RECENT DEVELOPMENT IN SALW MANUFACTURING, TECHNOLOGY AND DESIGN.
PRACTICAL STEP TO ENSURE THE EFFECTIVENESS OF THE MARKING & RECORD KEEPING.

Working paper by Austria, Belgium & Germany
UN ‘s requirements on marking and tracing

Reference:

• Firearms Protocol requests:
  - The name of manufacturer
  - The country or place of manufacturing
  - A serial number

• ITI requests:
  - The name of manufacturer
  - The country or place of manufacturing
  - A serial number
  + if possible
  - Year of manufacture, weapon type/model and caliber
  + import marking:
    - The country of import
    - If possible the year of import
Recent and future (potential) development in military SALW

• Main evolutions for military weapons:
  ✓ Material
  ✓ Architecture/ Concept & design

Context:
• Interoperability is one of the key requests for the military firearms (for 1 model, all different parts must fit on all firearms ➔ parts& components are not dedicated to a unique firearm)
• A model or parts/kits for a model could be manufactured by different manufacturers
• **Material:** Until 1980: mainly steel (+ wood for buttstock, handgrip, ...); After 80’s: steel, aluminum, plastics, technical plastics, composite parts.

**Impact of new materials on marking and tracing**

• Current marking technologies still available with minor modifications (ex: laser engraving: ex: CO$_2$ laser for plastics part; Nd:YAG laser for metallic parts).

• To improve recoverability level with plastic parts, metallic inserts can be added. Location and size will depend of the design and must be decided by the manufacturer (technical limitations).
• **Design/concept:**

  ✓ Until 2005: 1 model = 1 caliber, 1 design, 1 configuration

  ✓ “New” approaches:
    - Family approach: 1 model available in different calibers.
    - Common receiver approach: 1 firearm = different calibers. Could be adapted on the field

How to ensure an efficient tracing?
Family approach

Key concern: they look alike ➔ how to prevent confusion?
Impact of new concepts/design on marking and tracing

- Family approach: Main issue: risk of confusion between the different family members ➔ tracing issues

  ➔ just add a alphanumeric code to more clearly identify the caliber to facilitate tracing (H: 7,62mm or L: 5,56mm) or the caliber
Common receiver approach: MG Minimi Mk3

& FN MINIMI® 7,62 Mk3

Kit 5,56 mm:
- Barrel assembly (Short or Long)
- Feed cover and rear sight group
- Ejector
- Cocking handle assembly
- Slide assembly
- Bolt assembly

FN MINIMI® 5,56 Mk3
• Rifle common receiver:

By definition receiver is the core component that can be not changed, adding the caliber will improve the tracing efficiency

✓ How to deal with the kit: (vs interchangeability approach)
  • Barrel: could be marked but is considered as a spare part
  • Lower receiver: the best way to identify the real caliber configuration to enhance tracing
  • Bolt
  • Fire pin
  • Magazine
  • Deflector
• Machine gun common receiver:
  ✓ Same receiver ➔ serial number, name on manufacturer, country of manufacturing on the receiver: OK
  ✓ Common receiver for both calibers
  ✓ How to deal with the kit: (vs interchangeability approach)
    • Barrel assembly
    • Feed cover and rear sight group
    • Ejector
    • Cocking handle assembly
    • Slide assembly
    • Bolt assembly
    ➔ only visible part for caliber identification = the barrel. (also on feed cover for safety reasons)

Adding other serial numbers on other parts will increase the risk of confusion because due to the interoperability approach, it is impossible to have the same serial numbers on the different parts.
Recommendations:

1. As kits or other components could be manufactured by other manufacturers than the original one and as same model could be also produced after a certain period by other manufacturers it is important that it is up to the **original manufacturer** to indicate which part of the split receiver is **the core component** and should thus be considered like this by everyone.
Recommendations:

2. To prevent confusion with other marks put on other components (coming later from an other manufacturers) or kits (that has been acquired later and sometimes from an other manufacturers), **it is strongly recommended to indicate the modular nature of the weapon.** To this end, the core component chosen by the original manufacturer should be **additionally marked with a sign** (for example (1)) that clearly indicated that this is the mark that must be use for the tracing. Non core part such as an other barrel could be marked with an other sign ((2) for example.