GENERAL MANDATORY SAFETY INSTRUCTIONS

Do not operate TORO equipment until you have read these essential instructions.

SANDVIK TAMROCK Corp., TORO Loaders Division
P.O.Box 434, 20101 TURKU, Finland
Tel. +358 205 44 131, Telefax +358 205 44 130
toro@sandvik.com, www.toro.sandvik.com

SANDVIK TAMROCK Corp., TORO Loaders Division
P.O.Box 434, 20101 TURKU, Finland
Tel. +358 205 44 131, Telefax +358 205 44 130
toro@sandvik.com, www.toro.sandvik.com

CONTENTS

SANDVIK TAMROCK Corp., TORO Loaders Division
P.O.Box 434, 20101 TURKU, Finland
Tel. +358 205 44 131, Telefax +358 205 44 130
toro@sandvik.com, www.toro.sandvik.com

1. PREFACE

The purpose of these safety instructions is

- to promote safe, proper, and economical use of SANDVIK TAMROCK equipment,
- to help the user to notice, avoid, and prevent dangerous situations,
- to minimize repair costs and downtime, and
- to increase the reliability and life of the equipment.

These safety instructions must be complimented with instructions given in local laws and regulations, and with orders given by local authorities.

The manufacturer provides a complete set of user and service manuals with the equipment. The user manuals must always be at hand where the equipment is used. The manufacturer or their representative can also issue additional inspection and service instructions.

Every user of the equipment must read these general safety instructions, and the user manuals, and apply the information therein when, for instance,

- **Using the equipment,** preparing for work, troubleshooting, cleaning, handling raw materials and other materials.
- **Servicing,** checking, and repairing the equipment.
- **Transporting the equipment.**

Proper use, and the following of user and maintenance instructions, and check-up and maintenance regulations are very important for the safe use of the equipment. Using the equipment for other purposes than those it is designed for, or exceeding the specified performance of the equipment, is considered improper use. The manufacturer or the supplier is not liable for damage or liability caused by improper use.

Making any structural alterations on the equipment is strictly forbidden without a written permission from the manufacturer. The manufacturer or the supplier is not liable for damage caused by the use of equipment on which unauthorized structural alterations have been made.

SANDVIK TAMROCK Corp., TORO Loaders Division
P.O.Box 434, 20101 TURKU, Finland
Tel. +358 205 44 131, Telefax +358 205 44 130
toro@sandvik.com, www.toro.sandvik.com

2. WARNING LABELS AND WARNING INSTRUCTIONS

These instructions describe the manner in which Sandvik Tamrock Corp., TORO loaders presents warnings in instructions. The designing of warning texts aim at unifying the contents of the texts in different groups of equipment.

2.1. Read the user or maintenance instructions

Do not use the equipment unless you have been given proper training. Read the operating instructions before using the equipment. The operator must know the operating, maintenance, and safety instructions of the equipment, as well as the local safety instructions of the mine, before using the equipment.

2.2. Warning labels on the equipment

All the main warning labels on the device will be presented in the instructions chapter dealing with the warning labels.

DANGER
Immediate danger related to a feature of the device, causing serious injury or death if the proper safety precautions are not taken.

WARNING

A dangerous or unsafe manner of operation that may cause serious injury or death if the proper safety precautions are not taken.

2.3. Warning of injury risks

These warnings are designed to instruct the operator.

A dangerous or unsafe manner of operation that may cause death or serious injury if the proper safety precautions are not taken.

Hazardous bucket motion. Can cause bodily injury. Secure bucket before servicing hydraulic system.

2.4. Warning of damage to equipment or property

These warnings are designed to instruct the operator how to use the equipment so that material damage can be avoided.

Risk of damage. Welding current can damage electric devices and circuit boards. Disconnect the battery terminals and circuit boards before welding the equipment.

SANDVIK TAMROCK Corp., TORO Loaders Division
P.O.Box 434, 20101 TURKU, Finland
Tel. +358 205 44 131, Telefax +358 205 44 130
toro@sandvik.com, www.toro.sandvik.com

3. EMPLOYER'S / PRINCIPAL'S RESPONSIBILITIES

3.1. Personnel

- Use and repair of the equipment is only allowed to persons trained for these tasks.
- Only authorized persons are allowed to operate the equipment. Many accidents result from inadequate training. If you have not ensured that your operator is properly trained you are risking serious injury or death.
- The operators must be acquainted with the instruction manuals issued by the manufacturer, and with the properties of the equipment.

3.2. Working environment

These instructions must be complemented as required by local laws and other regulations, and by requirements issued by authorities, in order to prevent personal safety hazards and damage to property.

- Special attention must be paid to keep the equipment, lifting devices, auxiliary equipment, tools, safety devices, travel areas, and mining sites in proper condition.

3.3. Maintenance

- To keep the equipment in safe working condition, original OEM spare parts must be used in conjunction with service and repairs.
- Any alterations made on the equipment must be accepted by the manufacturer in writing.

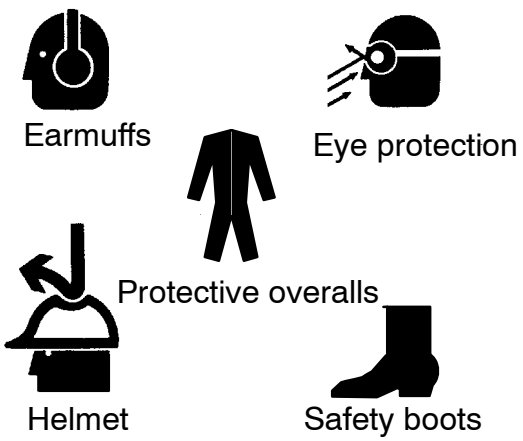
4. OPERATOR'S PERSONAL QUALITIES

The operator must be given user and service training. He must acquaint himself with the instruction manuals issued by the manufacturer, and know the specified performance and properties of the equipment he is using.

5. OPERATOR'S RESPONSIBILITIES

Accidents at work often happen in unexpected situations. Therefore, it is important to try to consider all possible, even unlikely, situations that may occur in each phase of work.

Safety devices



– The operator must always wear the safety devices, such as helmet, earmuffs, eye protection, protective overalls, safety boots, and other safety devices required in the work or as stated in the regulations.

- All safety regulations must be observed.
- Always follow user and service instructions.
- Do not use ANY equipment, unless you are FULLY ACQUAINTED with its operation.

- The user must always know the operation of the equipment and all its controls.
- Safety systems are never to be bypassed or removed to make work easier. The equipment must never be started or operated, if any safety devices or protective guards are removed.
- Before starting or operating the equipment, the operator must make sure that it causes no risk of personal or material damage. This means check all safety features before you operate the machine.
- The equipment is not to be used for any other purpose than what it is designed for.
- The specified capability of the equipment must not be exceeded.
- You must never operate equipment, if you are tired or ill or under the influence of a drug or alcohol.

SANDVIK TAMROCK Corp., TORO Loaders Division
P.O.Box 434, 20101 TURKU, Finland
Tel. +358 205 44 131, Telefax +358 205 44 130
toro@sandvik.com, www.toro.sandvik.com

6. SAFETY AT WORK

6.1. Before starting to work

Acquaint yourself with the manuals issued by the manufacturer, and follow the instructions in them. Plan your work in advance to avoid accidents, mistakes, and injuries.

Work clothing should not be too loose. Loose jacket and sleeves, long hair, rings, bracelets, etc. can and will get caught in rotating machine parts, if you are not alert. Wipe off mud and grease from your shoes before getting on the machine and starting to work. Always wear personal protective devices, such as helmet, eye protection, earmuffs, protective overalls, and safety boots. Observe the safety instructions.

Before starting to work, check the equipment carefully for signs of wear, and check all functions. When taking over from the previous shift, ask about the working conditions and the function of the equipment. If a safety device does not work, do not operate the machine until the safety device has been repaired.

Before moving the TORO, make sure that you know the height, width, length, and weight limits of the site, and that the TORO does not exceed these limits. You should know the site well before starting to work.

Make sure that there is enough space for all movements.

Keep the equipment clean, especially all controls, windows, glasses, lights, etc. Remove possible oil and grease stains, and ice. Wash the equipment regularly.

Keep the tools and other accessories in the tool box.

Many accidents can be avoided by keeping the work site tidy.

6.2. Oils, greases, and fuels

- Always use only the type of lubricants recommended by the manufacturer. Neglecting these recommendations can lead to breakage or malfunction of the equipment, which can cause serious personal or material damage.
- Check regularly that fuel, lubricant, coolant, and hydraulic fluid levels are correct.
- Do not mix different types of fluids and oils.
- Remember that all bearings are not alike. Each bearing has its specific properties and lubricant requirements. Follow the manufacturer’s instructions.
- Starter fluid and other flammable materials must not be stored in the cabin.
- Flammable materials must be protected against heat, sparks, and open flames.
- Storage containers of flammable materials must not be punctured or destroyed by burning, they may cause risk of explosion.
- Smoking is strictly forbidden when filling up the fuel tank.

6.3. Electric equipment

- To prevent personal injuries and material damage in conjunction with the use of electric equipment, there are many regulations concerning the structure, installation, and use of electric equipment. The regulations are always based on local laws and electric safety requirements - these must be strictly observed.
- Work on electric equipment is only allowed, if performed by a qualified and certified electrician.
- Do not use other than original Tamrock spare parts.
- Electric conductors should always be considered live, and thus dangerous. Damaged electric wires and cables can start a fire or cause serious personal accidents. Do not wait for the next shift. Repair the damage now.
- Current must always be cut off from the components to be checked, serviced, or repaired.
- If a fault is detected in the electric equipment, such as open main switchgear door, cable damage, broken component, etc., current to the equipment must be cut off. The equipment must not be used before the fault has been repaired, and the necessary measurements, tests, and trial runs have been completed.
- Power must not be switched on until you have made sure that it will not cause any danger.

7. ELECTRIC POWER LINES

To prevent the danger of injuries and material damage, the structure, installation, and use of electric equipment involves a number of regulations. You should always make sure that you follow the current safety regulations when working near electric power lines.

Electric current always flows to the ground when a suitable conductor is provided.

- **REMEMBER!** ELECTRIC CURRENT DOES NOT ALWAYS NEED DIRECT CONTACT, WITH HIGH VOLTAGES IT CAN “JUMP” OVER LONG GAPS, with high voltages up to 5 meters (15 feets).
- ALWAYS KEEP A SAFE DISTANCE FROM THE POWER LINES! Refer to the local electric safety regulations for safe working distances.
- The safety devices can become electrically charged if you are working near a high-frequency transmitter.

8. VENTILATION AND DUST PREVENTION

In mining and other quarrying work, ventilation and dust prevention are an important part of serious illness prevention. Mining regulations and safety requirements demand careful ventilation plans and air quality monitoring. Adequate ventilation must always be provided. Exhaust fumes can be lethal. If the engine has to be started in an enclosed space, make sure that ventilation is sufficient.

9. BEFORE USE

- Make sure that the equipment is used only when it is in safe and proper working condition.
- The equipment should only be used when all the necessary protective and safety devices, such as detachable guards, emergency stop devices, sound insulations, etc. are in place and in safe and proper working condition.
- When stepping in and out of the machine, move cautiously and use the rails and grips provided - beware of slippery surfaces.
- Before starting the engine and starting off, check the interior, surroundings, and underside of the vehicle.
- Make sure that all controls are in the correct position before starting the engine.
- **Warning signs.** If warning signs are placed on the engine starting switch or controls, these must not be touched until the person who placed the signs, or some other person who knows the situation, has removed them.
- The engine should never be started otherwise than with the proper starting controls.
- Always follow the starting and stopping instructions given by the control and indicator devices as described in the manuals.
- Drain condensate water out of the system as instructed by the manufacturer.

9.1. Hydraulic system

- Check the hydraulic system for possible leaks. Repair all leaks before use. Check all hydraulic hoses, especially those that bend in use, and replace hoses as necessary. Check that all cover plugs and caps, and filling caps are properly in place.
- Check that all safety devices, such as pressure relief valves, pressure gauges, etc. are in place and working properly. Make sure that you know their functions. No safety systems should ever be bypassed.

9.2. Water and air circuits

- Check the pipes, valves, drain valves, and other components of the pneumatic and water systems. Make sure that their pressures are correct, and that no leaks occur.
- Drain the air and water systems and valves completely if the ambient temperature drops below freezing point.

9.3. Electric system

- Check the operation of the safety devices and the instrument panel indicator lights. Do not operate the equipment, if you note that any safety aspect of the machine is not working.
- Check the electric cables visually, and make sure that the electric boxes and cabinets are properly closed. Before starting, make also sure that the power supply cable offers sufficient range of movement.
- A high deviation of supply voltage damages the equipment. Overvoltage damages components. Starting with undervoltage damages the starting circuit components of the engine.

9.4. Frame structures

- Check all sheet metal plates and welds visually for possible damage, such as cracks, bending, and deformations. Cracks in the surface paint or paint peeling may indicate a point of dangerous breakage in the structure. The equipment must not be used until the necessary repairs are made.

10. STARTING / STOPPING

- Before starting, make sure that it will not cause any danger.
- The safety systems must never be bypassed or removed in order to make some work easier.
- Check all safety devices.
- Test the function of the controls.
- Check all gauge readings and indicator lights, and replace all faulty devices.
- At least once during every shift, the equipment should be visually checked for faults or defects. Report all possible faults (also functional disturbances) immediately to the person or department responsible for the equipment. If necessary, the equipment must be stopped at once, and possible safety precautions must be taken.
- Stop the equipment at once, and take necessary safety precautions if functional disturbances occur. Repair the fault or have it repaired without delay.
- Never leave the immediate vicinity of the equipment if the engine is running.

10.1. Be alert

- Do not read anything.
- Do not drink.
- Do not eat.
- Do not operate, if you are tired.
- Concentrate on your work. If you must divert your attention elsewhere, stop the equipment.

10.2. Monitoring and safety devices

Many TORO equipment are provided with an alarm and monitoring system that prevents serious damage caused by improper function. The automatic monitoring devices do not only prevent damage, but also indicate the component that has caused the disturbance. This feature shortens the time required for repairs, and promotes safer working.

- *The return oil filter monitoring* employs a pressure switch. If the back pressure exceeds the set limit, the filter element must be changed.

Automatic safety devices cut off current in the event of a serious disturbance. Simultaneously they usually indicate the component that has caused the disturbance.

- *The emergency stop button* stops the engine, and brakes goes on. Before restarting, the button must be pulled out. The engine cannot be restarted until the *emergency stop button* has been pulled out. If the *emergency stop button* is not working properly, it is absolutely forbidden to operate the equipment until the *emergency stop button* has been properly repaired.
- *Hydraulic oil level* control engages parking brakes if the oil level is too low. Simultaneously, a warning light goes on.
- *Oil temperature/pressure* control engages parking brakes if the oil temperature rises above the set value. Simultaneously, the oil temperature warning light goes on.

10.3. Use in cold weather

- See user manuals for cold starting instructions.
- Operate the controls softly until the hydraulic oil has warmed up to normal working temperature. Hydraulic oil can be warmed up by following the manufacturer's instructions.
- Sudden, abrupt loading should especially be avoided.
- Oils for cold weather should be chosen according to the lubricant recommendations.
- The air and water circuits must always be drained if the temperature drops below freezing point.
- Use anti-freeze mixture in the engine cooling system (only water cooling engine models). Check the freezing point of the coolant.

11. PROPER USE

The use of the equipment for other purposes than what it is designed for, or exceeding the specified capability ratings is not considered proper use. For example overloading has many consequences including increaced wear and tear and drastic reduction in lifetime of the tire rims. The manufacturer / supplier is not liable for damage caused by such use. Proper use also includes observing the information in the user and service instructions and following the control and service regulations.

Acquaint yourself with the user and service manuals issued by the manufacturer, and keep them always with the equipment.

12. RELOCATION, TOWING, AND TRANSPORTING INSTRUCTIONS

12.1. Relocation

Operating requires some special procedures depending on the equipment of your machine. Read the manuals of your TORO carefully.

The TORO must not be operated by anybody but trained persons.

Do not release the parking brake until you have checked that

- steering works
- boom/box is in transport position
- correct speed range is selected
- driving direction is selected
- all equipment and functions are in working order
- moving the TORO will not cause personal or material damage

- In passages with limited space and the machine is equipped with a cable reel, remember it's use when operating.
- You should never move or operate the machine unless you have made sure that it does not cause any danger.
- Do not try to steer the machine from anywhere else than the actual steering position.
- Stepping aboard or hopping out of a moving machine is forbidden.
- Transporting people with the TORO is forbidden.
- Avoid narrow and low passages.
- If you have to move the TORO in dangerous places, for instance along the brink of a steep slope, use the Remote control if available.

12.2. Towing

Great caution and the manufacturer's instructions should always be observed when towing. Neglecting the instructions will cause severe damage on the TORO, and the damaged machine can cause serious accidents.

- Do not try to start the engine by towing.
- If the engine is running, the machine's normal tramming speed can be used for towing.
- If the engine cannot be started, towing requires special preparations depending on the TORO model; see towing instructions in the operation manual.
- A machine without brakes must always be towed using a rigid towing bar. Remember also that power steering works only when the engine is running.
- Make sure that the towing vehicle's brakes are in good condition, and powerful enough to stop both vehicles in all circumstances.

12.3. Transporting

Always plan transportation in advance to be able to ensure safety. Choose the safest method of transport, and make sure that the capacity of the transporting vehicle is sufficient.

- Use access ramps when moving the TORO onto the platform and down from it. Driving on or off the platform must be done on level ground.
- Always use low tramming speed, and be very careful when coming from the ramps onto the platform.
- Before transportation, the parking brake must be engaged and the bucket lowered down(loader) or the box in transport position(truck) and machine properly supported against the platform. Secure the machine with straps or chains to prevent it from moving during transportation. In addition, observe all other special requirements for transport of your TORO, as given in the user manual.
- When planning the transporting route, keep the machine's dimensions in mind. Always measure the maximum height and width of the transport.
- The lifting points of the machine are marked with hook symbols. When you lift a machine, make sure that the lifting equipment is in good condition.
- Make sure that you know the actual weight of the machine before starting to lift it.

13. LIFTING

Most countries have regulations concerning lifting, lifting wires, and lifting devices. These local safety regulations must always be followed in order to avoid serious injury.

- Only the right type of lifting device with sufficient lifting capacity should be used. No other devices than specified lifting devices should be used for lifting the equipment or their components.
- The weight of the load must be known, and the rated lifting capacity must not be exceeded.
- Lifting should be planned so that the load is not moved over people or places where people may be present.
- Make sure that the lifting device is in good condition.
- Lifting wires and chains should be checked regularly. Discarded wires must be marked clearly and disposed of without delay.

– The lifting points of the TORO are marked with hook symbols. Lift the equipment at the marked points only.

- Check proper fastening and balance of the load by first lifting it up only a few centimeters. Continue lifting when you are sure that the load is properly fixed and in balance.
- Lifting wires with several ropes must not be twisted. Lifting ropes must be fixed according to the manufacturer's instructions.

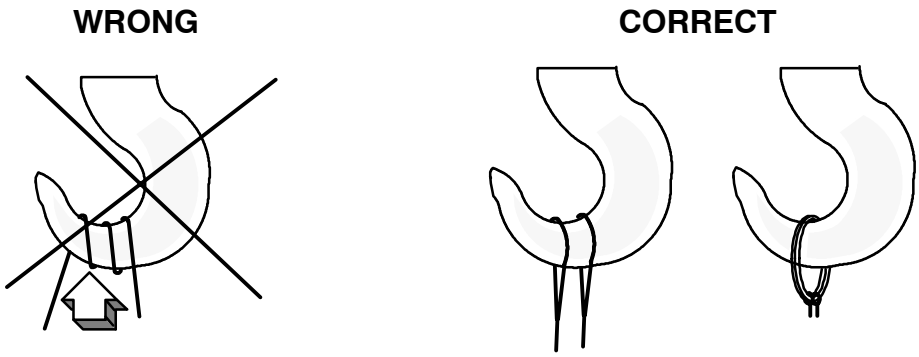


Fig 1. Use of lifting equipment

SANDVIK TAMROCK Corp., TORO Loaders Division
P.O.Box 434, 20101 TURKU, Finland
Tel. +358 205 44 131, Telefax +358 205 44 130
toro@sandvik.com, www.toro.sandvik.com

- The lifting wire must not make a loop around the load in place of a lifting strap or chain.

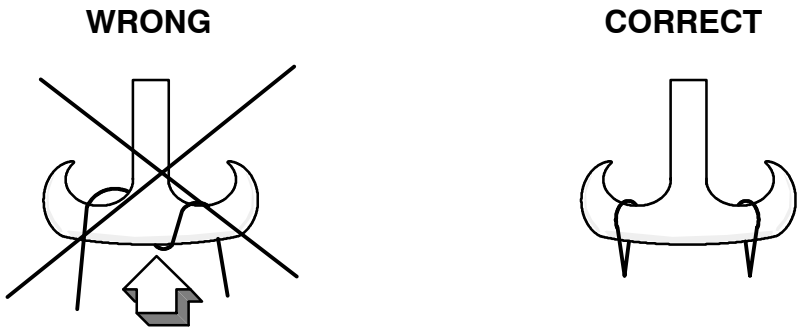
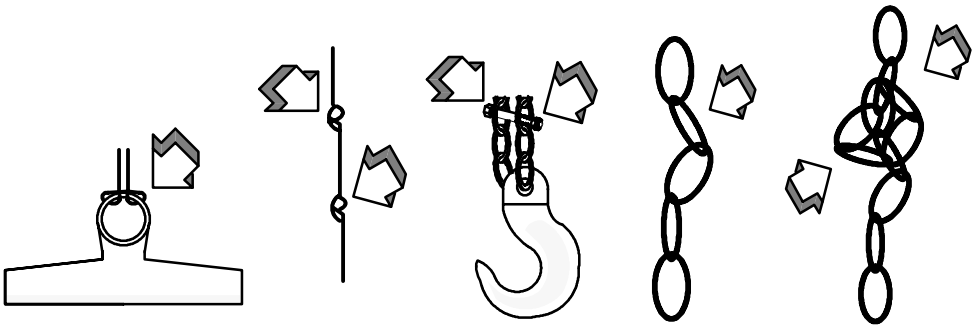


Fig 2. Use of lifting equipment

- The load should never be lowered so far down that less than two turns of wire is left on the wire reel. This way you can make sure that the weight of the load is evenly distributed between the wire and its fixing point on the reel.
- Check the capacity and length of the wire whenever the wire or mast length is altered.
- Never stand or work under a hanging load.
- Do not estimate lifting capacity on the basis of stability.
- Do not move a load over persons.
- Take care that the load does not bump into anything.
- Do not use any other lifting devices for lifting persons than those designed for that purpose. Box or bucket is not designed for lifting persons, and it is absolutely forbidden to climb on them!
- It is ABSOLUTELY FORBIDDEN to carry persons on the load.

DANGEROUS LIFTING EQUIPMENT !



SANDVIK TAMROCK Corp., TORO Loaders Division
P.O.Box 434, 20101 TURKU, Finland
Tel. +358 205 44 131, Telefax +358 205 44 130
toro@sandvik.com, www.toro.sandvik.com

14. END OF WORK SHIFT

Stop the equipment and finish work according to instructions.

- Move the machine away from high walls or steep slopes before ending the day's work.
- Carefully choose the place where you park the machine. Do not leave it in a place where rocks may fall down on it, or in a place where heavy rain may form a pool.
- Do not leave the machine in a slope or ramp, unless you can make sure that it will not start moving.
- To ensure that the machine remains stationary, refer to the instructions given in the manuals.
- Make sure that the pressurized systems are in the state given in the manuals.
- Move all control levers to middle or parking position.
- Engage parking brake and lock it to prevent the equipment from moving. Try to park the machine on level ground. If this is impossible turn the machine against the wall.
- Lock the ignition switch or the starting circuit, and take the key away, if locking is possible. This is to prevent unauthorized starting.
- Lock up the cabin, and install protective devices, if provided.

SANDVIK TAMROCK Corp., TORO Loaders Division
P.O.Box 434, 20101 TURKU, Finland
Tel. +358 205 44 131, Telefax +358 205 44 130
toro@sandvik.com, www.toro.sandvik.com

15. CONSIDERATION FOR THE ENVIRONMENT WHEN USING THE MACHINE

SANDVIK TAMROCK Corp. actively considers environmental concerns when designing and manufacturing its products. The machines are designed to burden the environment as little as possible; i.e., the vibration, noise, exhaust, and lubrication/additive emissions of the machine have been minimized. The manufacturing process for the machines has been designed so that recycled materials are used as much as possible, and the process quality and emissions are considered carefully in selection of the subcontractors. There is an ongoing aim of continually lowering the emissions from the machining of metal, and from painting and assembling the machine, and these processes fulfill the very strict requirements of the Finnish environmental legislation.

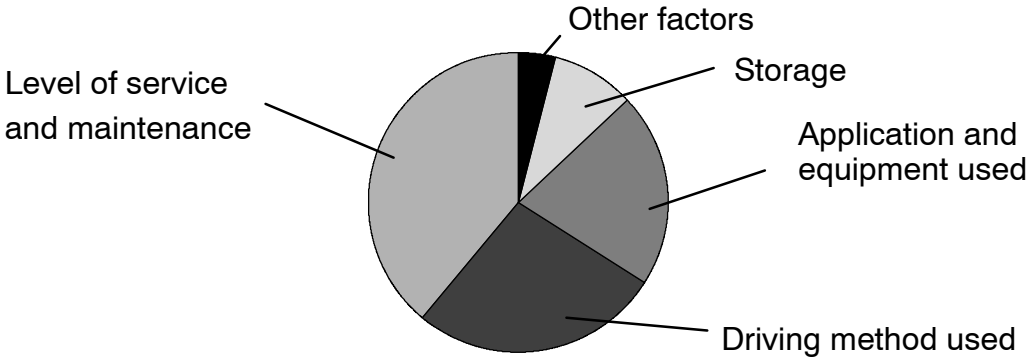
15.1. Economical operation of the machine

The costs incurred by using the machine go hand in hand with the amount and type of emissions it lets into the environment. Through systematic training of the operator and service personnel, one can reduce the machine's operating costs significantly, and at the same time reduce the environmental burden caused by the machine. See the graph below.

An economical driving method and correct machine operation are another key factor in reducing operating costs and the effect on the environment:

- Avoid idling. Warm up the machine by performing light tasks, not by idling.
- When you are working, try to keep the engine speed close to the maximum torque or just above it, as this will ensure optimal engine fuel economy and keep the noise and exhaust emissions low. There are still some power reserves in the engine for momentary load peaks.
- Avoid unnecessary carrying and use of auxiliary devices (e.g., air–conditioning unit or extra electrical and other work equipment) that will not be needed for the work at hand.
- Avoid overloading

Factors affecting the service life of the machine



SANDVIK TAMROCK Corp., TORO Loaders Division
P.O.Box 434, 20101 TURKU, Finland
Tel. +358 205 44 131, Telefax +358 205 44 130
toro@sandvik.com, www.toro.sandvik.com

15.2. Decommissioning

The end user of the machine is responsible for its decommissioning. If the end user does not have the ability or the resources to disassemble the machine, the work must be performed by someone who does possess the necessary knowledge and skills.

In disposing of the waste material from disassembly of the machine, the following matters should be considered:

- The machine body, all the steel constructions, and the copper and aluminum in the electrical wiring are recyclable. The metals can be melted and used as raw material for new products, except for machine parts that have been in contact with substances that are regarded as hazardous waste. The contaminated parts can usually be simply cleaned or rinsed, after which they can be recycled.
- Most plastic parts are recyclable, similarly to the metals. Each plastic part carries information on the material used and a manufacturing date, which can be used for determining whether the part can be recycled.
- Rubber parts are not regarded as hazardous, and they can be disposed of according to normal procedures. Tubes (hydraulics etc.) must be cleaned before they are disposed of. Worn–out tires can be returned to the dealer from whom they were originally bought.
- Windshields and other cabin windows are not accepted for conventional glass recycling, but they can be disposed of via normal waste disposal methods.
- Electrical components that are classified as hazardous waste (accumulators, batteries, circuit boards) and other hazardous waste must be delivered to a licensed waste treatment location or be disposed of according to local regulations.
- Air conditioning units, which contain CFC and HCFC compounds, must always be delivered for treatment to a licensed waste disposal facility.
- For disposal instructions for fluids and lubricants, refer to the service manual.

These instructions are not binding, but they offer suggestions for appropriate waste disposal procedures. Local authorities always have more detailed instructions and recommendations on the disposal of different materials.

When removing a machine from use, you must always follow the relevant authorities' regulations on waste disposal that are in force at the time and location of disassembly.

16. CONSIDERATION FOR THE ENVIRONMENT WHEN SERVICING THE MACHINE

When servicing the machine, you handle many substances that are regarded as hazardous waste. When dealing with these, be very careful and follow the applicable local regulations. The following instructions should provide useful guidance – for more location-specific instructions, contact the local garbage disposal company or the appropriate authority.

Service area

The facilities used for servicing must be designed for this purpose. The floor material must be oil-resistant - preferably cast concrete. For washing the machine and to prevent damage from oil, the sewage system must be equipped with an oil trap.

According to regulations, those in possession of hazardous waste must know the amount, quality, and origin of the waste; i.e., companies must keep a record of this information. Always follow the regulations for storage of hazardous waste. It is a good idea for the company to appoint a person who is responsible for the storage and further processing of hazardous waste.

Appropriate handling of oil waste

Any oil that is spilled onto the ground, including biodegradable oil, must be collected as carefully as possible. Oil waste must not be disposed of by burning, and under no circumstances must oil be poured down the drain or into water systems. One liter of oil is enough to pollute a million liters of ground water intended for household consumption.

Used lubrication oil is hazardous waste that must always be processed by an authorized waste treatment plant. During its use, metal particles and other impurities have entered the oil. These increase the risks to the user's health.

If the company produces a larger amount of oil waste, it is worth separating. For treatment, oil waste is divided into three categories:

- Clear oils, which include hydraulic and transmission oils.
- Black oils, which are motor oils. Synthetic and mineral oils are collected in the same container.
- Vegetable oils, which are collected in a separate container.

Greases, fuels, solvents, and other substances must not be mixed with oil waste.

Solid waste containing oil

Oil filters, oil rags, fuel filters, and oil absorbents must be collected in a separate container.

Radiator, brake, and clutch fluids

Used radiator, brake, and clutch fluids contain traces of heavy metals, zinc, and copper, for which reason they must not be poured down the drain or mixed with oil waste. They are to be collected in a separate, labeled container and delivered to the same plants as the oil waste.

Solvents and oil trap sludge

Solvents and sludge that has collected on the surface of the oil traps are collected in the same container. The surface layer in the oil traps must be removed regularly, and the entire trap must be drained at least once a year, including the sludge at the bottom. Do not mix the oil trap sludge with oil waste.

Fuel oil

Fuel oil is hazardous waste that must in all cases be processed by an authorized waste treatment plant.

Oil waste storage

The best containers for collecting oil waste are the original containers for the oils. Naturally, new containers become available whenever new oil is purchased. They already have the necessary warning labels, are easy to close, and can be moved around fairly easily. Always strike out the product name on the label and clearly label the container “oil waste”. This ensures that everyone knows the container contains oil waste. Store the waste in an appropriate manner. A suitable storage room for hazardous waste has a roof, a leak-proof floor, and preferably a lockable door. When storing flammable fluids, always ensure that the room has a separate ventilation system or is otherwise well ventilated. The path to the storage room must be free of obstacles.

Empty oil containers

Empty oil containers must not be dumped in landfills without having been cleaned. Cleaned plastic containers can be disposed of as regular waste. Most countries have arranged a recycling system for metal barrels.

SANDVIK TAMROCK Corp., TORO Loaders Division
P.O.Box 434, 20101 TURKU, Finland
Tel. +358 205 44 131, Telefax +358 205 44 130
toro@sandvik.com, www.toro.sandvik.com