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New Aircraft, Airworthiness and its impact on Aeromedical operators

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August 2011

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Introduction

New rules for modification, what are they?

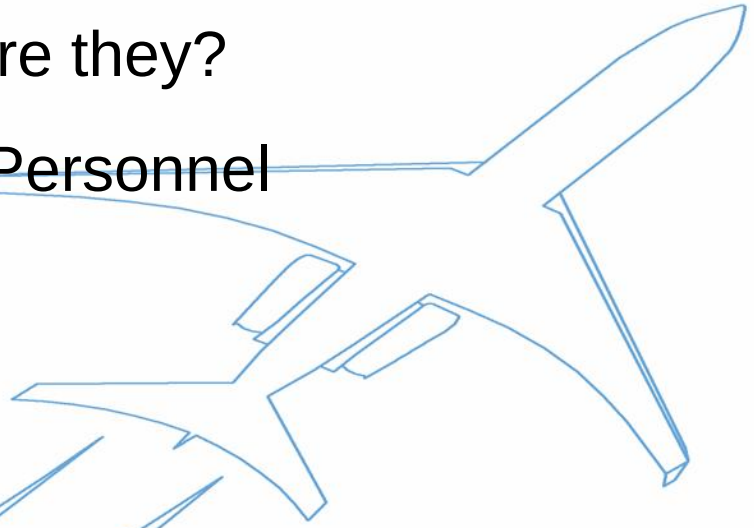
Changes that effect Aeromedical Personnel

Issues of increasing Complexity

Case Study – Pilatus PC12

Case Study – EC145/BK117

The way forward and lessons learnt



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New Rules

Changes to Modification/Installation Rules

Updated Guidance from AC21 46.

CAR 35/36 to CASR Part 21M 21.009, .006 and 21.437

How do these differ?

Applicant responsibilities.

Authorised persons don't have to sign

Mandated "Safe for its intended purpose"

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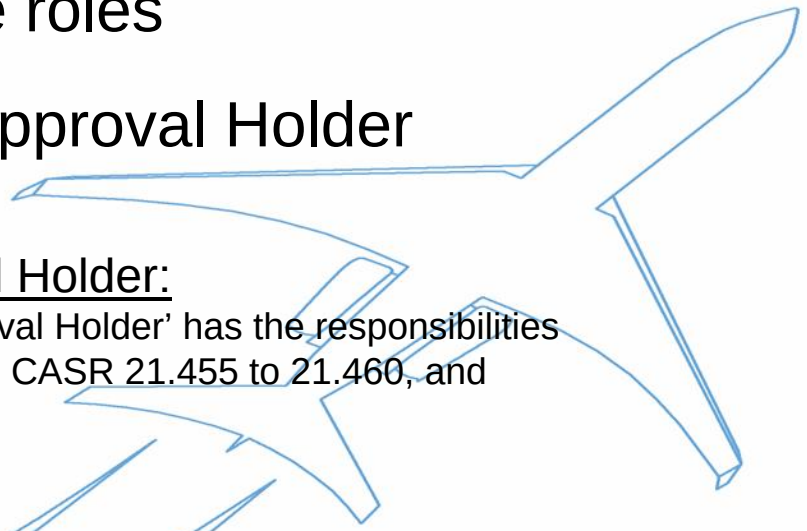
New Rules

Rules now specifically define the roles

Customer/Applicant/Approver/Approval Holder



Applicant:
becomes the 'Approval Holder' once approval has been granted.

Approval Holder:
The 'Approval Holder' has the responsibilities specified in CASR 21.455 to 21.460, and 21.003.

Customer:
Design Organisation licences the design to the customer.

Approver:
The authorised person from the design organisation.

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New Rules

FLIGHT TESTING
CAR 35(3) function no longer exists.

CASA has amended EX11/11 Exemption –maintenance on limited category and experimental aircraft, for this purpose.

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Pilatus PC12

Progressing equipment from PC-12/45 to PC-12/47E

Defibrillator

Type design

PC-12/45 23 Jun 06

FAA Part 23 amendments 23-1 thru 23-42 elected thru to **49**
6 elected requirements and **10** special conditions

PC-12/47E 28 Mar 08

FAA Part 23 amendments 23-1 thru 23-42 elected thru to **50**.
40 elected requirements and **15** special conditions

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Pilatus PC12

Progressing equipment from PC-12/45 to PC-12/47E

PC-12/45 23 Jun 06

PC-12/47E 28 Mar 08

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Pilatus PC12

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Pilatus PC12

Progressing equipment from PC-12/45 to PC-12/47E

- Restricted Storage and Operation Locations
- Further restricted Use
- Extra Placard
- Addition of Flight Manual Supplements
- Extensive EMI/EMC Testing

These have impact on Aeromedical Operations and Installation cost.

Pilatus PC12

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Process for communicating

THIS UNIT HAS BEEN APPROVED FOR INSTALLATION AND USE IN RFDS CENTRAL PC-12/45, PC-12/47, and PC-12/47E AIRCRAFT I.A.W. AERONAUTICAL ENGINEERS AUSTRALIA ENGINEERING ORDER EO14907.213/1.

REFER UNDERSIDE OF UNIT FOR INSTALLATION DETAILS.

PILOT MUST BE INFORMED PRIOR TO USE.

THE UNIT MUST BE FULLY SECURED WITH THE HARNESS RESTRAINT STRAP HOOK ENGAGED DURING TAKE-OFF, LANDING, CRUISE AND WHEN INSTRUCTED BY PILOT.

INSTALL UNIT TO FOLLOWING LOCATIONS WITH HARNESS (P/N: AV13027.001E0101/2) INSTALLED:

TAKE-OFF, LANDING AND CRUISE

STRAPPED TO THE FERNO FW2650 / AFTS 752TA-4 STRETCHER WITH UNIT FLAT ON THE STRETCHER MATTRESS. THREAD STRETCHER HARNESS THROUGH HARNESS LOOPS (PELVIC OR LEG STRAP FOR FW2650 STRETCHERS, FOOT-END STRAP ONLY FOR AFTS STRETCHERS). SECURE AND TIGHTEN STRETCHER HARNESS STRAPS. DISPLAY SCREEN MUST FACE FWD IN AIRCRAFT.

2**ANY AVALIABLE PASSENGER SEAT WITH UNIT FLAT ON THE SEAT BASE CUSHION. THREAD LAP ASSEMBLY THROUGH HARNESS LOOPS, SECURE AND TIGHTEN.**

Pilatus PC12

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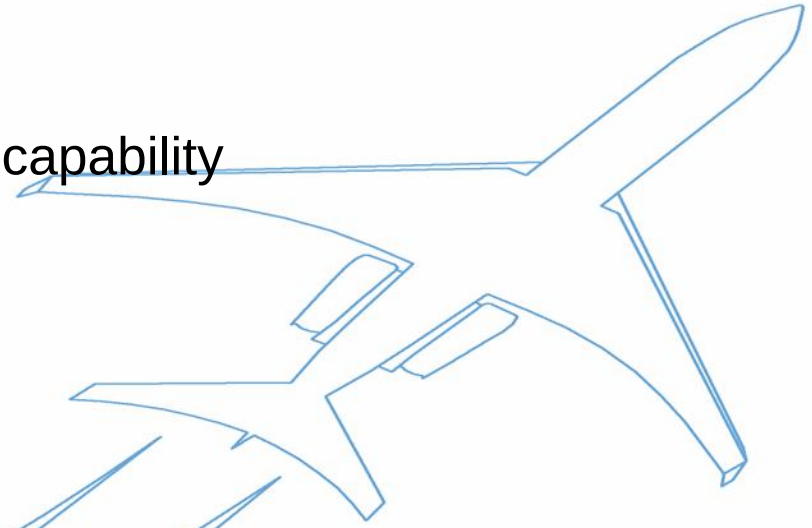
Future

- Increased system reliability
- Increased efficiency and operational capability
- Decreased servicing effort
  - Increased Digital Electronics
  - Standard NVIS
  - HF replaced with SATCom
  - Increased Composite structure
  - Greater dependence on Commercial transmissions (i.e. WiFi)



BK117

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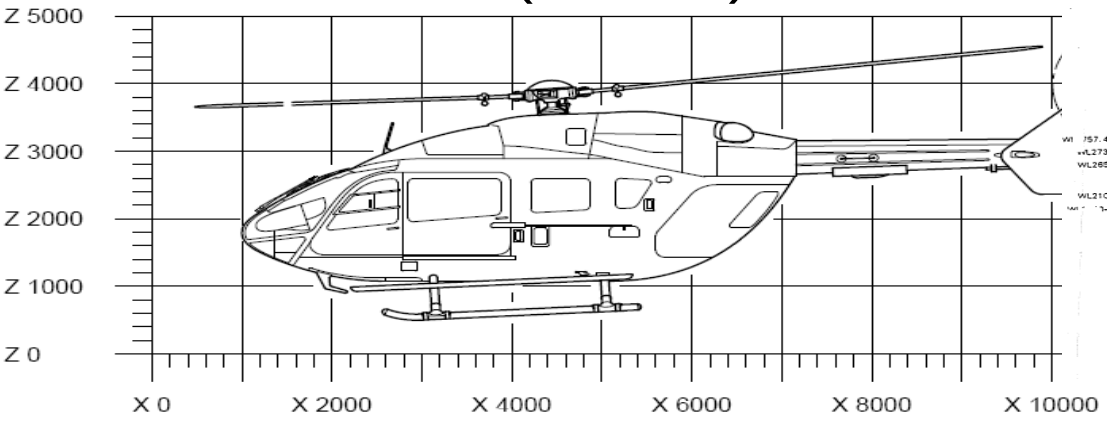
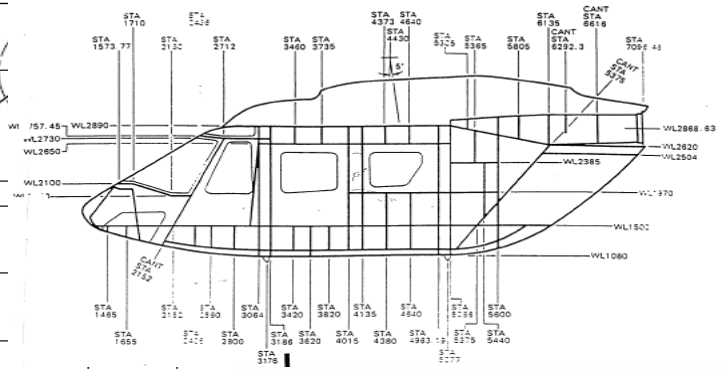
Progressing equipment from BK117 C1 to C2 (EC145)

Geometrically the same.

BK117,C2 (EC145)



BK117 (A. B .C1)



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BK117

Progressing equipment from BK117 C1 to BK117 C2 (EC145)

BK117	A, B ,C1	BK117,C2 (EC145)
Aluminum Structure		Aluminum/Fibre Composite
Low G loading		High G loading
Low levels of digital electronics		Fully digital cockpit

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BK117

Case study certifying Oxylog 3000 onto EC145 from BK117

Draeger Oxylog 3000

Installation into the roof for overhead monitoring

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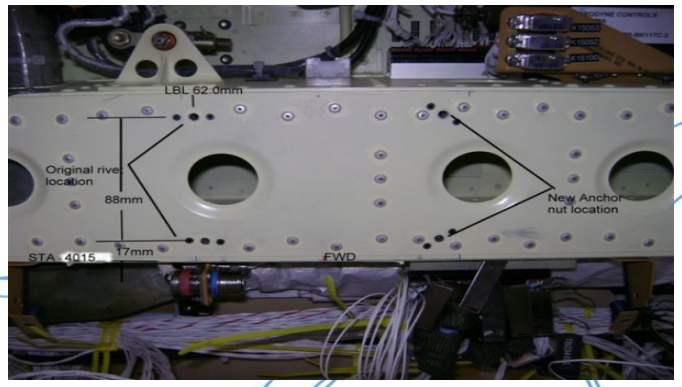
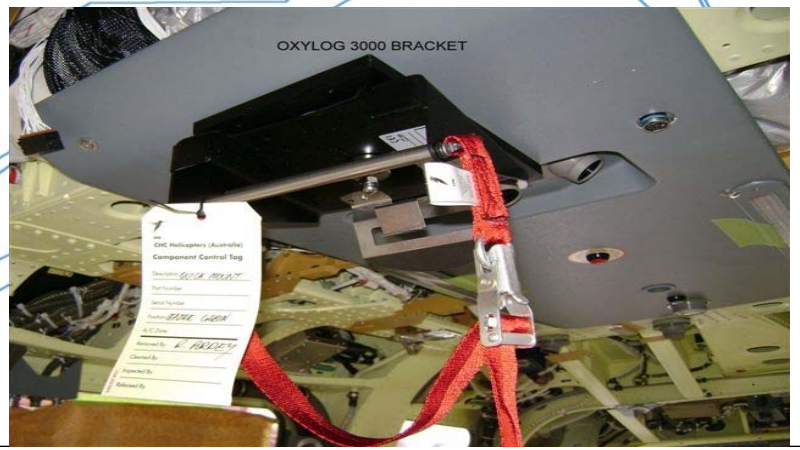
Main Issues



- Structural integrity
- Electronic compatibility EMI/EMC
- W&B
- Electrical loads
- Failure Mode Effects
- Installation Details

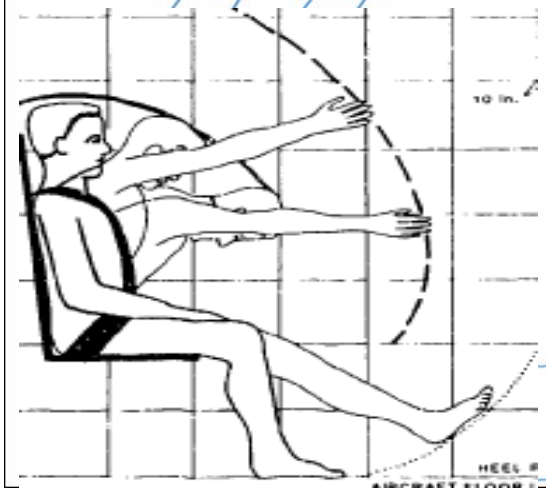


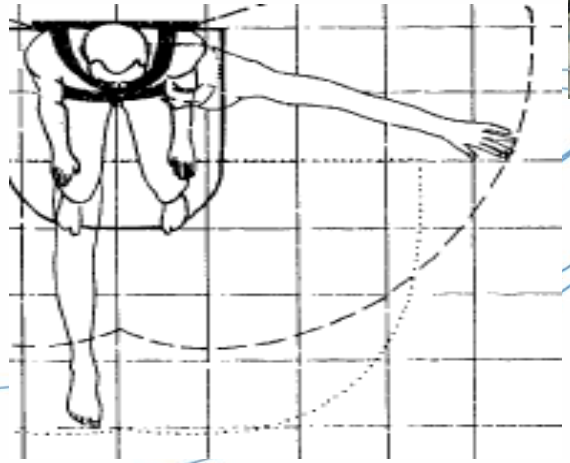
Secondary issues

Human Factors

Ingress egress

Head strike





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Why buy new aircraft?

- Newer aircraft are generally less expensive to maintain
- Newer certification basis aircraft have better capability and are safer.
- Newer equipment is more capable and can better look after the patient.
    - Prior Approvals (Road Ambulance etc)
    - OEM certified equipment
    - Understand better ‘Donations’

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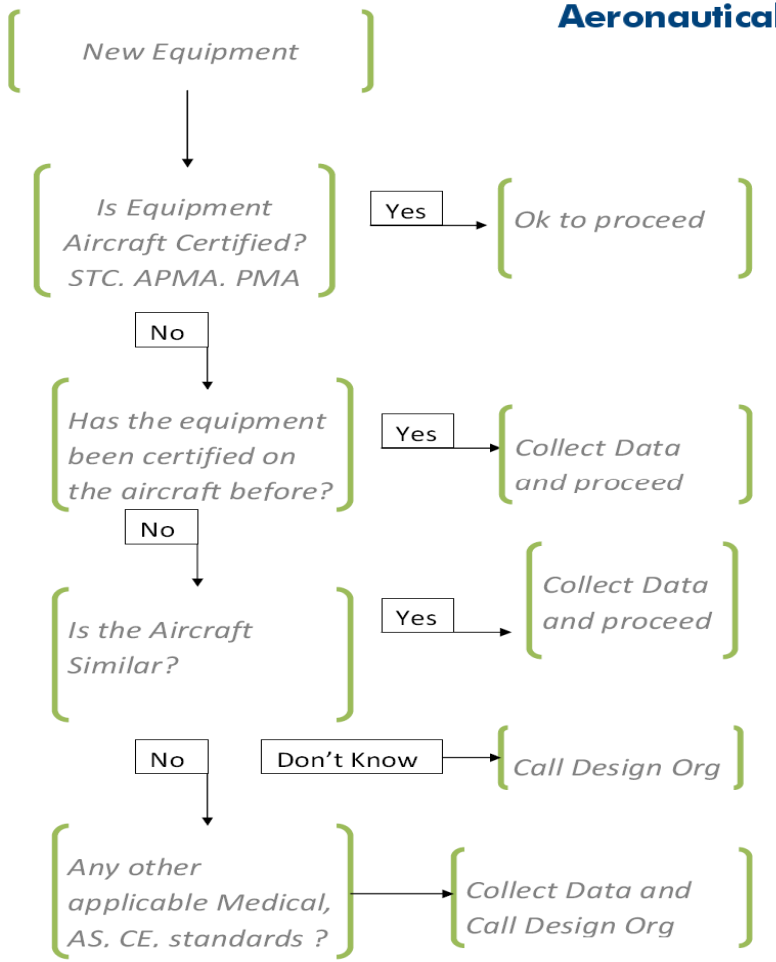
Most effective way of assessment?

- How can I save time/money?
- Encourage suppliers to certify their equipment ‘out of the box’ .
- Talk to suppliers about testing they have already carried out. Pass this onto the Design Organisation.
- Think about getting CASR Part 21.009 approved data for your equipment.
- Talk amongst yourselves about pooling resources and test data.

Flowchart of Process



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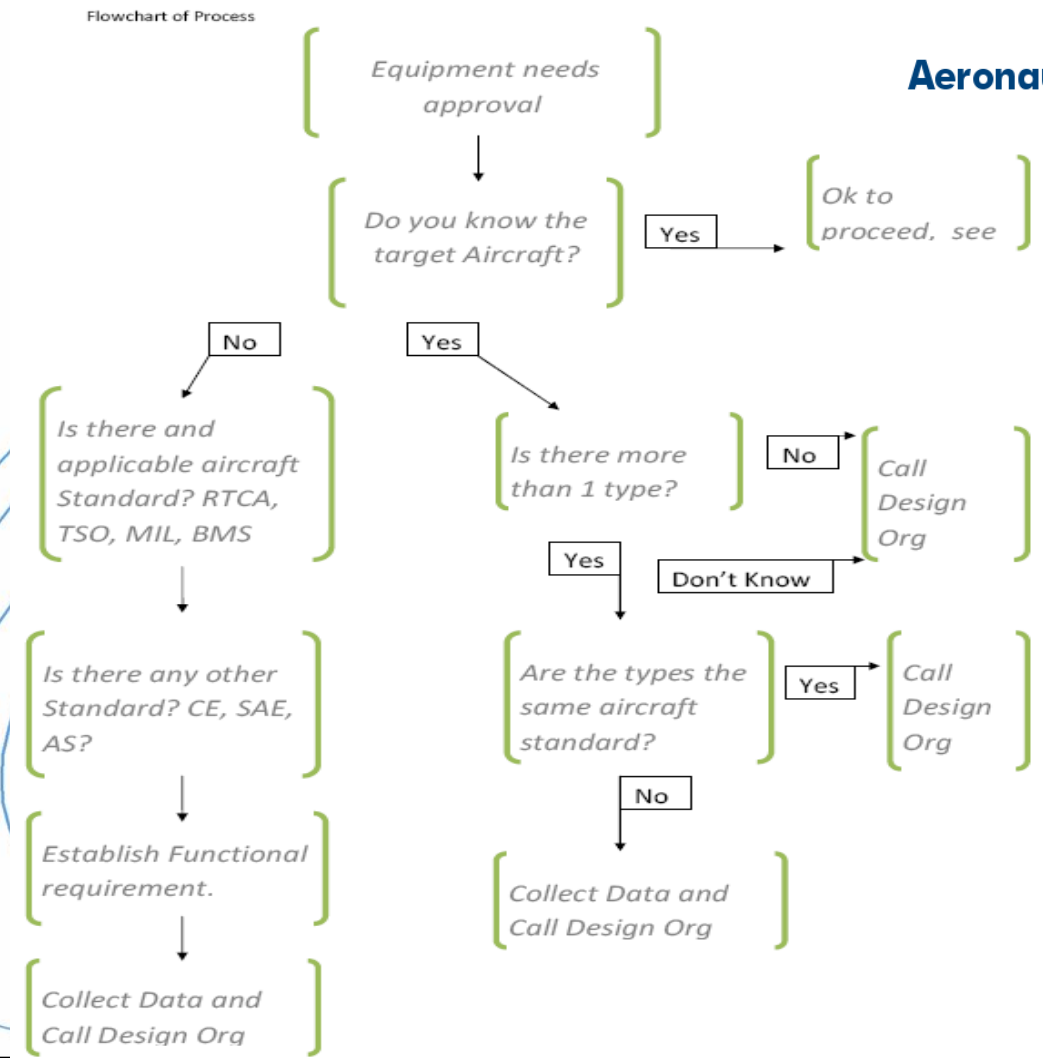
Flowchart of Process



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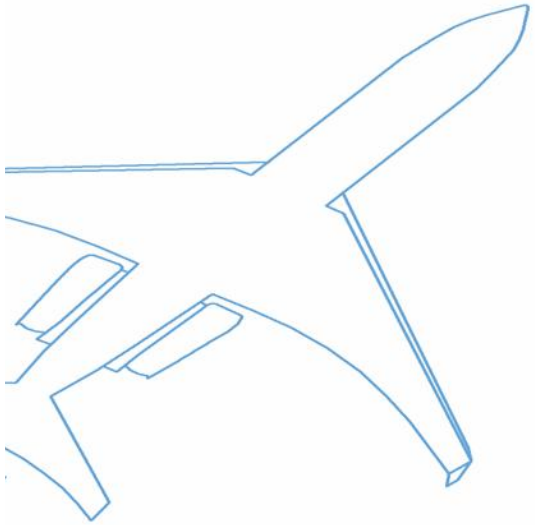

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Thank you

Any Questions?

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