

# Seminarium för CAMO, F-verkstäder, AUB och tekniker med inriktning på privat-, skol- och bruksflyg 2017

## *B1 versus B2*

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# Men först...

- Ny typlista – Annex to Decision 2017/016/R



*Easy Access Rules for Continuing Airworthiness  
(Regulation (EU) No 1321/2014)*

*Annex III (Part-66)*

*APPENDICES TO AMCs TO ANNEX  
III (Part-66)*

## APPENDICES TO AMCs TO ANNEX III (PART-66)

Appendix I — Aircraft Type Ratings for Part-66 Aircraft  
Maintenance Licences

AMC = Acceptable Means of Compliance

# Annex to Decision 2017/016/R

GROUP 3: PISTON-ENGINE AEROPLANES (Other than those in Group 1)						
TC Holder	Model	Type of structure	Part-66 Type rating endorsement	NOTE	MTOM	
					≤ 2T	> 2T
PIPER AIRCRAFT	PA-28-180 (Archer)	Metal	Piper PA-28 Series (Lycoming)		X	
PIPER AIRCRAFT	PA-28-180 (Cherokee)	Metal	Piper PA-28 Series (Lycoming)		X	
PIPER AIRCRAFT	PA-28-181 (Archer II)	Metal	Piper PA-28 Series (Lycoming)		X	
PIPER AIRCRAFT	PA-28-181 (Archer III)	Metal	Piper PA-28 Series (Lycoming)		X	
PIPER AIRCRAFT	PA-28-235 (Cher.Pathfinder)	Metal	Piper PA-28 Series (Lycoming)		X	

TC = Type Certificate

MTOM = Maximum Take-Off Mass

# Annex to Decision 2017/016/R

- Som vanligt – tänk på att det är typlistan som styr vilka typer man har i sin Group rating!



# Tillbaka till B1 versus B2...

- Nationella MM certifikat
  - "Utföra underhållsarbeten begränsade till tillsyn, mindre reparation och mindre modifiering."
  - = **Luftfartyg i dess helhet**
- MM privilegiet konverterades enligt konverteringsrapport godkänd av JAA (EASA) till kategori B1/B2 = **Luftfartyg i dess helhet**

# Frågeställning

## Case:

En DA42 landar på BMA med en snag "NAV 1 U/S".

En B1.2. certifierad tekniker med DA42 i certet gör en BITE check och BITE checken konstaterar att Nav boxen är U/S. Han byter boxen, gör om testet och får GO, han releasar kärnan och den flyger glatt iväg.

## Var detta enligt regelverket?

BITE = Built In Test Equipment

# Vad säger regelverket? Appendix I — Basic Knowledge Requirements

<p><i>6.11 Electrical Cables and Connectors</i></p> <p>Cable types, construction and characteristics; High tension and co-axial cables; Crimping; Connector types, pins, plugs, sockets, insulators, current and voltage rating, coupling, identification codes.</p>	1	2	2	2
<p><i>7.4 Avionic General Test Equipment</i></p> <p>Operation, function and use of avionic general test equipment.</p>	—	2	3	
<p><i>7.15 Welding, Brazing, Soldering and Bonding</i></p> <p>(a) Soldering methods; inspection of soldered joints.</p> <p>(b) Welding and brazing methods; Inspection of welded and brazed joints; Bonding methods and inspection of bonded joints.</p>	—	2	2	
	—	2	—	

B1

B2

# Vad säger regelverket? Appendix I — Basic Knowledge Requirements B1

<p><i>11.5 Instruments/Avionic Systems</i></p> <p><i>11.5.1 Instrument Systems (ATA 31)</i></p> <p>Pitot static: altimeter, air speed indicator, vertical speed indicator;            Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator;            Compasses: direct reading, remote reading;            Angle of attack indication, stall warning systems;            Glass cockpit;            Other aircraft system indication.</p>	1	2
<p><i>11.5.2 Avionic Systems</i></p> <p>Fundamentals of system lay-outs and operation of:</p> <ul style="list-style-type: none"> <li>- Auto Flight (ATA 22),</li> <li>- Communications (ATA 23),</li> <li>- Navigation Systems (ATA 34).</li> </ul>	1	1
<p><i>11.6 Electrical Power (ATA 24)</i></p> <p>Batteries Installation and Operation;            DC power generation;            AC power generation;            Emergency power generation;            Voltage regulation;            Power distribution;            Inverters, transformers, rectifiers;            Circuit protection;            External/Ground power.</p>	1	3



# Vad säger regelverket? Appendix I — Basic Knowledge Requirements

## MODULE 13. AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

Regulation (EU) No 1321/2014

LEVEL B2	
13.3 Autoflight (ATA 22)	3
13.4 Communication/Navigation (ATA 23/34)	3
13.5 Electrical Power (ATA 24)	3
13.8 Instruments (ATA 31)	3

## MODULE 14. PROPULSION

Regulation (EU) No 1321/2014

LEVEL B2	
14.1 Turbine Engines	
(a) Constructional arrangement and operation of turbojet, turbofan, turboshaft and turbopropeller engines;	1
(b) Electronic Engine control and fuel metering systems (FADEC).	2

# Vad säger regelverket?

## 66.A.20 Privileges

- 2. A category **B1** aircraft maintenance licence shall permit the holder to issue **certificates of release** to service and to act as B1 support staff following: — maintenance performed on aircraft structure, powerplant and mechanical and **electrical systems**, — **work on avionic systems requiring only simple tests** to prove their serviceability and **not requiring troubleshooting.**

# Vad säger regelverket?

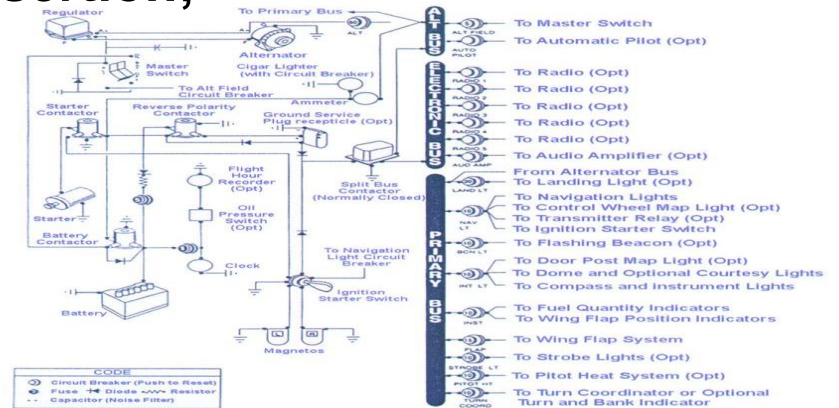
- 3. A category **B2** aircraft maintenance licence shall permit the holder: (i) to issue **certificates of release to service** and to act as B2 support staff for following: — **maintenance performed on avionic and electrical systems**, and
  - electrical and **avionics tasks within powerplant and mechanical systems, requiring only simple tests to prove their serviceability**

# GM 66.A.20(a) Privileges

- ***Electrical system means the aircraft electrical power supply source,***
- ***plus the distribution system to the different components contained in the aircraft and relevant connectors.***
- ***Lighting systems are also included in this definition.***
- ***When working on cables and connectors which are part of these electrical systems, the following typical practices are included in the privileges:***

# GM 66.A.20(a) Privileges

- — Continuity, insulation and bonding techniques and testing;
- — Crimping and testing of crimped joints;
- — Connector pin removal and insertion;
- — Wiring protection techniques.



The Electrical System Schematic  
Aircraft Electrical Systems

# GM 66.A.20(a) Privileges

***Avionics system means an aircraft system that transfers, processes, displays or stores analogue or digital data using data lines, data buses, coaxial cables, wireless or other data transmission medium, and includes the system's components and connectors***



# GM 66.A.20(a) Privileges

***Examples of avionics systems include the following:***

- Autoflight;
- Communication, Radar and Navigation;
- Instruments (see **NOTE** below);
- In Flight Entertainment Systems;
- Integrated Modular Avionics (IMA);
- On-Board Maintenance Systems;
- Information Systems;
- Fly by Wire Systems (related to ATA27 'Flight Controls');
- Fibre Optic Control Systems.

# GM 66.A.20(a) Privileges

- **NOTE:** Instruments are formally included within the privileges of the B2 licence holders. **However, maintenance on electromechanical and pitot-static components may also be released by a B1 license holder.**





# GM 66.A.20(a) Privileges

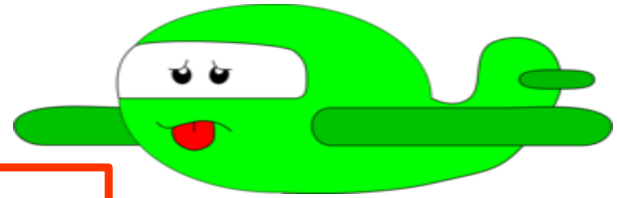
***Simple test means a test described in approved maintenance data and meeting all the following criteria:***

- The serviceability of the system can be verified using aircraft controls, switches, **Built-in Test Equipment (BITE)**, Central Maintenance Computer (CMC) or external test equipment not involving special training.
- The outcome of the test is a **unique go–no go** indication or parameter...No interpretation of the test result or interdependence of different values is allowed.
- The test does not involve more than **10 actions**...
- Pushing a control, switch or button, and reading the corresponding outcome may be considered as a single step even if the maintenance data shows them separated.

## GM 66.A.20(a) Privileges

- **Troubleshooting** means the procedures and actions necessary to identify the root cause of a defect or malfunction using approved maintenance data. It may include the use of **BITE** or external test equipment.

# Två tolkningar...



Luftfartyg landar med fel

B1 tekniker gör Bite test

B1 tekniker byter komponent

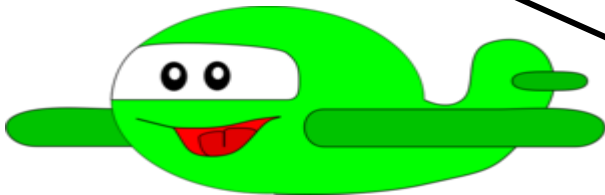
B1 tekniker gör Bite test för CRS

B2 tekniker gör Bite test

B1 tekniker byter komponent

B1 tekniker gör Bite test för CRS

Luftfartyg OK



# Frågor



# Tack för er uppmärksamhet

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Sektionen för underhålls och  
tillverkningsorganisationer

