CLAIMS

1. A system for prescribing maintenance of helicopter engines belonging to the same engine class and formed by elements that vary over time depending on the technical condition thereof, the standard replacement of parts between engines, and the replacement of parts with different parts, comprising:

- a centralized database storing operational data relating to:
  - working condition, describing the history of one or more working condition indicators of each of the engines,
  - possible modifications and authorized modifications of the engines;
  - the definition of maintenance plans for the engines according to predetermined values of the working condition indicator(s);
  - the description of the probable causes of unscheduled events according to the data relating to possible and authorized modifications and the working condition data;
  - maintenance applied, describing the history of maintenance operations applied to each of the engines; and
  - instantiated configurations, describing the history of the configuration modifications applied to each of the engines; and
- means for acquiring the working condition indicator(s) of each of the engines and for updating the working condition data depending on the acquired value of the indicator(s) of each engine;
- means for identifying a maintenance operation to be applied to each of the engines depending on the operational data in the database;
- means for generating a continuous alarm for each identified maintenance operation to be performed;
- means for ~~the~~ digitally-signed updating of the applied maintenance data and the instantiated configuration data according to each maintenance operation applied to each of the engines; and
- means for deactivating an activated alarm if at least the digitally-signed update of the data resulting from the identified applied maintenance operation associated with the alarm is carried out.

2. The system of claim 1, wherein the means for identifying the maintenance operation to be applied comprise:

- means for identifying a condition for triggering a maintenance operation by comparing working condition data of each engine with a time signature base of the centralized database, characteristic of events triggering a maintenance operation;
- means for analyzing the data relating to maintenances applied and instantiated configurations according to the possible and authorized engine modification data and to the working condition data to identify whether one or several maintenance operations applied prior to the occurrence of the triggering condition may have influenced the occurrence thereof; and
- means for transmitting information relative to the identified maintenance operation to be applied and the identified maintenance operation(s) applied.

3. The system of claim 1 or 2, wherein the identification means to be applied comprise:

- means for identifying a condition for triggering a maintenance operation by comparing working condition data of each engine with a time signature base of the centralized database, characteristic of events triggering a maintenance operation;
- means for solving unscheduled events, triggered when the identified triggering condition is characteristic of an unscheduled event, and identifying possible causes of the unscheduled event according to the applied maintenance operation data, to the instantiated configuration data, to the working condition data, and to the data relating to the description of probable causes, and to the data relative to authorized configuration modifications; and
- means for transmitting information relative to the identified probable causes.

4. The system of claim 3, comprising means of digitally-signed update of data describing probable causes of unscheduled events according to the causes identified for each unscheduled event and wherein the deactivation means are capable of deactivating an alarm associated with an unscheduled event if the data describing probable causes of unscheduled events are updated according to the identified cause of the event.

5. The system of any of the foregoing claims, comprising tendency analysis means capable of analyzing the engine working condition data and of modifying the maintenance plan definition data according to said analysis.

6. A method of prescribing maintenance of helicopter engines belonging to the same engine class and formed by elements that vary over time depending on the technical condition thereof, the standard replacement of parts between engines, and the replacement of parts with different parts, comprising:

- storing operational data relating to:
  - working condition, describing the history of one or more working condition indicators of each of the engines,
  - possible modifications and authorized modifications of the engines;
  - the definition of maintenance plans for the engines according to predetermined values of the working condition indicator(s);
  - the description of the probable causes of unscheduled events according to the data relating to possible and authorized modifications and to the working condition data;
  - maintenance applied, describing the nature and history of maintenance operations applied to each of the engines;
  - instantiated configurations, describing the nature and the history of the configuration modifications applied to each of the engines; and
- acquiring the working condition indicator(s) of each of the engines and updating the working condition data depending on the acquired value of the indicator(s) of each engine;
- identifying a maintenance operation to be applied to each of the engines depending on the operational data in the database;
- generating a continuous alarm for each identified maintenance operation to be performed;
- updating with digital signature the applied maintenance data and the instantiated configuration data according to each maintenance operation applied to each of the engines; and
- deactivating an activated alarm if at least the digitally-signed update of the data resulting from the identified applied maintenance operation associated with the alarm is carried out.

- maintenance procedure data describing a maintenance procedure for each maintenance plan according to the possible and authorized configurations on the engine class;
- ~~means for~~ identifying a maintenance plan to be carried out or a failure to be repaired on each of the engines according to the value of the working condition indicators and to the definition data;
- ~~means of~~ description of a maintenance procedure according to the data of the identified maintenance operation and to the instantiated configuration data.