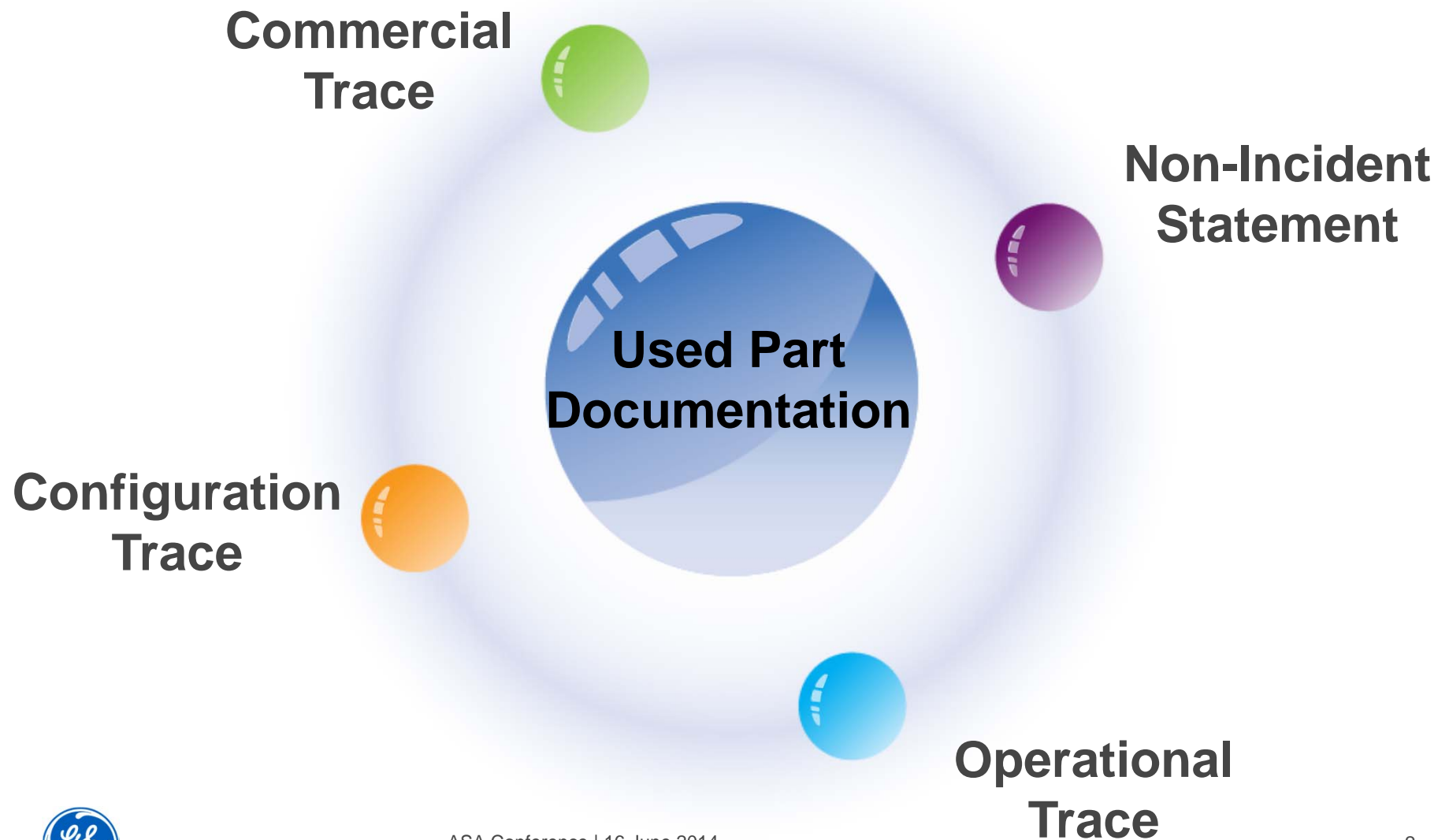




Records & Documentation

16 June 2014

The basics ... engine **life-limited parts**



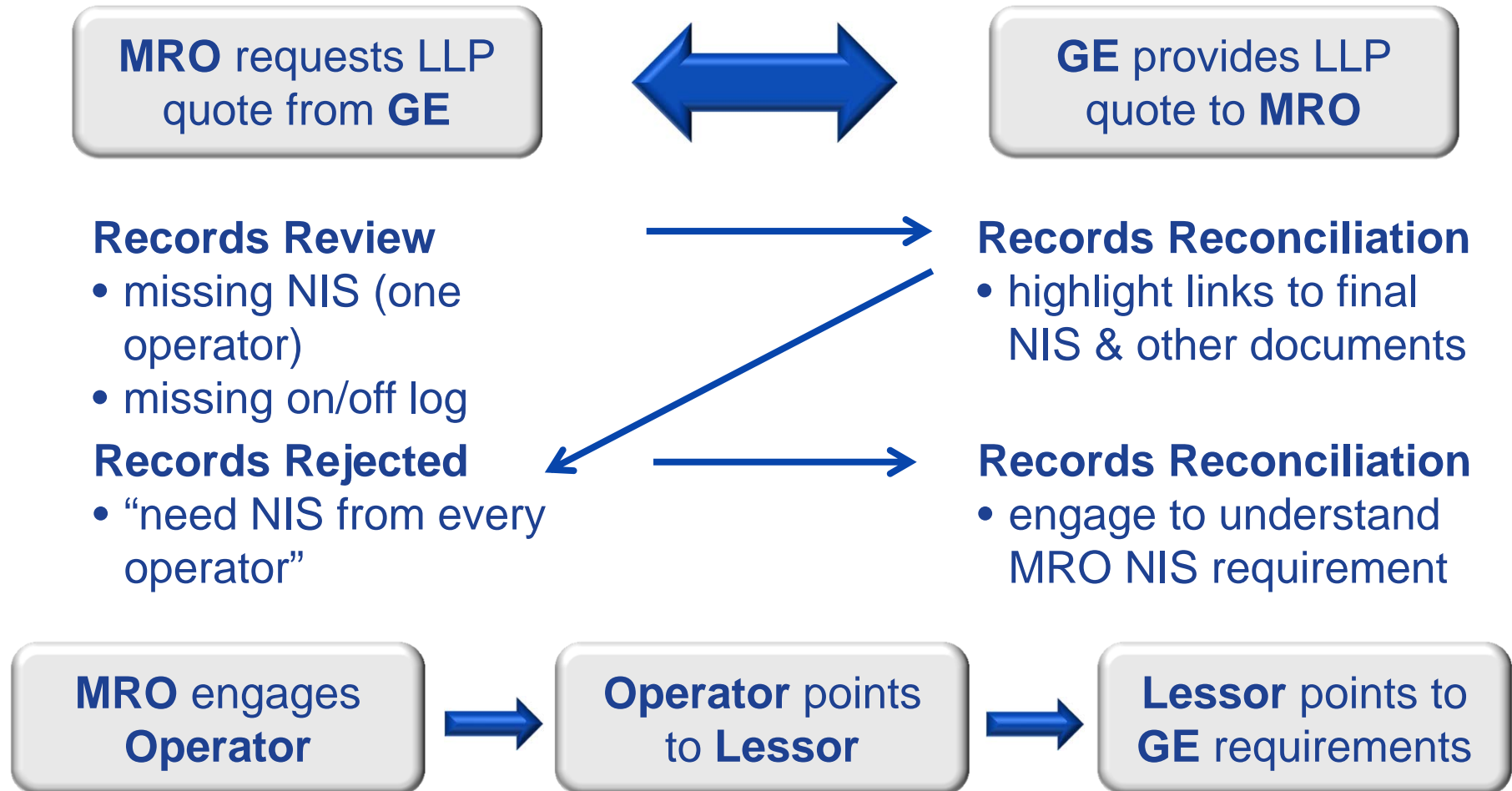
Problem statement

Records requirements supporting buying/selling of used Life-Limited Parts (LLP) have evolved with a **“highest common denominator”** approach yielding:

- a moving target
- huge variation in expectations
- loss of marketability of many LLP



A recent example



Focus areas

- Non Incident Statements
- Ferry Flights
- LLP Sheets v. On/Off Logs
- MRO v. Operator Documents
- Electronic Signatures
- Data Errors
- Influencing Parts



The industry is seeking a solution



Meeting Summary Electronic Aircraft Transfer Records Washington, DC; Oct 1 –3, 2013

- The lack of definition and/or different perception of requirements for "back-to-birth" traceability on certain components.
- There is a desire to also create a guidelines document that could indicate various best practices. The document could discuss such items as minimum review time (i.e. time to receive documents/data before aircraft), which type of parts should be covered, what is expected of MRO/Repair Agencies, definitions of "Back-to-Birth", etc.



IATA Aircraft Leasing Advisory Group (ALAG) Meeting #4

1045-1230 "Back to birth" traceability sheet for LLP

There was a discussion on a draft template in Toulouse meeting and a spreadsheet was created. The intent is to use the fields that will be standard to trace LLP's. These items should be documented as LLP's change hands. Once we get agreement on this Chris will pass to A4A and all the fields will be determined electronically so all info will be transferred electronically – no longer by paper. We need to define which fields are relevant. The below fields (among others were discussed):

- Who is the airline?
- Quote
- Part nbr
- Serial nbr
- Description



ASA Conference | 16 June 2014

(ON COMPANY LETTERHEAD)

Date: _____ Incident/Description of Concern: _____

To Whom It May Concern:

Aircraft registration (Y-REG), details of which is specified below, has been operated by (insert company name) during the period from (insert date) to (insert end/entry date).

Clearly certify to the best of your knowledge during the period stated:

- The aircraft and all parts installed on the aircraft:
 - has not been the subject of being, or identified, as being, or being responsible in any way, for any reportable incident or accident, as defined by ICAO, or
 - has not been subjected to maintenance, or repair, as a result of a major engine failure, accident, or fire, or has been subjected to such maintenance, or repair, by an approved maintenance organization in accordance with the applicable type certificate holder and supported by an authorized release certificate, and
- The aircraft or any part installed on the aircraft has not been operated by any person or organization as operated under an Air Operator Certificate issued for civil operations, and
- No part has been installed on the aircraft which was obtained from a military source or was previously fitted to a non-civil aircraft.

Description	Type/Part No.	Serial No.	TSN	CSN
Aircraft				
Engine				
Engine				
APU				
Door Landing Gear				
LTN Main Landing Gear				
RHT Main Landing Gear				

Authorized Airline Representative

Signature: _____

Name: _____

Non Incident Statement

Key Issues:

- Variation in required language & content
- Prior incident cleared to TCH special workscope
- “No PMA/non-TCH Repair” requirement
- Ferry flight coverage
- Operators no longer in existence
- Number of Non Incident Statements required

Non Incident Statement ... Proposal

AWG Template

(ON COMPANY LETTERHEAD) Page 1 of x

Date _____

Incident/Accident (Clearance) Statement

To Whom It May Concern:

Aircraft registration [X-XXX], details of which are specified below, has been operated by *[insert company name]* during the period from *[enter delivery date]* to *[enter redelivery date]*.

I hereby certify to the best of my knowledge that, during the period stated above:

1. The aircraft and any replacement part installed on the aircraft:-
 - i) has not been damaged during, or identified as the root cause of, any reportable incident or accident as defined by ICAO; or
 - ii) has not been subjected to severe stress or heat (such as in a major engine failure, accident, or fire) or has been submersed in salt water;

unless it has had its airworthiness status re-established by an approved maintenance organisation in accordance with the instructions of the type certificate holder and supported by an authorised airworthiness release certificate; and
2. The aircraft and any replacement part installed on the aircraft has not been operated by any government source unless so operated under an Air Operators Certificate issued for civil air transport; and
3. No part has been installed on the aircraft which was obtained from a military source or was previously fitted to a non-civil aircraft.

Description	Type/Part No.	Serial No.	TSN	CSN
Aircraft				
Engine				
Engine				
APU				
Nose Landing Gear				
LH Main Landing Gear				
RH Main Landing Gear				

Authorised Airline Representative
 Signature: _____
 Name: _____

1. The aircraft and any replacement part installed on the aircraft:

i) has not been damaged during, or identified as the root cause of, any reportable incident or accident as defined by ICAO; or

ii) has not been subjected to severe stress or heat (such as in a major engine failure, accident, or fire) or has been submersed in salt water;

unless it has had its airworthiness status re-established by an approved maintenance organisation in accordance with the instructions of the type certificate holder and supported by an authorised airworthiness release certificate; and



Non Incident Statement ... Proposal

AWG Template

(ON COMPANY LETTERHEAD) Page 1 of x

Date _____

Incident/Accident (Clearance) Statement

To Whom It May Concern:

Aircraft registration [X-XXX], details of which are specified below, has been operated by *[insert company name]* during the period from *[enter delivery date]* to *[enter redelivery date]*.

I hereby certify to the best of my knowledge that, during the period stated above:

1. The aircraft and any replacement part installed on the aircraft:-
 - i) has not been damaged during, or identified as the root cause of, any reportable incident or accident as defined by ICAO; or
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unless it has had its airworthiness status re-established by an approved maintenance organisation in accordance with the instructions of the type certificate holder and supported by an authorised airworthiness release certificate; and
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Description	Type/Part No.	Serial No.	TSN	CSN
Aircraft				
Engine				
Engine				
APU				
Nose Landing Gear				
LH Main Landing Gear				
RH Main Landing Gear				

Authorised Airline Representative

Signature: _____

Name: _____

2. The aircraft and any replacement part installed on the aircraft has not been operated by any government source unless so operated under an Air Operators Certificate issued for civil air transport; and

3. No part has been installed on the aircraft which was obtained from a military source or was previously fitted to a non-civil aircraft.



LLP Sheets v. Operational History Report

Key Issues:

- Definition of when LLP data sheets required
- Definition of an “on/off log”
- When is an “on/off log” sufficient?
- Who is authorized to issue data sheets?

LLP Sheets v. Operational History Report

“Operational History Report”



Installation #1



Installation #2



LLP Shop Visit

MRO LLP Sheet



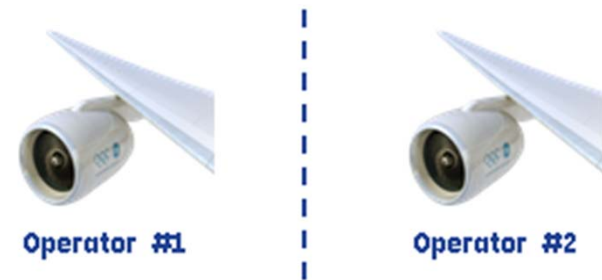
LLP Sheet ... Summary



- Post shop visit ... MRO can issue the LLP sheet

LLP Shop Visit

- Post operation ... operator must issue the LLP sheet



Post Operation



MRO v. Operator Documents

Key Issues:

- Acceptance of MRO generated documents
- Acceptance of other regulated entity (e.g. DAR, CAMO) generated documents

MRO v. Operator documents ... position

MRO documents are acceptable when:

- Operator provides contractual relationship letter
- Owner engages regulated entity (e.g. MRO, DAR, CAMO) to address defaults/repossessions

Key concepts:

- Regulated entities providing technical data
- Clear linkage to operator (or owner)



Influencing parts

Key Issue:

- Applying new influencing parts list requirements to historical records packages ... all data not tracked!

FAA recognizing part v. product gap



14 CFR 33.70
(Engine Life Limited Parts)

AC 33.70-1
(Engine LLP Requirements)

**FAA Engine Office
Letter to AIA**
(Request for Working Group)



These steps include validated analysis, test, . . . **including the effects of other engine parts influencing these parameters**, are sufficiently well known and predictable **so that the operating limitations can be established and maintained . . .**”

“Influencing Parts. Engine life-limited parts are part of a **complex system in which other engine parts can affect the life-limited parts, including their life capability.** Therefore, the engineering plan **must consider these other parts and particularly any changes to them.**”

“. . . when reverse engineering validation procedures rely on **part-level comparative techniques**, the assessment **may fail to identify the influence the part has on critical engine parts and systems**, and the influences the engine systems may have on the part.”

Why are influencing parts important?

Establish LLP boundary conditions

- Exerts **mechanical** load(s) on the subject LLP
- Exerts **pressure** load(s) on the subject LLP
- Provides potential **vibratory** stimulus to the subject LLP
- Influences the **thermodynamic** environment of the subject LLP



Key takeaways

- “highest common denominator” the effect is real
- multiple industry efforts underway must coalesce
- collaborative approach required move as one
- GE Aviation supports these efforts simplification



