

## RA 5313 – Design Modifications ▶ ◀

**Rationale** ▶ *During the life of a project, there are likely to be changes required to the build standard of an Air System (and related products, parts, appliances or Air Launched Weapons (ALW)). The design and embodiment of modifications is to be actively managed. The primary route to embody this change is through Design Modification (DM) action, which is to be initiated by the Project Team (PT).* ◀

### Contents 5313(1): Design Modifications ▶ ◀

#### Regulation Design Modifications ▶ ◀

**5313(1)** The ▶ **Type Airworthiness Authority (TAA) or Commodity Project Team Leader (PTL)** ◀ **shall** manage the DM procedure.

#### Acceptable Means of Compliance Design Modifications ▶ ◀

- 5313(1)**
1. ▶ This RA **should** be read in conjunction with RA 5312<sup>1</sup> to understand the implementation process, and RA 5820<sup>2</sup> to understand the classification and approval process.
  2. The prompt embodiment of modifications is of prime importance to achieve maximum operational capability, safety, reliability and maintainability. The embodiment of modifications at all levels of maintenance **should** be given an appropriate priority and **should** be actively managed.
  3. The TAA or Commodity PTL **should** ensure the compilation and format of any amendments resulting from the DM are consistent with the format and layout of the Technical Information being amended, refer to RA 5401<sup>3</sup>. ◀
  4. The PT **should** take responsibility for:
    - a. Editing the Draft Modification Leaflet (DML) ▶ (RA 5306<sup>4</sup> refers) ◀ or, when necessary, altering a published Topic 2 modification leaflet in accordance with the DML/Draft Information Leaflet (DIL) update process at Annex A.
    - b. Deciding whether an amendment proposal from the ▶ **Design Organization** ◀ (DO) to a DML or a published Topic 2 modification leaflet is acceptable and, if so, how to implement it.
    - c. Briefing sheets **should** be used to keep the modification committee apprised of progress as the modification develops (Annexes B and C refer).
    - d. The modification cost analysis sheet at Annex D, ▶ **which** ◀ **should** be used to inform financial decisions and to declare how the support costs for an operational modification are likely to change as a function of the modification.
  5. ▶ A DO cover modification **should** be sought when a Service Modification (SM) (refer to RA 5308<sup>5</sup>), has been used to satisfy short term or limited applicability requirements, but where there is a need to make the modification a permanent change, to update publications and to ensure long term provisioning of spares. ◀
  6. The DO cover modification **should** incorporate details of the SM in the equipment Configuration Status Record:
    - a. Where the SM satisfies the design standards that the DO is contracted to

<sup>1</sup> ▶ RA 5312 – In Service Design Changes.

<sup>2</sup> RA 5820 – Changes in Type Design (MRP 21 Subpart D).

<sup>3</sup> RA 5401 – Provision of Technical information.

<sup>4</sup> RA 5306 – Draft Modification Leaflets.

<sup>5</sup> RA 5308 – Service Modifications. ◀

**Acceptable  
Means of  
Compliance  
5313(1)**

maintain, the DO **should** adopt the SM design and produce a cover modification which 'is satisfied by' the SM.

b. Where the SM does not satisfy the contracted design standards, the DO **should** redesign the modification ▶◀.

**Guidance  
Material  
5313(1)**

**Design Modifications ▶◀**

7. ▶ This RA is applicable to all materiel subject to DM, except those specifically excluded by separate contractual arrangements, eg some multi-national projects. ◀
8. A SM may be superseded by a DO cover modification to maintain configuration control of the drawing set. A DO cover modification is invariably to be sought when spares are affected.
9. DM provide a change to the build standard of materiel. Changes are incorporated into the technical publications and the modifications are fully supported with spares and special tools, etc.
10. Local Technical Committees (LTC) and Configuration Control Boards (CCB) form a structured process for modification proposals, ensuring that they are relevant, cost-effective and will not conflict with previously approved proposals. RA 5303<sup>6</sup> and RA 5304<sup>7</sup> refer.
11. A ▶major change<sup>8</sup>◀ of design, ▶may result in◀ the introduction of a new mark number for an ▶Air System◀, or a new mark number and/or part number ▶for a product, part, appliance or ALW◀ and is authorized by the appropriate modification committee, ▶RA 5307<sup>9</sup> refers◀.
12. The coding system for the classification of modifications and Configuration Management must be exercised in accordance with ▶Def Stan 05-057◀ Annex E, including the application of Modification Proposal Forms.
13. An information leaflet is ▶to be◀ issued when users are not required to embody the modification but need to be aware of its effects. An information leaflet may also include the information required to enable units to accept, inspect or approve the work done by Contractors Working Parties (CWP).
14. The modification cost analysis sheet ▶is to◀ be used to itemize the separate elements and consequential costs of pursuing a modification.
15. PT personnel involved in technical editing duties associated with DML and DIL must read and understand the requirements of RA 5306 and ▶MAP-01 Chap 10◀.

<sup>6</sup> ▶ RA 5303 – Local Technical Committee.

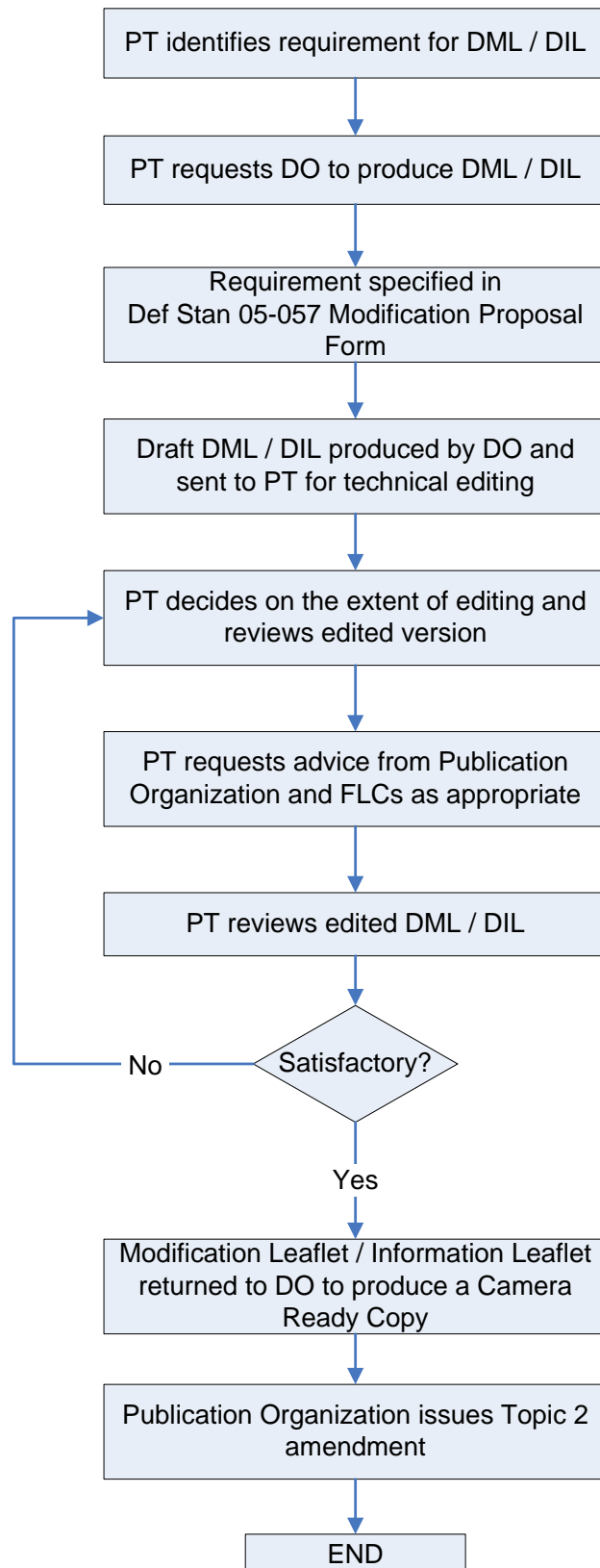
<sup>7</sup> RA 5304 – Configuration Control Board.

<sup>8</sup> For clarification of major change refer to RA 5820.

<sup>9</sup> RA 5307 – Identification and Recording of Design and Modification States of Materiel. ◀

## ANNEX A

## DML/DIL PROCESS



**ANNEX B  
MODIFICATION BRIEF SHEET – DESIGN STAGE**

Modification Number	.....	<b>► Air System/Equipment ◀</b>	.....
Question:	Brief		
1. State why this modification is essential.			
2. Detail who is liable for costs.			
3. Does the proposal stem from a fault? If so, quote references to relevant Serious Fault Signals, MOD Form 760, accident and incident reports.			
4. Do you agree the proposal in respect of: a. Equipment type, mark, and reference number? b. Title? c. Origin? d. Evidence? If not, state proposed amendments.			
5. Is a TI necessary?			
6. Have you any comments on individual costs quoted in the design section of the proposal?			
7. Is the Release To Service likely to be affected?			
8. Will the modification affect the <b>► Equipment Safety Assessment or Air System Safety Case? ◀</b>			
9. Are there any particular requirements or implications for information systems?			
10. Is the modification likely to be adopted by another PT? If so, how are the costs to be shared?			
<b>Design Cost?</b>	£.....		
Specialist Officer: Name, Rank, Appointment			
Sponsor: Name, Rank, Appointment			

**ANNEX C**  
**MODIFICATION BRIEF – CLASSIFICATION STAGE**

Modification Number	.....	▶ Air System/Equipment ◀	.....
Question	Brief		
1. Have you assessed, in conjunction with the relevant PT and DO the spares implication of this modification by considering: a. The cost of the modification sets and labour for spares held in Service and on order? b. Who will modify the spares? c. The cost of Service-supplied items for modification sets if no surplus assets are available? d. Can any of the modification set components be supplied from available Service assets? Has this been discussed at LTC level?			
2. If major spares cannot be modified, have you assessed: a. The costs of new post-modification spares to support the modified fleet? b. The cost of spares made redundant after the modification programme? c. Any financial liability resulting from cancellation of pre-modification spares orders?			
3. Taking account of the embodiment backlog, priorities, opportunities, resources and the contractor's forecast delivery dates: a. When will embodiment start? b. When will embodiment be complete? c. What is the planned programme?			
4. What consequential or cover modifications will be required for: a. Aircraft fit? b. Government Furnished Assets? c. Simulators? d. Training rigs? e. Test equipment?			
5. If Service embodiment, and special tools are required, state: a. Number of tools required. b. Allocation of tools.			
6. Which of the following are required: DML, CWP-type DML, other type of DML or an information leaflet? ▶◀			
7. What AP amendments will be required?			
8. Will the Release To Service need amending?			
9. Do you agree with the proposed modification set delivery dates and places?			
10. What modification classification is required?			
11. Will the modification be adopted by another PT? If so, how are costs to be shared?			

Modification Number	.....	▶ Air System/Equipment ◀	.....
Question	Brief		
12. Will this modification affect any other embodiment programme? If so, what are the effects and consequent programme changes required?			
<b>Total Sponsorship Cost:</b>			
Specialist Officer: Name, Rank, Appointment			
Sponsor: Name, Rank, Appointment			

**ANNEX D  
MODIFICATION COST ANALYSIS SHEET**

Firm ..... **▶ Air System/Equipment ◀** ..... Modification No.....

1. This submission represents:

- Part of a package of modifications  (complete Blocks 1 & 2)
- Part of an independent modification  (complete Blocks 1 & 2)
- A change to previous sponsorship  (complete Blocks 1 & 2)
- A complete independent modification  (complete Block 2)

**BLOCK 1**

2. The package/modification, including any consequential modifications at Annex C, paragraph 4 of the brief sheet:

- Has already been sponsored  (complete Part A)
- Needs to be sponsored now:
  - For the first time  (complete Part B)
  - Because of a change  (complete Parts A & B)

**3. Part A – Already Sponsored**

Modification No/ Stage	Estimated Cost	Sponsored by
.....	£ .....	Appt .....
.....	£ .....	Modification Sheet Ref .....
.....	£ .....	Date .....
<b>Total</b>	<b>£ .....</b>	

Submit for financial approval (note 2)

**4. Part B – To be Sponsored Now**

Modification No/ Stage	Estimated Cost	Reasons for any change
.....	£ .....	.....
.....	£ .....	.....
.....	£ .....	.....
.....	£ .....	.....
<b>Total</b>	<b>£ .....</b>	

Submit for financial approval (note 2)

**BLOCK 2**

5. Complete as appropriate
- Complete Modification  Design Stage
  - Production Stage  Long Lead Items
  - Other .....

**a. Design Costs**

(1) Preparation £ .....

(2)	Trial installation		£ .....
(3)	Flight trials		£ .....
(4)	Ground/Bench tests		£ .....
(5)	Design incorporation (total)		£ .....
	including DML		£ .....
	Publication amendments		£ .....
(6)	Proof Installation		£ .....
		<b>Total Design</b>	<b>£ .....</b>

**b. Production Costs**

(1)	Changes in production	@	£ .....	£ .....
(2)	Modification sets for in-service fleet	@	£ .....	£ .....
(3)	Return to Works	@	£ .....	£ .....
(4)	On repair or recondition	@	£ .....	£ .....
(5)	Retrofit before delivery	@	£ .....	£ .....
(6)	Scrap: In production			£ .....
	Retro before delivery			£ .....
(7)	Contractor's production and embodiment tooling			£ .....
		<b>Total Production</b>		<b>£ .....</b>

**c. Effect on Spares (3)**

(1)	Modification Sets for spares	@	£ .....	£ .....
(2)	Service supplied items and Government Furnished Equipment to convert all modification sets to kits	@	£ .....	£ .....
(3)	Redundant spares and tooling			£ .....
(4)	Cancelled spares orders			£ .....
		<b>Total Spares</b>		<b>£ .....</b>

**d. Embodiment Costs**

(1)	Service tooling	@	£ .....	£ .....
(2)	CWP Manpower	@	£ .....	£ .....
(3)	Test equipment	@	£ .....	£ .....
		<b>Total Embodiment</b>		<b>£ .....</b>

(4) Service man-hours (4)  
 ..... @ ..... = £.....  
 (Service man-hours are to be declared, but excluded from sum sponsored)

**e. Modification of FsAST (Applicable/Non-applicable)**

(1)	Modification Sets (inc spares)	@	£ .....	£ .....
(2)	Service supplied items and Government Furnished Equipment	@	£ .....	£ .....
(3)	Investigation task			£ .....



(4)	Design & Development	£ .....
(5)	Design Incorporation	£ .....
(6)	Installation	£ .....
<b>Total Production</b>		<b>£ .....</b>
<b>Total Cost of Block 2</b>		<b>£ .....</b>

Submit for financial approval (note 2)

	<b>Sponsor</b> .....	<b>Signature</b>
	.....	<b>Name</b>
	.....	<b>Rank</b>
Date .....	.....	<b>Appointment</b>

Notes:

- 1 Use 'Commercial' when CWP man-hour rate is shown.
- 2 Submit results of the modification cost analysis for financial approval in accordance with the appropriate financial and accounting BP.

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