**Electronics systems maintenance training standard**

**From**[**Transport Canada**](https://www.canada.ca/en/transport-canada.html)

**Theoretical Curriculum Requirements of STD 566 - Appendix C**

This guidance material is designed to provide an overview of the theoretical training objectives required by STD 566 - Appendix C; and may be used when reviewing documentation in support of the basic training requirements of 566.03(4)(b) and 566.07(2). Personnel reviewing basic training documentation may indicate the number of hours associated with each training area in the column provided (HOURS).

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| **Applicant Name:** |  | **File No:** | 5802- |

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| **Item** | **STD 566 - Appendix C Part 3 Curriculum area** | **Hours** | **STD 566 - Appendix C, Part 3 - examples of Theoretical Training Objectives** |
| 3.0 | **Metallurgy** |  | * corrosion; treatment and prevention.
 |
| 4.0 | **Aircraft Servicing** |  | * Servicing systems; ground support equipment; grooming procedures/precautions.
 |
| 5.0 | **Approved Parts** |  | * hardware; AN, MS, NAS systems; aircraft specifications - MIL, NAS; traceability, requisitioning, quarantine, bonded stores
 |
| 6.1 | **Fixed Wing Aircraft Aerodynamics** |  | * theory of flight, speed of sound, aerodynamic loads, and high speed flight
 |
| 6.2 | **Rotary Wing Aircraft Aerodynamics** |  | * theory of flight, coriolis effect, auto-rotation characteristics
 |
| 6.3 | **Flight Controls & Rigging** |  | * flight control systems; Mechanical/servo powered flight control system/components; Cables; Incidence, symmetry checks and adjustments.
 |
| 7.0 | **Sheet Metal** |  | * structural and non-structural repair; special fasteners; scratch inspection; sealant.
 |
| 8.0 | **Aircraft Structures** |  | * Structural members; floats, hulls, skis, stabilizers, wings, engine mounts, cowlings and fuselages
 |
| 10.0 | **Piston Engines** |  | * energy, work and horsepower; two stroke & Otto cycle
 |
| 11.0 | **Turbine Engines** |  | * design/construction: inlet ducts, compressors, bleed valves, diffusers, vane controllers, combustion section, turbines, exhaust section, gear boxes, bearings, seals, engine mounts; thrust/torque; turboshaft/prop/jet/fan engines; noise suppression; fuel, lubrication, ignition, air exhaust.
 |
| 11.2 | **Ignition** |  | * low tension (glow plugs), high tension (capacitive discharge), auto re-light; safety precautions
 |
| 11.3 | **Starting** |  | * turbine engine starters, electrical starters, motor and starter-generator, Inspection/ servicing; auto-start system
 |
| 11.4 | **Engine Indicating Systems** |  | * speed, temperature, pressure indication; flow metering systems, quantity indication (oil quantity), fault detection (chip detector, filter bypass), power indication systems engine pressure ratio (EPR); torque indication; BITE system; vibration indication
 |
| 11.5 | **Turbine Engine Safety** |  | * ground running precautions/hazards: FOD, jet/prop blast, turbine burst, noise, chocks, tie downs, etc.
 |
| 12.0 | **Propellers & Systems** |  | * Theory/design; lift and angle of attack, construction materials; Fixed pitch, controllable pitch, constant speed, feathering and reversing propellers
 |
| 13.0 | **Hydraulic Power** |  | * Safety precautions; high pressure bottles/accumulators; fluid and system components; multiple and integrated systems; maintenance.
 |
| 14.0 | **Pneumatic Power** |  | * operation, components, maintenance and servicing: temperature regulation, pressure control, flow control, sources and common applications
 |
| 15.0 | **Aircraft Plumbing** |  | * standard fittings and hardware identification systems
 |
| 16.0 | **Landing Gear** |  | * assemblies; retraction/anti-retraction; hydraulic/mechanical, emergency extension systems; Anti-skid systems; automatic/emergency braking systems; indicating systems; Mechanical and powered steering systems; air ground sensing systems.
 |
| 17.0 | **Environmental Control Systems** |  | * cabin pressure, pressurization, satey percautions, functional testing; heating, cooling, ventilation systems, oxygen systems
 |
| 18.0 | **Fuel** |  | * types, properties and additives; system configurations and component functions
 |
| 19.0 | **Ice & Rain Protection** |  | * ice detection systems; Anti-ice and de-ice systems; Rain repellent systems.
 |
| 20.0 | **Emergency Systems** |  | * emergency lighting systems; ELTs - Underwater Locating Devices (ULDs); inspecting, installing, testing; Flotation device types, inspection and servicing; Emergency breathing apparatus.
 |
| 20.1 | **Fire protection** |  | * fire detection systems e.g. spot detectors, continuous loop, infra-red and ultra-violet; suppression and extinguishing systems; safety precautions
 |
| 21.0 | **Maintenance Procedures** |  | * Inspection and maintenance requirements - private and commercial aircraft; inspections: periodic, annual, progressive, approved maintenance schedules; Weight and balance: jacking, leveling, weighing, installed equipment list
 |
| 23.0 | **DC Theory** |  | * DC/Electron theory.; Magnetism; capacitance; Current; resistance; Electrical measurements; electrical energy; Magnetic effects of electric current; Inductance ; Direct current generators and motors; Synchros (synchronous transmitters, receivers and resolver); Tranducers; DC CCTs and analysis;
 |
| 24.0 | **AC Theory** |  | * AC theory; AC generators, motors and transformers; Synchros (synchronous transmitters, receivers and resolver); Transducers; RCL\RC\RL circuits; Resonant circuits; Capacitance fundamentals; AC measuring devices; Vacuum tube devices
 |
| 25.0 | **Analog Theory** |  | * Semiconductor devices; Semiconductor; Diodes; Transistors; Power supplies; Rectification; Filtering; Regulation Controls
 |
| 26.0 | **Digital Theory Principles** |  | * Integrated circuits (LSI, CMOS); Special application IC's; Pulse techniques/parameters/ modulation (PAM, PWM, RPM, PCM); Multivibrators (monostable, astable, bistable).; Boolean algebra; Basic laws and expressions; Numbering systems; Decimals; Binary; Hexadecimal; Octal; Conversions; Binary computations; Digital electronics techniques; logic gates ( AND, OR, Invert, NAND, NOR, COMP); Application of: logic gates (Decoder, AD/DA, Multiplexing), basic digital/microcomputer technology; Microprocessors/data transfer between systems; Summing amplifiers (operational amplifiers); Differentiators; Integrators; Servo loops; Application of control systems e.g. powerplant, flight control, landing gear; Integrated circuits (LSI, CMOS); Special application IC's
 |
| 27.0 | **Maintain Communication Systems** |  | * ELTs; Radio antennas; H.F. communications; VHF communications; SELCAL; Radio theory; Amplifiers; Oscillators; Filters; Mixers; Modulation; Radio antennas; Radio transmitters and receivers; troubleshooting techniques; Remote Radio Channeling; Digital communications; H.F. communications; VHF communications; SELCAL
 |
| 28.0 | **Maintain navigation Systems** |  | * Acceptable standards; Navigation principles/antennas; Standard practices; Flight Management Systems; Inertial Navigation Systems; Inertial Reference; Radio navigation; ADF; VOR; Localizer; Glide Slope; Marker Beacon; Horizontal Situation Indicator/R.M.I; Area Nav; LORAN; Hyperbolic navigation principles; Global Positioning Systems; Aircraft system troubleshooting including: ramp testing and troubleshooting navigation equipment; locating and repairing predetermined faults
 |
| 29.0 | **Maintain Pulse Systems** |  | * Radar navigation systems including: introduction to microwave principles and pulse techniques; weather radar; DME interrogator; ATC transponder; TCAS; Radio altimeter (LRRA); Doppler principles; GPWS
 |
| 30.0 | **Maintain Auto Flight Control Systems** |  | * Introduction and system overview of: yaw damper system; flight director; autopilot; speed command; auto throttle; standard practices; VNAV; Stability Augmentation System
 |
| 31.0 | **Maintain Electrical Systems** |  | * Proper use of test equipment; Wiring practices, including wire and co-axial cable specifications (MIL and FAA) ; Drawing and schematic symbology; Bonding EMI/RFI suppression techniques;Electrical system installation including acceptable standards; Electrical power systems monitoring devices
 |
| 32.0 | **Maintain Instrument Systems** |  | * Acceptable standards; Air data systems and instrumentation, including: pitot and static system check; central air data computing system; air data instruments (MACH/IAS, VSI/IVSI, BARO ALTM); air temperature instruments; mach-airspeed warning; Attitude and direction, including: introduction to gyroscopic and flux valve principles; gyrosyn compass system/magnetic compass; attitude reference systems; turn and bank/turn coordinator/slip indication; standby artificial horizon; laser gyro; attitude director indicators; video displays; EFIS; Flight Data and Voice Recorder, including: system requirement; system operation and testing; Underwater Acoustic Beacon operation and testing; Compass swing; Data bus systems; The Installation of instrument system including: equipment installation, wire installation
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| **Transport Canada review results:** |
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 |  | Acceptable for structured training. |
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 |  | Additional training required - for example . |
| **TC CASI/Officer (name / stamp)** \_\_\_\_\_\_\_ **Office:** \_\_\_\_\_\_\_ **Date:**\_\_\_\_\_\_ |

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