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| **Storage information** |
| **KDI-TCP 3404E5 Workshop Manual (Rev. 01.1)** |



Sommario

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# Storage information

## Product preservation

   **Important**

* If the engines are not to be used for 6 months, they must be protected by carrying out the operations described in Engine storage (up to 6 months) [**(Par. 4.2)**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=117&parent=1273) .
* If the engine is still not in use after the first 6 months, it is necessary to carry out a further procedure to extend the protection period (more than 6 months) [**(Par. 4.3)**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=551&parent=1273) .
* If the engine is not to be used for an extended period, the protective treatment procedure must be repeated within 24 months of the previous one.

## Engine storage (up to 6 months)

**Before storing the engine check that:**

* The environments are not humid or exposed to bad weather. Cover the engine with a proper protective sheet against dampness and atmospheric contaminants.
* The place is not near electric panel.
* Avoid storing the engine in direct contact with the ground.

## Engine storage (over 6 months)

**Follow the steps described in** [**Par. 4.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=117&parent=1273) **.**

1. Pour protective oil in the carter up to the MAX level.
2. Refuel with fuel additives for long storage.
3. With expansion tank:
make sure that the coolant is up to the **maximum** level.
4. Without expansion tank: Top liquid up until the pipes inside the radiator are covered by about 5 mm.

Do not overfill the radiator, but leave room for the fuel to expand.

1. Start the engine and run it at idle speed for around 2 minutes.
2. Bring the engine to 75% of **maximum** rated speed for 5 to 10 minutes.
3. Turn off the engine.
4. Empty out completely the fuel tank.
5. Spray SAE 10W-40 on the exhaust and intake manifolds.
6. Seal the exhaust and intake ducts to prevent foreign bodies from entering.
7. When cleaning the engine, if using a pressure washer or steam cleaning device, avoid directing the nozzle on electrical components, cable connections and sealed rings (oil seals etc).
If cleaning engine with a pressure washer or steam cleaner, it is important to maintain a minimum distance of at least 200mm between the surface to be washed and the nozzle - avoiding absolutely electrical components such as alternators, starter motors and engine control units (ECU).
8. Treat non-painted parts with protective products.
9. Loosen the alternator belt  [**Par. 6.5.1 point 1 and 2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=584&parent=1273) .

If the engine protection is performed according to the suggestions indicated no corrosion damage will be found.

## Engine starting after storage

1. Remove the protective sheet.
2. Use a cloth soaked in degreasing product to remove the protective treatment from the external parts.
3. Inject lubricating oil (no more than 2 cm3) into the intake ducts.
4. Adjust the alternator belt tension ( [**Par. 6.5.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=584&parent=1273) ) or replace if there are signs of deterioration.
5. Refill the tank with fresh fuel.

 **Warning**

* Over time, lubricants and filters lose their properties, so itis important to consider whether they need replacing, also based on the criteria described in [**Tab. 2.9**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=635&parent=1273) .

1. Make sure that the oil and the coolant are up to the **maximum** level.
2. Start the engine and run it at idle speed for around 2 minutes.
3. Bring the engine to 75% of **maximum** rated speed for 5 to 10 minutes.
4. Stop the engine and while the oil still hot, perform the operation in [**Par. 5.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=554&parent=1273) .
5. Replace the filters (air, oil, fuel) with original spare parts.
6. Perform the operations described in [**Par. 10.1**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=555&parent=1273) .
7. Perform the operations described in  [**Par. 5.1**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=553&parent=1273) and [**Par. 10.2**](https://iservice.lombardini.it/jsp/Template2/manuale.jsp?id=556&parent=1273) .

## Unused machine

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| If the machine is not used for a certain amount of time, follow the operations below:**4.5.1 Operations for TCR versions**  **Tab 4.1**

|  |  |  |
| --- | --- | --- |
| **POINT** | **PERIOD** | **OPERATION** |
| **1** | up to 2 months | * The place must be dry and fresh throughout the period in which the machine is not used.
* Consult the machine’s manual to disconnect the battery (before disconnecting the battery, wait for minimum 5 mins after turning off the engine).
* Make sure the engine is not exposed to direct sunlight.
* Make sure the engine is not near any heat sources.
 |
| **1a** | Start-up after 2 months | * Before starting the engine, check Para. 2.8 for maintenance operations.
* Consult the machine’s manual to connect the battery and start the engine.
 |
| **2** | Fino a 9 mesi | * Perform the operations described in point 1.
* Perform the operations described in Para. 12.4 and 12.5.
* Start the engine at least every 4 months as per operations described in point 1a:
* Avoid sudden accelerations for the first few minutes.
* Bring the engine to the working temperature by pressing the accelerator 3/4 from MAX.
* Leave the engine running at minimum speed for a few minutes and turning off the engine.
 |
| **2a** | Start-up after 9 months | * Before starting the engine, check Para. 2.8 for maintenance operations.
* Consult the machine’s manual to connect the battery and start the engine.
* Avoid sudden accelerations for the first few minutes.
 |
| **3** | over 9 months | * Perform the operations described in point 1 and 2.
 |
| **3a** | Start-up after 9+ months | * Before starting the engine, check Para. 2.8 for maintenance operations.
* Check the quality of coolant from the relative testing strips.
* Consult the machine’s manual to connect the battery and start the engine.
* Avoid sudden accelerations for the first few minutes.
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| **4.5.2 Operations for TCR-SCR versions**  **Tab 4.2**

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| **POINT** | **PERIOD** | **OPERATION** |
| **1** | up to 2 months | * Perform the operations described in point 1 of Tab. 4.1
* Fill the DEF tank with DEF to the MAX level
* The ambient temperature must be kept between -40 and 40 °C
* Do not disconnect any electrical or hydraulic connections
 |
| **1a** | Start-up after 2 months | * Before starting the engine, check Para. 2.8 for maintenance operations.
* Consult the machine’s manual to connect the battery and start the engine.
 |
| **2** | up to 9 months | * Perform the operations described in point 2 in Tab. 4.1
* Fill the DEF tank with DEF to the MAX level
* The ambient temperature must be kept between -40 and 25 °C
* Do not disconnect any electrical or hydraulic connections
 |
| **2a** | Start-up after 9 months | * Before starting the engine, check Para. 2.8 for maintenance operations
* Consult the machine’s manual to connect the battery and start the engine.
 |
| **3** | over 9 months | * Perform the operations described in point 3 of Tab. 4.1
* Fill the DEF tank with DEF to the MAX level
* The ambient temperature must be kept between -40 and 25 °C
* Do not disconnect any electrical or hydraulic connections
 |
| **3a** | Start-up after 9+ months | Before starting the vehicle, proceed as follows: * Replace the DEF in the tank (consult the machine’s manual)
* Replace the DEF filter (Par. 6.10)
* Check Par. 2.8 for maintenance frequency.
* Consult the machine’s manual to connect the battery.
* Start the engine. If faults are detected when starting the engine or during operation, turn off the engine and wait 5 mins before starting the engine.
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