INTERNATIONAL CONFEDERATION OF INSPECTION AND CERTIFICATION ORGANISATIONS

CEOC International - Position Paper
(CML - Commission for Machinery, Lifts and Cranes)

Modification of machinery in service - Guide for Inspection *

1. Legal aspects

For machinery in service (used at workplaces), the employer must ensure that the conformity and safety of the machinery is maintained throughout its working life, according to the national regulations implementing the **Use of Work Equipment Directive** in the workplace 2009/104/EC (89/655/EEC as amended), referred to as **"UWED".**

According to UWED, employers are required to ensure that work equipment made available to workers is suitable for the work to be carried out and complies with the provisions of any relevant Community Directive which is applicable to it. Consequently

- all new machinery made available to workers must comply with the Machinery Directive and any other Community Directives that may be applicable (the minimum requirements of Annex I of Directive 2009/104/EC are not applicable to machinery placed on the market or put into service according to the Machinery Directive).

- machinery put into service before the Machinery Directive became applicable and machinery or parts of machinery that are not subject to Community technical harmonisation legislation must comply with the minimum technical requirements applicable to work equipment in service set out in Annex I of Directive 2009/104/EC.

During the lifetime of the machinery, the employer must take the measures necessary to ensure that machinery in service is kept, by means of adequate maintenance, at a level such that it complies with the provisions applicable when it was first made available in the undertaking or establishment. This also applies whenever machinery is modified by the user during the course of its lifetime, unless the modifications are so substantial that the modified machinery must be considered as new machinery and be subject to a new conformity assessment according to the Machinery Directive (MD).
Note: The Machinery Directive applies to machinery when it is first placed on the market and put into service in the Community with a view to distribution or use. This is, in general, new machinery or assemblies of new machinery.

*) This guide gives more detailed criteria to the Guide for the MD, as the result of experience from practical work of CEOC International Inspectors

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2. Procedures for modification of machinery in the workplace

This guide applies to modifications of machinery in workplaces for the users own use, made under the responsibility of the user (employer). It gives criteria for the assessment of such modifications by inspectors and is related to the situation on site (without further marketing activities).

Modifications of machinery in service are made for a variety of reasons, such as:

- Application to the conditions of the workplace, changes in the production, operation by other user groups, assembly with other machinery, upgrading to the “state of the art”, extension of production lines etc...

Machinery which is modified can be machinery with or without CE- marking and any combinations thereof. It is presumed that all machinery was placed on the market and put into service correctly, which means that new (CE marked) machinery is in compliance with the relevant New Approach Directives (MD and other related Directives) and that old (not CE marked) machinery complies with Directive 2009/104/EC.

From the legal point of view, the Machinery Directive does not apply to machinery already placed on the market but not yet put into service for the first time.
From the technical point of view, considering the variety of modifications, application of the Machinery Directive for old modified machinery may be unrealistic (documentation according to the MD cannot be provided completely any more); a new CE marking would not be legally correct and might result in a loss of credibility of this marking.

For practical application, experience has shown that the following considerations for modifications have provided safe solutions in the past.

2.1 Non substantial modifications (“Reconditioning” of machinery)

Reconditioned machinery is existing machinery which has undergone technical work designed to modify its condition, its performance or its safety etc. Also assemblies of “simple combination” are considered in this way (see Annex “Assemblies”). When the criteria of clause 2.2 do not apply, this modification is NOT considered as substantial and does not create new machinery.

If modification comprises implementation of new components and/or partly completed machinery (e.g. control systems, immaterial barriers, new driving/lifting systems, guards or interlocking systems, transporting units, load bearing and lifting components, foundation and supporting structure, etc.), they shall be in compliance with Annex I of the MD (both for new and for old existing machinery, where modification is carried out).

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Risk Assessment according to the MD needs to be carried out for the kind of implementation as well as for the interfaces with existing machinery; for the installation of partly completed machinery the relevant documentation shall be provided.

The final risk assessment according to UWED Annex1 shall include all modifications. Different safety levels in the modified machinery (in particular when modifying old machinery) shall be documented and residual risks evaluated for the situation in the particular work place, stating the **safety measures** incorporated or required.

The documentation shall contain the complete details of the modified machinery including the instruction manual with the safety measures.
A formal “replacing on the market” (Declaration of Conformity, CE marking) does NOT happen in this case.

The inspector carries out a check of the documentation (including the risk assessment and instruction manual), the compliance of the documentation with the final machinery and makes the necessary tests. He issues an “**Inspection Report**” for the complete modified machinery including the safety measures for the particular workplace according Directive 2009/104/EC.

2.2 Substantial Modifications (Reconstruction, rebuilding and integrated assembly of machinery)

Reconstructed/ rebuilt machinery and an integrated assembly of machinery is considered as new machinery and the Machinery Directive applies when this machinery or assembly of machinery is first put into service after substantial modification (Conformity Assessment procedure, new CE- marking, new instruction manual etc.). Substantial modification may happen,

- if the original machinery has not been used as initial machinery, but as a source of parts in order to make something new, or if the original machinery is not identifiable any more (e.g. it is completely “stripped down” and only few original parts remain),
- if the originally intended function and/or use has been changed by this modification in a way that new or other hazards are created which need a complete new risk assessment of the machinery (e.g. the modification of a lifting table for use as vehicle servicing lift, or a fork lift truck for use as lift with defined levels, or lifting of persons with lifting equipment not designed for that, or otherwise to modify a flint mill for use with foodstuff, etc.)
- if machinery, intended to work in normal atmosphere, is transferred into dangerous environment (e.g. explosive atmosphere, underground work), or into places with specific requirements (e.g. in hospitals)

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- if the intended user group for the modified machinery changes, in particular in case of specific machinery for experts (e.g. in laboratories)
- if original machinery is assembled with other machinery to an integrated unit, functioning in this combination as one new whole machine (see Annex pt.2.2 Assembly-"Complex combination"),

In these cases this machinery shall be considered as New Machinery.

The Inspector carries out a check of the Declaration of Conformity and of the Instruction Manual (compliance with the final machinery), of the correct application of CE marking and makes the necessary tests. He issues the "**Inspection Report**" for the complete new (modified) machinery including the safety measures for the particular workplace according to Directive 2009/104/EC.

3. Safety in the workplace

The final task in all cases is to ensure that any modified machinery in the workplace (including the local situation, environment or operating- personnel) is in compliance with the National Regulations implementing the Directive 2009/104/EC (UWED).

The employer is responsible for the safety and the safe use of machinery in the workplace, if modified or not. To ensure conformity and safety according the requirements, the employer has to carry out the final risk assessment for machinery in each workplace, to decide the "Conformity Assessment Procedure" for any modifications and to define all technical and organisational safety measures, taking into consideration also the relevant National Regulations. This includes also choice, qualification and (as relevant) training of operating personnel.

The final **risk assessment according to UWED** needs therefore to include in addition to all modifications and their interfaces with the machinery also the safety measures provided (technical and/or organisational) in the workplace.

This risk assessment may result in the need for "**additional safety measures**", which may include also the duty to take the present "state of the art" into consideration, observing technical development for existing "men/ machinery" conditions and being informed about accidents or near accidents (also outside of the own company) to provide adequate safety measures.

That does not mean that old machinery must be upgraded to the latest standards in each case (this is unrealistic), but supervision of the safety in the workplace is required and improvements to the "state of the art" need to be considered (e.g. by adequate measures using technical and/or organisational means).

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This should be documented and be included in the final Instruction Manual, containing also the residual risks and safety measures.

Inspections of machinery in service according to National Requirements and those of the manufacturers need to take all these aspects into account including compliance with the relevant Directives and the safe use of machinery in the workplace.

Third Party Inspectors from CEOC International may give experienced support to employers for selecting the best approach to achieving compliance.

4. Annex : Procedure for modification

The Annex describes the practical procedure for the modification of machinery in service as stated in this guide:

1. Modifications on a single machine
2. Modifications by assembling machinery

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1. Single Machine

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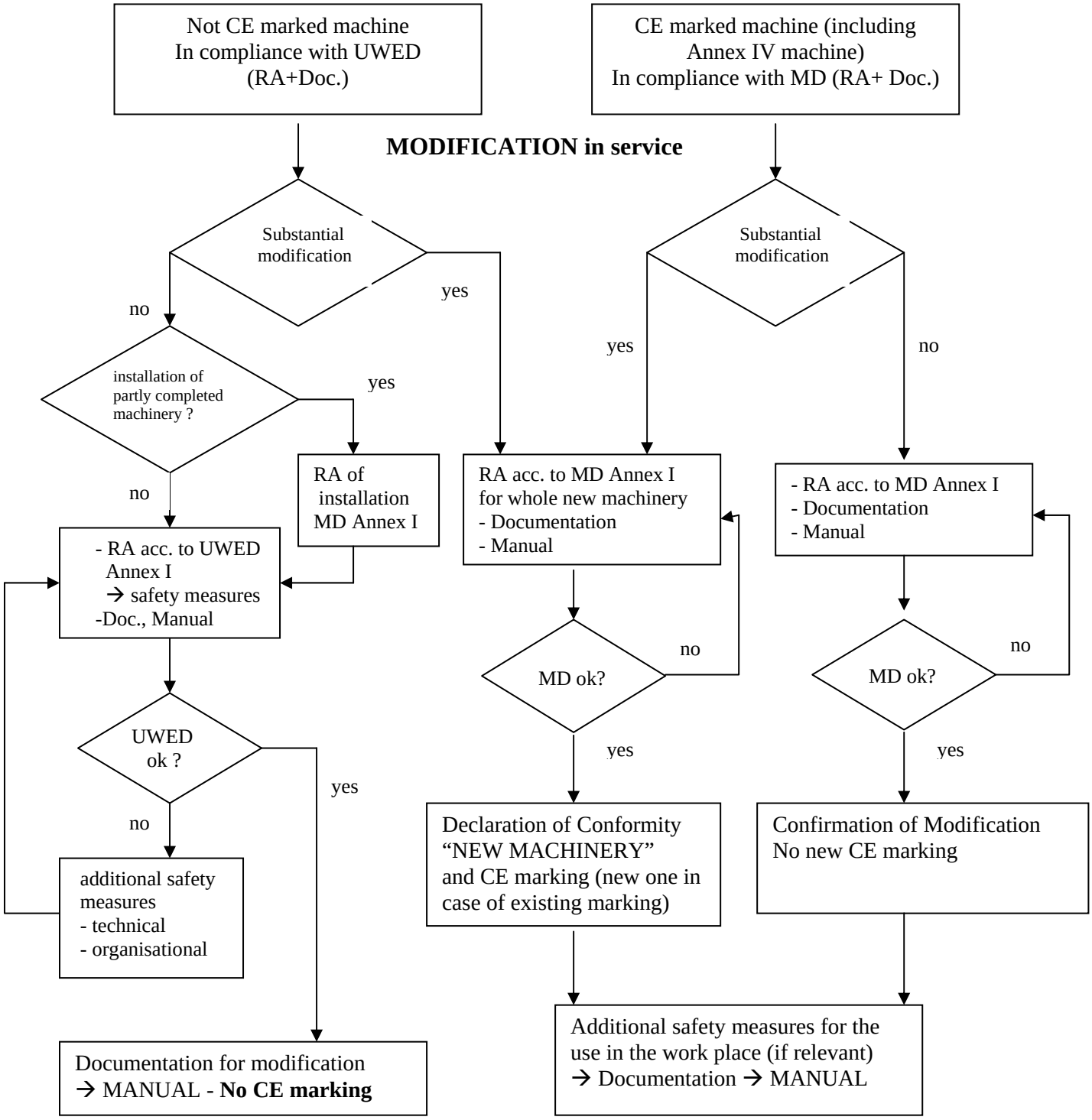

→ **Confirmation of Compliance with the National Regulations in relation to the use in the workplace (Inspection Report**)

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2. An Assembly of Machinery in service or a combined unit which functions as an integral whole

Assemblies can be combinations of old machinery, new (CE marked) machinery and any combination of both.
For all variations of these combinations, consideration should be given to the way this combination is carried out (degree of connection):

2.1 Simple combination:

Each machine works separately with its own control system and energy supply; no direct connection of operations between the combined machines (mostly material transport from one to the next, with buffer zones between – manual operating is still possible)

Risk assessment according to MD to be made for

- the interface between the machines (communication of control systems, buffer zones, access protection etc.)
- any modifications made on the machinery used for the combination (*see Modifications pt 1.- Single Machine*)
- new components used in the assembly

Risk assessment according to National Regulations (Dir.2009/104/EC, implemented in National Legislation) need to be carried out for the whole assembly.

Documentation and Instruction for use need to be provided, containing

- the risk assessments for the combined machines, the interfaces and the whole assembly
- the residual risks and the safety measures taken (technical and/or organisational)

No CE marking for the whole assembly (single CE markings remain valid under the provisions of pt 1.- single machine).

2.2 Complex combination:

All combined machines are integrated in the process by a common control system; they become “components” of the whole assembly (mostly automatic operation without manual handling, continuous material flow supervised by the control system).

Conformity assessment according to the MD is to be made for the whole assembly

- considering the assembly as a “new machine”
- providing all documentation for the whole assembly
- considering addition National Regulations (for installation, environment, etc.)

CE marking and Declaration of Conformity for the whole assembly are necessary.

The borderline between “simple” and “complex” combination is not always easy to define and may need – as a result of a comprehensive Risk Assessment – support from experts (e.g. by Inspection Bodies).

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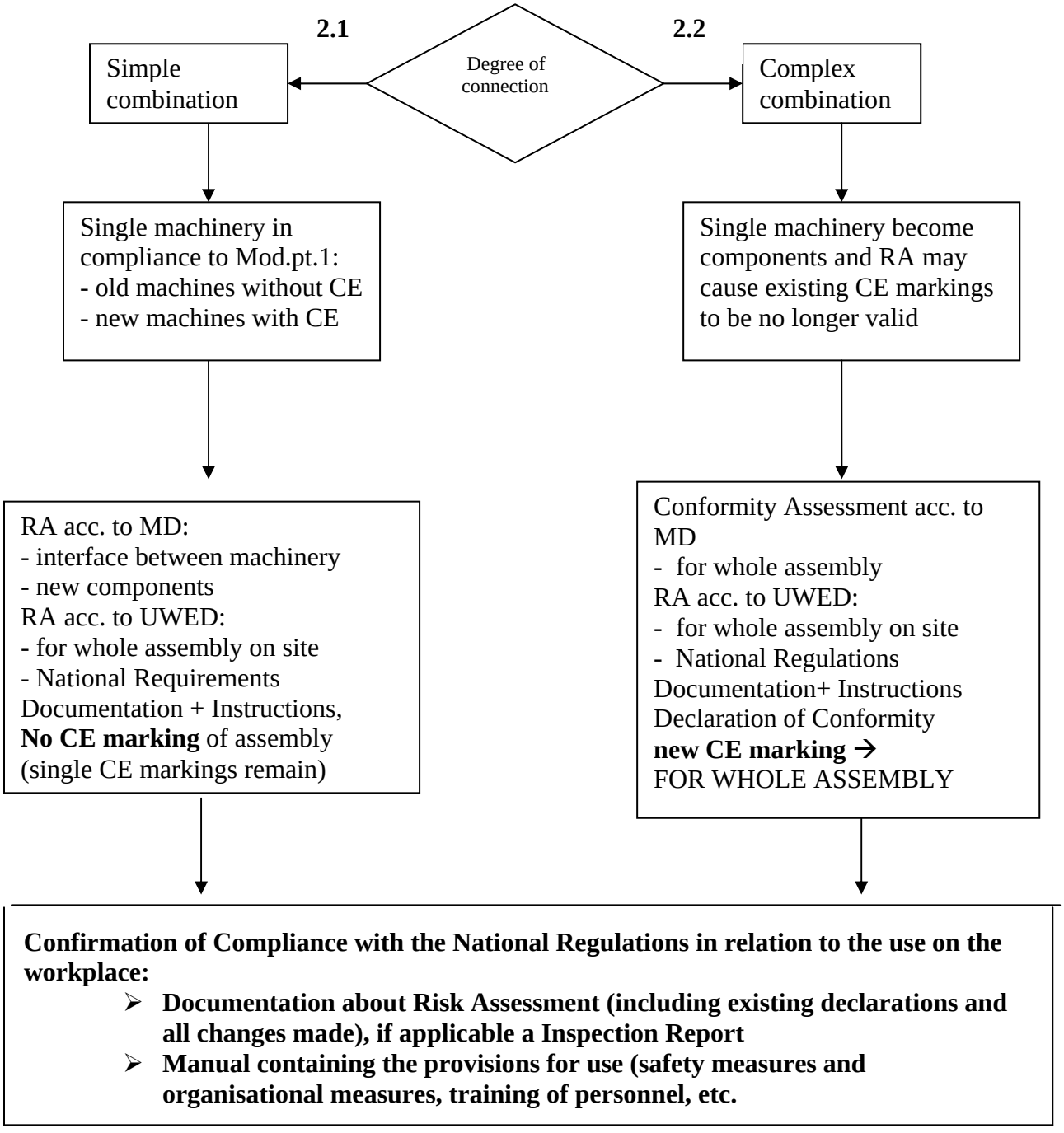
2. An Assembly of Machinery in service



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