TEN00606-07

Operation & Maintenance Manual

BULLDOZER

D37EX-23 D37PX-23
D39EX-23 D39PX-23

SERIAL NUMBERS D37-80001 and up
D39-90001

WARNING

Unsafe use of this machine may cause serious injury or death. Operators and maintenance personnel must read this manual before operating or maintaining this machine. This manual should be kept near the machine for reference and periodically reviewed by all personnel who will come into contact with it.

NOTICE

Komatsu has Operation & Maintenance Manuals written in some other languages. If a foreign language manual is necessary, contact your local distributor for availability.

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OPERATIONS AND CHECKS AFTER STARTING ENGINE (D65-0000-133-K-00-A)

⚠ WARNING

- **If there has been any Emergency stop, abnormal actuation or trouble, turn the starting switch key to OFF position.**
- **If the work equipment is operated without sufficiently warming the machine up, response of the work equipment to movement of the control lever will be slow, and the work equipment may not respond as the operator desires, so always perform the warming-up operation. Particularly in a cold weather, be sure the warming-up operation is completed.**

CHECK ENGINE STARTABILITY AND ABNORMAL NOISE (PC-0000-134-K-00-A)

When starting the engine, check that the engine causes no abnormal noise and that it starts up easily and smoothly.
Check also that there is no abnormal noise when the engine is idling or when the engine speed rises slightly.

- When there is an abnormal noise at the engine startup and if that condition continues, the engine may be damaged. In that case, ask your Komatsu distributor to check the engine as soon as possible.

CHECK LOW-SPEED RUN AND ACCELERATION OF ENGINE (D37-0000-137-K-00-A)

When stopping the machine during normal operation, check that there is no irregular engine revolution or that the engine does not stop suddenly.
Check also that the engine speed increases smoothly when the fuel control dial is turned to the full (Max).

- Carry out these checks in a safe place, watching out for danger in the surroundings.
- When the engine performs very badly at low idle and in the acceleration and if that condition continues, the engine may be damaged or confuse the operator's sense of driving or lower the braking efficiency, and as a result an unexpected accident may result. In that case, ask your Komatsu distributor to check the engine as soon as possible.

REMARK

- The smell of the exhaust gas is different from that of the conventional diesel engine because of the exhaust gas purification function.
- White smoke may be discharged for a short time just after the engine is started in the cold season, but this is not trouble.

BREAK-IN THE NEW MACHINE (PC-0000-138-K-00-A)

NOTICE

Your Komatsu machine has been thoroughly adjusted and tested before shipment from the factory. However, operating the machine under full load before breaking in the machine may adversely affect the performance and shorten the machine life.
Be sure to break in the machine for the initial 100 hours (as indicated on the service meter).

Make sure that you fully understand the descriptions in this manual, and pay attention to the following points when breaking in the machine.

- Run the engine at idle for 15 seconds after starting it. During this time, do not operate the control levers or fuel control dial.
- Warm up the engine for 5 minutes after starting it up.
- Avoid operation with heavy loads or at high speeds.
- Immediately after starting the engine, avoid sudden starts, sudden acceleration, unnecessary sudden stops, and sudden changes in direction of the machine.

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COLD WEATHER OPERATION (ALL-0000-265-K-00-A)

COLD WEATHER OPERATION INFORMATION (ALL-0000-265-K-01-A)

If the temperature becomes low, it becomes difficult to start the engine, and the coolant may freeze, so do as follows.

FUEL AND LUBRICANTS (D37-RA19-265-K-00-A)

Change fuel and oil with the ones of low viscosity for all components.
For the details of specified viscosity, see "RECOMMENDED FUEL, COOLANT, AND LUBRICANT (PAGE 7-6) ".

COOLANT (D37-B210-265-K-00-A)

⚠ WARNING

- **Coolant is toxic. Be careful not to get it into your eyes or on your skin. If it should get into your eyes or on your skin, wash it off with large amount of fresh water and see a doctor immediately.**
- **When handling the coolant containing coolant that has been drained during changing the coolant or repair of radiator, please contact your Komatsu distributor or request a qualified company to carry out the operation. Coolant is toxic, so never pour it into ditches or drain it onto the ground surface.**

NOTICE
Komatsu recommends using Non-Amine Engine Coolant (AF-NAC) for the coolant.

Non-Amine Engine Coolant (AF-NAC) is already diluted with distilled water, so it is not flammable.
For details of the density of the Non-Amine Engine Coolant (AF-NAC) and the interval for changing the coolant, see "CLEAN INSIDE OF COOLING SYSTEM (PAGE 4-21) ".

BATTERY (ALL-AW10-265-K-00-A)

⚠ WARNING

- **The battery generates flammable hydrogen gas. Do not bring open flame near the battery.**
- **Battery electrolyte is dangerous object. If it gets in your eyes or on your skin, wash it off with a large amount of water and consult a doctor.**
- **Battery electrolyte dissolves paint. If it gets on the bodywork, wash it off immediately with water.**
- **If the battery electrolyte is frozen, do not charge the battery or start the engine with a different power source. There is danger that the battery may explode.**
- **Battery electrolyte is toxic. Do not let it flow into drainage ditches or spray it on to the ground surface.**

When the ambient temperature drops, the capacity of the battery will also drop. If the battery charging rate is low, the battery electrolyte may freeze. Maintain the battery charging rate as close as possible to 100%. Insulate it against cold temperature to ensure the machine can be started easily the next morning.

REMARK
Measure the gravity of the electrolyte and calculate the charging rate from the following conversion table.

Electrolyte Temperature Charging Rate (%)	20°C (68°F)	0°C (32°F)	-10°C (14°F)	-20°C (-4°F)
100	1.28	1.29	1.30	1.31
90	1.26	1.27	1.28	1.29
80	1.24	1.25	1.26	1.27
75	1.23	1.24	1.25	1.26

- As the battery capacity drastically drops in low temperatures, cover or remove the battery from the machine, store the battery in a warm place, and install it again the next morning.
- If the electrolyte level is low, add distilled water (such as a commercial battery fluid) in the morning before beginning work. Do not add water after the day's work to prevent diluted electrolyte in the battery from freezing during the night.

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RULES FOR MAINTENANCE (ALL-0000-2A4-K-00-A)

Do not perform any inspection and maintenance operation that are not found in this manual.

SERVICE METER READING (ALL-Q1M0-280-K-00-A)

Check the service meter reading every day to see if the time has come for any necessary maintenance to be performed.

KOMATSU GENUINE REPLACEMENT PARTS (ALL-0000-203-K-00-A)

Komatsu recommends using Komatsu genuine parts specified in the Parts Book as replacement parts.

KOMATSU GENUINE LUBRICANTS (ALL-0000-201-K-00-A)

For lubrication of the machine, Komatsu recommends using the Komatsu genuine lubricants. Moreover use oil of the specified viscosity according to the ambient temperature.

ALWAYS USE CLEAN WASHER FLUID (ALL-K7B3-200-K-00-A)

Use automobile window washer fluid, and be careful not to let any dirt get into it.

FRESH AND CLEAN LUBRICANTS (ALL-RA1A-2A4-K-00-A)

Use clean oil and grease. Also, keep the containers of the oil and grease clean. Keep foreign materials away from oil and grease.

CHECK DRAINED OIL AND USED FILTER (ALL-C940-2A4-P-01-A)

After oil is changed or filters are replaced, check the old oil and filters for metal particles and foreign materials. If large quantity of metal particles or foreign materials are found, always report to the person in charge, and perform suitable action.

CAUTION FOR REFILLING OIL OR FUEL (ALL-0000-21E-K-00-A)

If your machine is equipped with a strainer, do not remove it while filling oil or fuel.

WELDING INSTRUCTIONS (PC-0000-628-K-00-A)

- When conducting weld repair, turn the starting switch to OFF position and, after confirming that the system operating lamp is turned off, set the battery disconnect switch key to OFF position and pull it out.
- Do not apply more than 200 V continuously.
- Connect grounding cable within 1 m (3.3 ft) of the area to be welded. If grounding cable is connected near instruments, connectors, etc., the instruments may malfunction. If grounding cable is connected near instruments, connectors, etc., the instruments may malfunction.
- Prevent seals, bearings or bushings from entering the space between the weld zone and grounding point. Seals and the like can cause damage to the nearby parts by catching fire from sparks.
- Do not use the area around the work equipment pins or the hydraulic cylinders as the grounding point. Sparks generated there can damage the plated portion.

DO NOT DROP THINGS INSIDE MACHINE (ALL-0000-20G-K-00-A)

- When opening the inspection windows or the oil filler port of the tank to perform inspection, be careful not to drop nuts, bolts, or tools inside the machine.
  If such things are dropped inside the machine, it may cause damage and/or malfunction of the machine, and will lead to failure. If you drop anything inside the machine, always remove it immediately.
- Do not put unnecessary things in your pockets. Carry only things which are necessary for inspection.

DUSTY JOBSITES (ALL-0000-20H-K-00-A)

When working at dusty jobsites, do as follows:

- Clean the radiator fins and other parts of the heat exchange equipment more frequently, and take care not to let the fins become clogged.
- Replace the fuel filter more frequently.
- Clean electrical components, especially the starting motor and alternator, to avoid accumulation of dust.

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