative cooling</i>	The process of cooling by the circulation of fuel or oxidant, enabling some heat, otherwise wasted, to be recovered.
8210	<i>sweat cooling</i> TRANSPIRATION COOLING	Evaporative cooling in which the cooling liquid passes through a porous wall and is thereby distributed evenly over the surface to be cooled.
8211	cowl flap	A shutter in an aircraft engine cowl, used to regulate the flow of cooling air around the engine.
8212	cowling	A cover surrounding the whole or part of a power unit when installed in an aircraft.
8213	<i>non-pressure cowling</i> SEALED COWLING	A cowling designed to prevent entry of surrounding air into the engine nacelle.
8214	<i>pressure cowling</i> UNSEALED COWLING	A cowling in which the pressure of the air is increased, either by ram effect or by a fan.
8215	engine rating	A statement of the specified minimum output (horsepower or thrust) under prescribed conditions and for a prescribed period.
8216	<i>intermediate rating</i>	The highest of an engine which may be used for 30 minutes in each flight.
8217	<i>maximum continuous rating</i>	The static jet thrust (total equivalent brake horsepower) developed in the maximum engine operating conditions approved for use during periods of unrestricted duration.
8218	<i>maximum rating</i>	The highest rating of an engine which may be used for a limited period in each flight.
8219	flame front	The boundary of a burning zone in a combustible mixture.
8220	flame holder FLAME STABILIZER	A device inserted in a moving fuel-air mixture, designed to stabilize a flame.
8221	height power factor	The ratio of the power or thrust developed at a specified altitude to that which would be developed at standard sea level. It applies to maximum power or thrust conditions at full throttle.
8222	paired engines	Two completely independent engines mounted close together (Cf. 8224.)
8223	power unit	An engine or assembly of two or more engines, as fitted into an aircraft, complete with all components and accessories.
8224	<i>coupled-engine power unit</i>	A power unit containing engines coupled together to drive a common shaft.
8225	<i>double-engine power unit</i>	A power unit containing two engines driving co-axial propellers.
8226	right-hand (or clockwise) accessory	An accessory rotating clockwise to an observer facing the driven end, to mate with an anti-clockwise drive.
8227	right-hand (or clockwise) drive	A drive rotating clockwise to an observer facing the driving end.

No.	Term	Definition
	weights	
8228	<i>dry weight</i>	The weight of an engine without liquid, but including all accessories essential to its running and any drives incorporated in it for non-essential accessories.
8229	<i>weight per horse power</i>	The dry weight of an engine divided by its maximum permissible horse power.
8230	<i>weight per pound thrust</i>	The dry weight of an engine divided by the maximum permissible thrust under standard sea level conditions.
B. Lubrication system		
	lubricating oil coolers	
8231	<i>air-intake oil cooler</i>	A cooler incorporated in an air intake.
8232	<i>ducted oil cooler</i>	A cooler installed in a duct.
8233	<i>mixed-matrix oil cooler</i>	A cooler compounded with a radiator so that alternate tubes are used for coolant and oil. (See also 8384.)
8234	<i>multi-element oil cooler</i>	A cooler composed of a number of cooling units.
8235	<i>series oil cooler</i>	A ducted cooler mounted behind a radiator.
8236	<i>surface oil cooler</i>	A cooler in which some part of the surface of the aircraft is adapted for cooling.
8237	<i>tank oil cooler</i>	A cooler and oil tank combined.
8238	<i>oil control valve</i>	An automatic valve to regulate the performance of an oil cooler, e.g. by-pass, viscosity, thermostatic or anti-surge valve .
8239	<i>oil dilution system</i>	A system by which the oil can be diluted to assist cold starting.
	pipes	
8240	<i>feed pipes</i>	Pipes leading oil from the oil tank to the engine or accessory.
8241	<i>scavenge pipes</i>	Return pipes leading oil from the engine or accessory to the oil tank.
8242	<i>tank vent pipe</i>	A pipe leading from the air-space in an oil tank to the atmosphere or engine casing.
	pumps	
8243	<i>pressure pump</i>	A pump which supplies oil under pressure to the engine or accessory.
8244	<i>scavenge pump</i>	A pump which withdraws used oil from the engine or accessory and returns it to the oil tank.
C. Fuel system		
8245	<i>avcat^a</i>	An aviation turbine fuel of the kerosene type with a high flashpoint.
8246	<i>avgas</i>	An aviation gasoline.
8247	<i>avtag</i>	An aviation turbine wide cut gasoline.
8248	<i>avtur^a</i>	An aviation turbine fuel of the kerosene type.

^a The addition of a figure after the term avcat or avtur gives an indication of the maximum freezing point, e.g. avcat/40 is an avcat which has a freezing point not higher than – 40 °C.