**SLIDE 1**

Why should we give a damn about an aircraft’s certification and documentation?

There are lots of documents, forms & records associated with aircraft and each has a reason & a purpose

This isn’t rocket science but if we have an idea of the reason & purpose of each maybe we’ll be able to avoid problems that could occur in the future

Import into NZ a child car seat

What would you expect the car seat would have had to satisfy in NZ before being released?.....................................

(it’s safe, but safe compared to what, made to a std-which stds? And so on)

An aircraft is not very different

And goes through a process that involves a shared responsibility of the manufacturer, CAA and you, the operator

**SLIDE 2**

Look at [DART\_750\_promo](https://www.diamondaircraft.com/en/flight-school-solution/aircraft/dart/overview/)

Looks good on the web yet how can we be sure it’s good for us?

This is where an understanding of stds, rules & docs come to the fore

**SLIDE 3 Rule 21 Set**

Initially the process involves the interaction between the manufacturer and CAA and is included mainly within Part 21 rule set

**Production Certificate**

If we wanted to build multiple copies of this aircraft and perhaps put it on an assembly-line we then would require a production certificate

In essence require a quality system and show that our manufacturing process is capable of reproducing many copies at the same design standard

**Type Certificate**

Eventually engineers and design persons need draw a line in the sand

Settle on the design parameters

The Line in the sand is the airworthiness standard

Parameters in the Part 21 rule set

The type certificate is very important, it’s the standard all future operational abilities, components and required maintenance must comply to

To get a type certificate all sorts of ground tests, engineering analysis, flight tests and documents must be created and produced

[Structural\_Tests](https://www.bing.com/videos/search?q=wing+bend+design+test+video&qs=n&sp=-1&pq=wing+bend+design+test+video&sc=0-27&sk=&cvid=AC8FECAA581745EC8FA813A3D0EC4410&sid=316146F2756E6A0421FF48DF74436B37&jsoncbid=0&ru=%2fsearch%3fq%3dwing%2520bend%2520design%2520test%2520video%26qs%3dn%26form%3dQBRE%26sp%3d-1%26pq%3dwing%2520bend%2520design%2520test%2520video%26sc%3d0-27%26sk%3d%26cvid%3dAC8FECAA581745EC8FA813A3D0EC4410&view=detail&mmscn=vwrc&mid=93ECCF049C5267B2D45393ECCF049C5267B2D453&FORM=WRVORC&ajf=60) Airbus A350

From these tests and analysis a flight manual is produced, a maintenance manual is created producing an airworthiness limitations section and continuing airworthiness requirements like maintenance checks and such

[TCDS\_DA42](https://www.easa.europa.eu/en/downloads/7516/en)(design line in the sand) Airworthiness Standard

Question:-We know the FM is part of the TC – the airworthiness line in the sand

If the OEM updates the Flight Manual with a new revision and you haven’t updated your FM in your aircraft, is your aircraft in an airworthy condition, can you go fly it?.......................(Theorectically No)

Why?.....................................(doesn’t comply with design std, it has to be at the line in the sand of the Type Cert to be airworthy)

The same reasoning would apply with maintenance checks if they’re overdue or if revision updated

**Type Acceptance Certificate**

Being 1st does present some challenges & hooks we can be caught out on

It means that we the operator have to get the TC recognised by CAA

Interestingly, if someone else had beaten us & that aircraft was already accepted in the country, we could by-pass this step

The process involves the validation of the foreign type certificate to confirm aligns with the line in the sand that NZ expects

Again we can think of the car baby seat I’m importing

**Look up CAA website** The rule requirements are 21.41 & 21.43

Type Acceptance Reports - Aircraft/ Under Airworthiness heading click “Type acceptance reports” **DIAMOND DA42**

This is the line in the sand, the minimum requirement to be airworthy within NZ

**Airworthiness Certificate**

This cert applies to the individual aircraft itself & not the entire fleet

The individual aircraft may have some nuances

When import an aircraft, that individual aircraft may have been changed from the original design, its TC, plus it needs to align to the stds required in our country

We now have ADSB mandates, maybe there are ADs that are to be applied, could be noise issues, has all the maintenance been done, all the CAA mandatory inspections, what’s the radio fitment and has there been any mods

Any changes to the aircraft would need to be accepted before an airworthiness cert is issued

**Standard** Category is eligible for Air Transport operations

**Restricted** Category permits an aircraft that fully meets its type design to operate in a condition that is outside that design in a limited area. Best example is agricultural aircraft operating over-weight

Note: Only aircraft with Standard and/or Restricted category are eligible for hire and reward under Part 91

Only aircraft in the Standard category are eligible for air transport operations under Parts 121, 125, 135.

Last category is the **Special** Category – if you look back to Rule Part 21.173 you will see the 6 special categories listed. Would be things like LSA, amateur-built, experimental & such

From here Continued airworthiness responsibility now shifts to the operator under Part 91

**SLIDE 3 Rule 91/119 Set**

Rule 91.603(a)(1) key words?

91.101(a)(1) i&ii applies to person

To emphasize this point, Rule 91.201 (1) i&ii

What does it mean for you as the Flight Instructor and for any students

How do you know the aircraft is airworthy?

**Maintenance programme**

Many people look at maintenance & the Maintenance Program as an expense in their operation

Few people realise the intricacies & complexities with maintenance

Maintenance is the least known or understood part of the aviation industry

Yet it is the crucial element linking the operator with the TC

Maintains the line in the sand, airworthiness standard that was accepted when the TC was created

Though the maintenance is normally carried out by the maintenance provider under the rule operator is responsible for the maintenance

Need a good rapport with maintenance provider. Listen into this wise word of advice

[Maintenance\_Rapport](https://www.youtube.com/watch?v=GTPBPnPU5xo)

**Part 43 & Part 21**

Parts is an interesting topic when it comes to maintenance

Parts form part of the TC

No one likes paying more then what is fair

PMA is short for Parts Manufacture Approval and means someone has made a copy of the original part

Some PMA parts may be bogus

1000s of aircraft around the world have been affected by scammers who sell old and faulty aircraft parts as new

One of the biggest questions many aircraft owners face is: How do I know the parts I am flying behind are approved and not some garage sale knock-off?

Especially in view of the fact Rule 91.101 says each person is responsible for the airworthy condition of their aircraft

LAMEs though generally are used to PMA parts and when it is suspect won’t fit them even when pressed

That’s because The Rule Part 43 ensures only qualified engineers RTS & only with acceptable parts

The bottom line, is to listen to that inner voice of reason that asks, “Why is this actuator $500 while all the others I have seen are $5,000?”

That little voice may save us a big headache later on.

**Design Changes**

Design Changes refer to modifications and repairs that have altered an aircraft away from its original design, IE, it is different to how it left the factory

To modify an aircraft acceptable & approved data is required

Normally STC is used which usually has the acceptable & approved data

The mod becomes an addition to the TC which slightly adjusts the line in the sand and creates a new airworthiness standard

**Maint logbooks**

Loss of maintenance records will reduce the value of the aircraft

**Part 43 RA**

The RA is the check and balance of all the maintenance that has been carried out on the aircraft compared against the TC

The RA is a means the Operator uses to ensure his aircraft is in compliant with the TC and to satisfy his responsibility against the Rule set Part 91

**Pre-flight & Tech log**

What is the importance of the pre-flight?

Especially important is the pre-flight after maintenance

[Engine\_Failure\_after\_takeoff](https://www.youtube.com/watch?v=FFqb3utL3vs)

The pre-flight is the last physical check of the aircraft before flight

It can’t hurt to ask what maintenance has been done and have a closer look before your flight

Tech log is last ditch effort to ensure the line in the sand is maintained, the airworthiness std is correct and operator/person complies with responsibility

Flying schools a little weak in this area

More emphasis should be placed pre-flight especially after maintenance and techlog with students

There are lots of documents, forms & records associated with aircraft and each has a reason & a purpose

Paperwork can be a dry & boring exercise but it also is the means to provide confidence, & the documents are what ensure that the line in the sand, the airworthiness of the aircraft is maintained