

Annex A to AMC/GM Part 147 - Module 16 Piston engine

CASA module Examinations subjects	CASA mech basics exams equavelant	CASA avionic basics exams equavelant
Module 16 Piston engine (B1.2 & B1.4)		
16.1 Fundamentals		
Mechanical, thermal and volumetric efficiencies;	GA	Nil
Operating principles: 2 stroke, 4 stroke, otto and diesel;	GA	Nil
Piston displacement and compression ratio;	GA	Nil
Engine configuration and firing order.	GA	Nil
16.2 Engine performance		
Power calculation and measurement;	GA	Nil
Factors affecting engine power;	GA	Nil
Mixtures and leaning, pre-ignition.	GA	Nil
16.3 Engine construction		
Crankcase, crankshaft, camshafts, sumps;	GA	Nil
Accessory gearbox;	GA	Nil
Cylinder and piston assemblies;	GA	Nil
Connecting rods, inlet and exhaust manifolds;	GA	Nil
Valve mechanisms;	GA	Nil
Propeller reduction gearboxes.	GA	Nil
16.4 Engine fuel systems		
16.4.1 Carburettors		
Types, construction and principles of operation;	GB	Nil
Icing and heating.	GB	Nil
16.4.2 Fuel injection systems		
Types, construction and principles of operation.	GB	Nil
16.4.3 Electronic engine control		
Operation of engine control and fuel metering systems including: electronic engine control (FADEC), systems layout and components.	Nil	Nil
16.5 Starting and ignition systems		
Starting systems, pre-heat systems;	GB	EB
Magneto types, construction and principles of operation;	GB	EB
Ignition harnesses, sparkplugs;	GB	EB
Low and high-tension systems.	GB	EB
16.6 Induction, exhaust and cooling systems		
Construction and operation of induction systems, including alternate air systems;	GB	Nil
Exhaust systems, engine cooling systems — air and liquid.	GB	Nil
16.7 Supercharging and turbo charging		
Principles and purpose of supercharging and its effects on engine parameters;	GF	Nil
Construction and operation of supercharging and turbo charging systems;	GF	Nil
System terminology;	GF	Nil
Control systems;	GF	Nil
System protection.	GF	Nil

16.8 Lubricants and fuels		
Properties and specifications;	GA	Nil
Fuel additives;	GA	Nil
Safety precautions.	GA	Nil
16.9 Lubrication systems		
System operation and layout and components.	GA	Nil
16.10 Engine indication systems		
Engine speed;	Nil	IA
Cylinder head temperature;	Nil	IA
Coolant temperature;	Nil	IA
Oil pressure and temperature;	Nil	IA
Exhaust gas temperature;	Nil	IA
Fuel pressure and flow;	Nil	IA
Manifold pressure.	Nil	IA
16.11 Powerplant installation		
Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.	GD	Nil
16.12 Engine monitoring and ground operation		
Procedures for starting and ground run-up;	GD	Nil
Interpretation of engine power output and parameters;	GD	Nil
Inspection of engine and components: criteria, tolerances and data specified by engine manufacturer.	GD	Nil
16.13 Engine storage and preservation		
Preservation and depreservation for the engine and accessories and systems.	GD	Nil