



NORWEGIAN DEFENCE
MATERIEL AGENCY

MILITARY AIRWORTHINESS AUTHORITY – NORWAY

Telephone: +47 971 99 505

E-mail: maa-nor@mil.no

Web: www.maanor.no

Mail to be registered:
Forsvarsmateriell Luftkapasiteter
Postboks 800, Postmottak
2617 Lillehammer
Norway
E-mail: maa-nor@mil.no

MAIB-NOR 25/01 08 JAN

The difference between Line Maintenance and Base Maintenance

This MAIB-NOR supersedes MAIB-NOR 21/05 19 OCT.

This revision improves the language and adds details with specific examples.

Line maintenance is defined in EMAD 1 as 'maintenance carried out before flight to ensure that the aircraft is fit for the intended flight.' Additionally, EMAR 66 AMC & GM, GM 66.A.20(a) provides further details on what may be included in line maintenance.

Base maintenance is defined in EMAD 1 as 'maintenance tasks falling outside the criteria for line maintenance.'

The definitions provided above are relatively broad in scope; therefore, additional considerations should be made regarding aircraft types and the capacities of the maintenance organisation. However, this provides organisations with the flexibility to tailor maintenance operations to their specific needs, while remaining compliant with EMARs.

It is MAA-NOR's opinion that **line maintenance** refers to limited maintenance for the aircraft suitable to be carried out whilst the aircraft remains in or near the operational environment. This may include:

- Daily routine tests and checks, fluid uplifts and other light interventions.
- Troubleshooting and defect rectifications prior to flight.
- Part replacements, with the use of external test equipment if required. As an example, engines and propellers may be included in this category, as they could be "line-replaceable components" by design.
- Repairs and modifications by simple means, not requiring extensive disassembly of the aircraft.
- Maintenance that will detect other obvious unsatisfactory conditions without requiring extensive in-depth inspection. But may include internal structure, systems and powerplant items visible through access panels.

Line maintenance events are generally carried out within reasonable time, with the number of maintenance personnel involved limited to what an unsupported B1/B2 Certifying Staff can safely manage.

MAA-NOR's opinion is that **base maintenance** is any other maintenance than line maintenance, which implies examples not limited to:

- Performing extensive disassembly and/or replacement of major components.
- Managing complex modifications, inspections and repairs, both scheduled and unscheduled.
- Extended duration of maintenance, potentially spanning weeks or months.
- Using specialized facilities and equipment to support heavy maintenance tasks and component overhauls.
- Multiple simple or complex tasks in combination, even if they individually tend towards a "line" type task.



MILITARY AIRWORTHINESS AUTHORITY – NORWAY

MAIB-NOR 25/01 08 JAN

- Utilizing multiple disciplines (NDT, avionics, structures, weapons personnel etc.), including:
 - B1/B2 Support Staff ensuring supervision and execution of individual maintenance tasks.
 - Cat. "C" Certifying Staff overseeing progression and document compliance throughout the maintenance event, leading up to CRS.

This hierarchy ensures safe, transparent and efficient management of a substantial workforce, when conducting comprehensive maintenance operations.

Considering the elements mentioned above, it is also essential to recognize that a line maintenance activity can, during execution, evolve into a base maintenance event.

To assist the regulated community in aligning with the intention of Appendix V, AMC 145.A.70 chapter 2.28, it is MAA-NORs recommendation that:

Organisations maintaining aircraft should have a procedure to determine whether the tasks or groups of tasks to be carried out, will fall under the line maintenance or base maintenance scope of the organisation, with due regard to the expected duration of the maintenance, number and type of tasks, shifts and disciplines involved, work environment, etc.

When an organisation applies for EMAR 145 approval, it should clearly define its scope in the application, specifying whether it includes line, base, engine, or component maintenance. Before applying, the organisation should also assess its internal capabilities to ensure they meet the requirements for the specific maintenance category being pursued.

The EMAR 145 approval will then specify the categories that the AMO is authorized to undertake. Subsequently, the specific maintenance activities that the AMO is obligated to perform will be outlined in a contractual agreement with the CAMO, limited to the approved scope detailed in the MOE.