WX148
Wheeled Excavator

SERVICE MANUAL

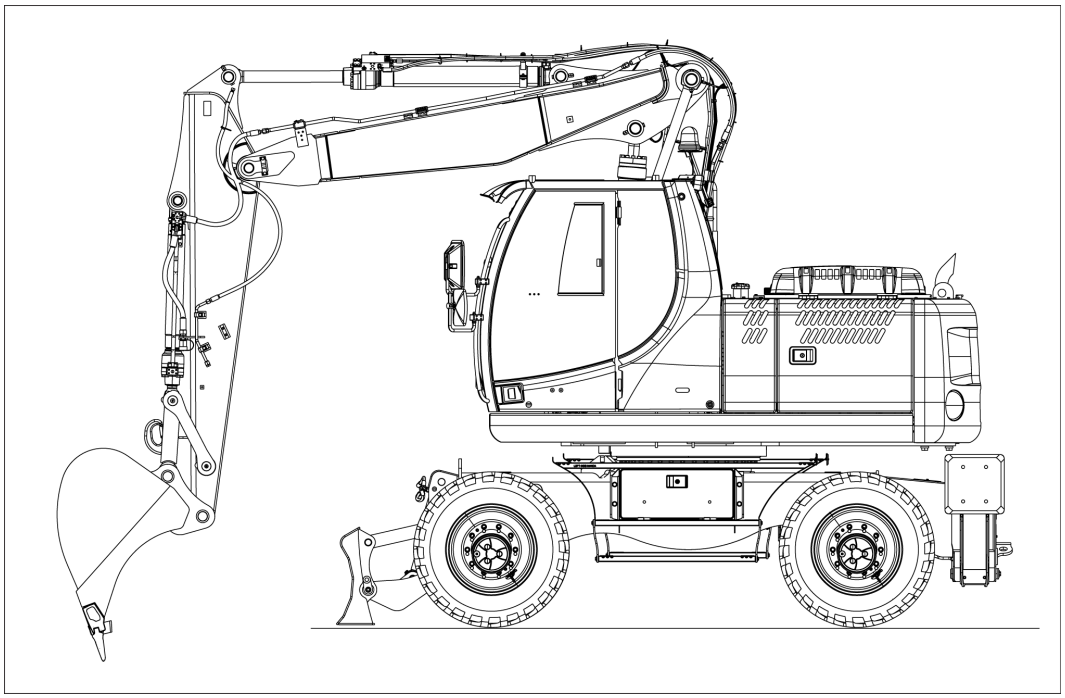
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CASE CONSTRUCTION

CASE CONSTRUCTION

SERVICE MANUAL



WX148

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Safety rules

Carefully read the safety rules contained herein and follow advised precautions to avoid potential hazards and to safeguard your safety and personal integrity.

In this manual you will find the following indications:

NOTICE: *With specific warnings about potential dangers for the operator's or other persons integrity directly or indirectly involved.*

ATTENTION: *This symbol warns about the possibility of potential damages to the machine that can involve the operator's safety.*

The non compliance with the warning preceded by the above mentioned key-words (DANGER and WARNING) can cause serious accidents or the death of the persons involved.

Moreover, this manual contains some instructions, preceded by the words NOTE and CAUTION, with following meanings for machine protection:

NOTE: *It emphasizes and underlines to the operator the correct technique or correct procedure to follow.*

ATTENTION: *It warns the operator of a possible hazard of machine damage in case he does not follow a determined procedure.*

Your safety and that of people around you depends on you. It is essential that you understand this manual to perform the operation correctly and safely.



TULI12WEX2001AA 1

Note to the Owner

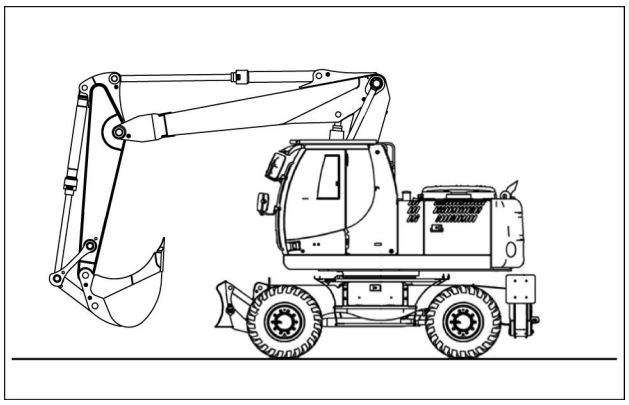
The wheeled excavators are operation hydraulic machines.

They essentially consist in a wheeled undercarriage on which a slewing bearing is mounted, which is coupled to the upper frame.

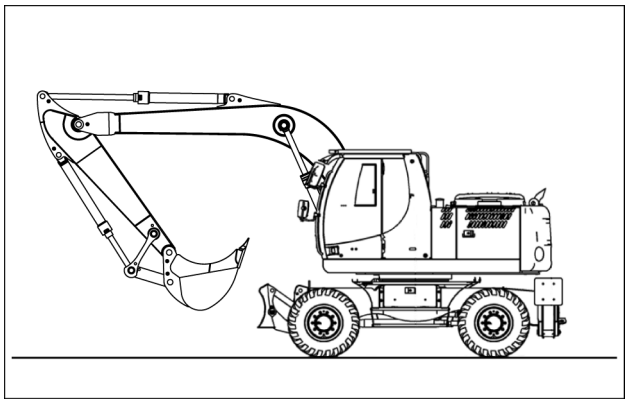
The upper frame supports the front attachment, the engine, the hydraulic components, the cab, the fuel tank and the counterweight.

When the operator activates the controls (hydraulic control levers and pedals), the hydraulic pumps rotated by the engine suck oil from the tank and convey it to the control valve, the control valve, in turn, sends it to the relevant users.

A cooling system keeps the hydraulic fluid at a normal operating temperature.



SMIL12WEX0181AA 1



SMIL12WEX0182AA 2

Designated use

The machine has been built in accordance with state-of-the-art standards and the recognized safety rules. The machine must be used in accordance with its designated use, by observing the safety and precautionary rules and by strictly following the operating instructions. Any functional disorders, especially those affecting the safety of the machine, should therefore be rectified immediately.

The Excavator is intended to be used in digging and loading operation (with bucket or grab or clamshell bucket), ground levelling (with blade when installed) and use of hydraulic hammer to break concrete or other solid material.

Notice

A different use of the excavator or of its working equipment:

- For lifting or transporting persons.
- As a working platform.
- For lifting loads without the attachment being approved for this purpose.
- For pulling slung loads.
- For driving in posts, supports, sheet-piles, without the attachment being approved for this purpose.

Is considered contrary to the designated use.

Improper use may cause injury or life-threatening risks for the operator and for other persons.

The manufacturer/supplier cannot be held responsible for any damage resulting from other than the designated use. The risk involved in such misuse lies entirely with the user.

NOTICE: *For clarity purposes, some figures in this Manual show the machine with protection panels or covers removed. Never operate the machine with any protection panels or covers removed.*

NOTICE: *It is absolutely forbidden to tamper and/or change the setting of any of the hydraulic system valves to avoid damaging machine components with consequent risks to personal safety.*

Instructions concerning safety, operation and maintenance have been developed to permit safe service and operation of this machine.

Personal safety

Carefully read this Manual before proceeding with maintenance, repairs, refuelling or other machine operations.

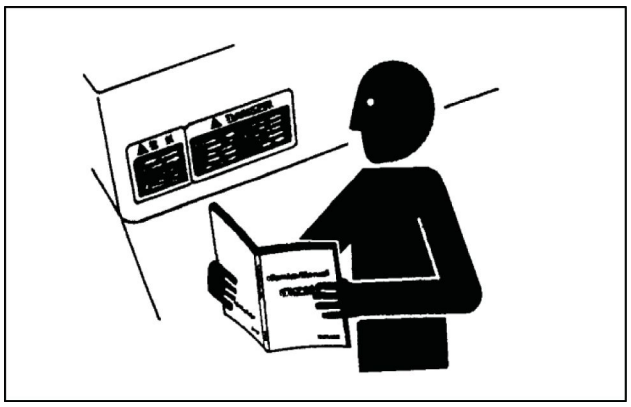
Repairs have to be carried out only by authorized and instructed staff; specific precautions have to be taken when grinding, welding or when using mallets or heavy hammers.

Not authorized persons are not allowed to repair or carry out maintenance on this machine. Do not carry out any work on the equipment without prior authorization.

Ask your employer about the safety instructions in force and safety equipment.

Nobody is allowed to seat on the operator's place during machine maintenance unless he is a qualified operator helping with the maintenance work.

If it is necessary to move the equipment to carry out repairs or maintenance, do not lift or lower the equipment from any other position than the operator's seat.



TULI12WEX2004AA 1

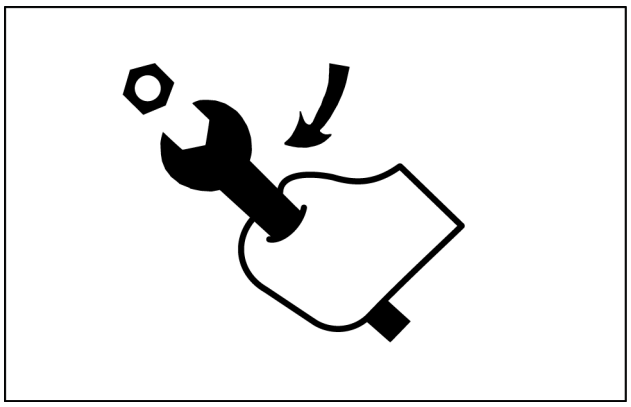
Never carry out any operation on the machine when the engine is running, except when specifically indicated.

Stop the engine and ensure that all pressure is relieved from hydraulic circuits before removing caps, covers, valves, etc.

All repair and maintenance operations should be carried out with the greatest care and attention.

Service stairs and platforms used in a workshop or in the field should be built in compliance with the safety rules in force.

Any functional disorders, especially those affecting the safety of the machine, should therefore be rectified immediately.



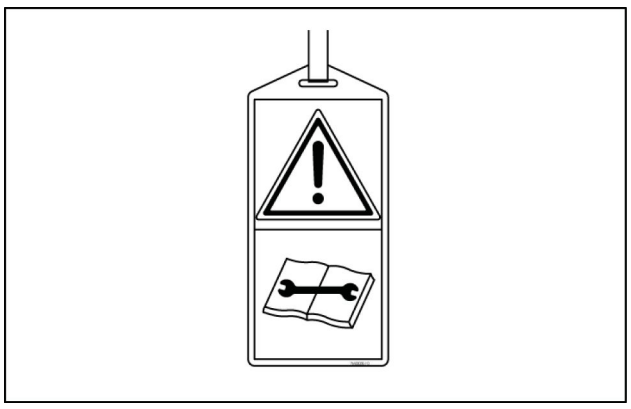
TULI12WEX2005AA 2

⚠ DANGER

Unexpected movement!
Make sure parking brake is applied. Secure machine with wheel chocks.
Failure to comply will result in death or serious injury.

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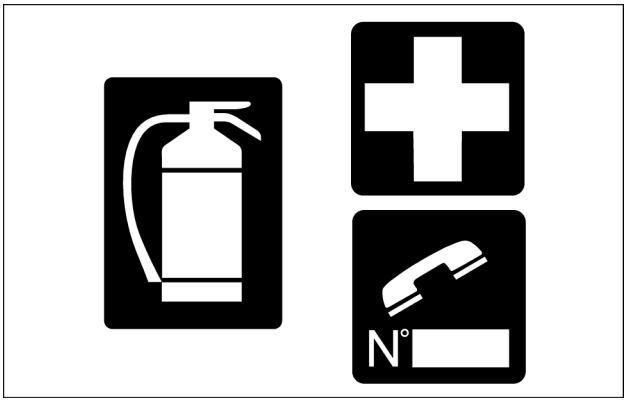
Before performing any work on the machine, attach a maintenance in progress tag. This tag can be applied on the left-hand control lever, safety lever or cab door.



TULI12WEX2006AA 3

Emergency

Be prepared for emergencies. Always keep at disposal on the machine a first aid kit and a fire extinguisher. Make sure that the fire extinguisher is serviced in accordance with the manufacturer's instructions.



SMIL12WEX0174AA 4

Equipment

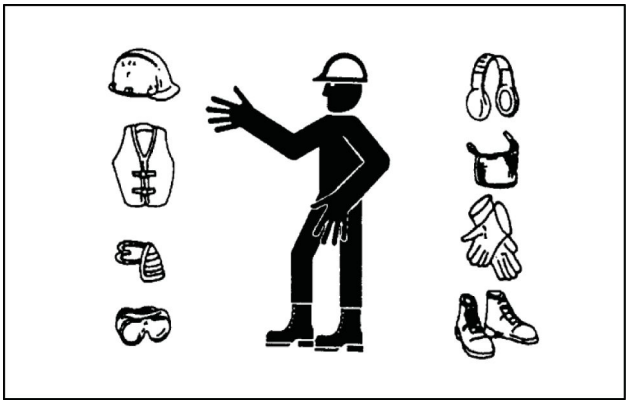
Wear close fitting clothing and safety equipment appropriate for the job:

- Safety helmet
- Safety shoes
- Heavy gloves
- Reflective clothing
- Wet weather clothing

If environment condition require it following personal safety equipment should be at hand:

- Respirators (or dust proof masks)
- Ear plugs or acoustic ears protections
- Goggles with lateral shield or masks for eyes protection

Do not wear rings, wristwatches, jewels, unbuttoned or flapping clothing such as ties, torn clothes, scarves, open jackets or shirts with open zips which could get caught into moving parts.



TULI12WEX2008AA 5

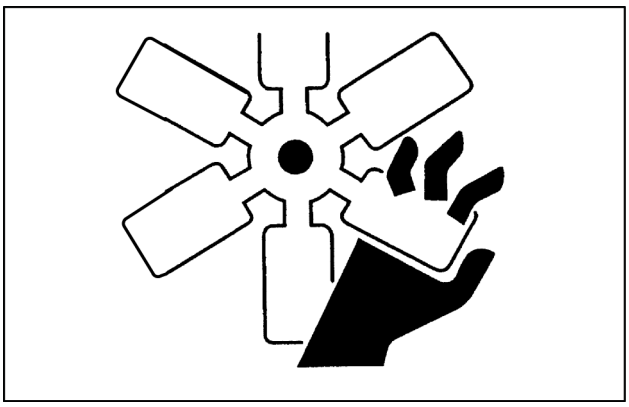
Engine - Radiator

Never leave the engine run in closed spaces without ventilation and not able to evacuate toxic exhaust gases. Keep the exhaust manifold and tube free from combustion materials.

Do not refuel with the engine running, especially if hot, as this increases fire hazard in case of fuel spillage.

Never attempt to check or adjust the belts when the engine is running.

Never lubricate the machine with the engine running.



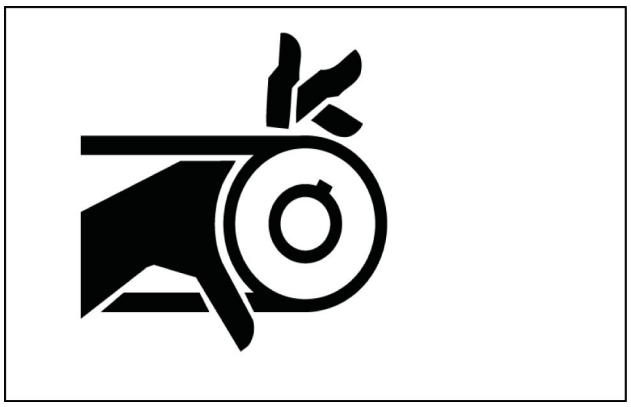
TULI12WEX2009AA 6

Pay attention to rotary pieces and do not allow to anyone to approach to avoid becoming entangled.

If hands, clothes or tools get caught in the fan blades or in the transmission belt, this can cause amputations, violent tears and generate condition of serious danger; for this reason avoid touching or to come close to all rotary or moving parts.

A violent jet of the coolant from the radiator can cause damages and scalds.

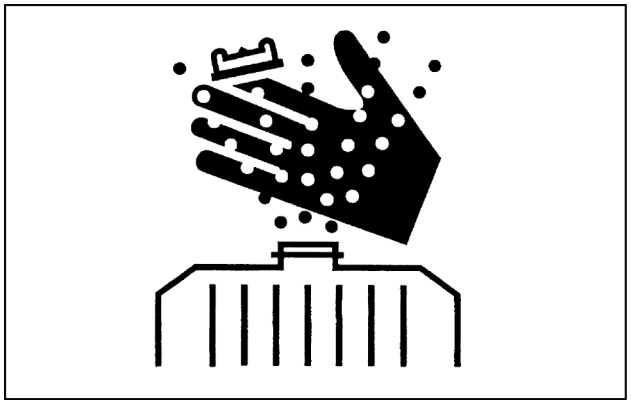
If you are to check the coolant level, you have to shut-off the engine previously and to let cool down the radiator and its pipes. Slowly unscrew the cap to release the inside pressure.



TULI12WEX2010AA 7

If necessary, remove the cap with hot engine, wear safety clothes and equipment, then loosen the cap slowly to relieve the pressure gradually.

When checking the fuel, oil and coolant levels, use exclusively explosion proof classified lamps. If this kind of lamps are not used fires or explosions may occur.



TULI12WEX2011AA 8

Hydraulic systems

Splashes of fluids under pressure can penetrate the skin causing serious injuries.

Avoid this hazard by relieving pressure before disconnecting hydraulic or other lines.

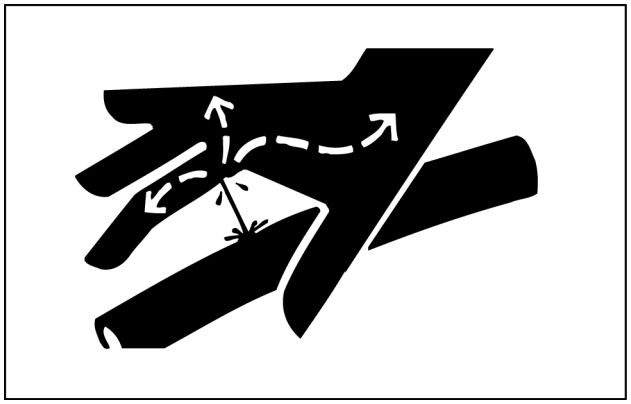
Relieve the residual pressure by moving the hydraulic control levers several times.

Tighten all connections before applying pressure.

To protect the eyes wear a facial shield or safety goggles.

Protect your hands and body from possible splashes of fluids under pressure.

Swallowing hydraulic oil is a severe health hazard.



TULI12WEX2012AA 9

When hydraulic oil has been swallowed, avoid vomiting, but consult a doctor or go to a hospital.

If an accident occurs, see a doctor familiar with this type of injury immediately.

Any fluid penetrating the skin must be removed within few hours to avoid serious infections.

Flammable splashes may originate because of the heat near pipes with fluids under pressure, with the result of serious scalds for the persons hit. Do not weld or use torches near pipes containing fluids or other flammable materials.

Pipes under pressure can accidentally be pierced when the heat expands beyond the area immediately heated.

Arrange for fire resistant temporary shields to protect hoses or other components during welding.

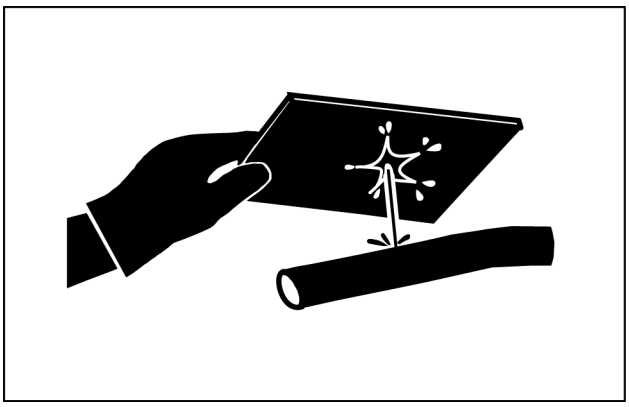
Have any visible leakage repaired immediately.

Escaping oil pollutes the environment. Soak up any oil that has escaped with a proper binding agent. Sweep up binding agent and dispose of it separately from other waste.

Never search for leakages with the fingers, but use a piece of cardboard and always wear goggles.

Never repair damaged piping; always replace it. Replace hydraulic hoses immediately on detecting any damage or moist areas.

Always store hydraulic oil in the original containers.



TULI12WEX2013AA 10

Hoses and tubes

Always replace hoses and tubes if the cone end or the end connections on the hose are damaged.

When installing a new hose, loosely connect each end and make sure the hose takes up the correct position before tightening the connections. Clamps should be tightened sufficiently to hold the hose without crushing and to prevent chafing.

After hose replacement to a moving component, check that the hose does not foul by moving the component through the complete range of travel. Be sure any hose which has been installed is not kinked or twisted.

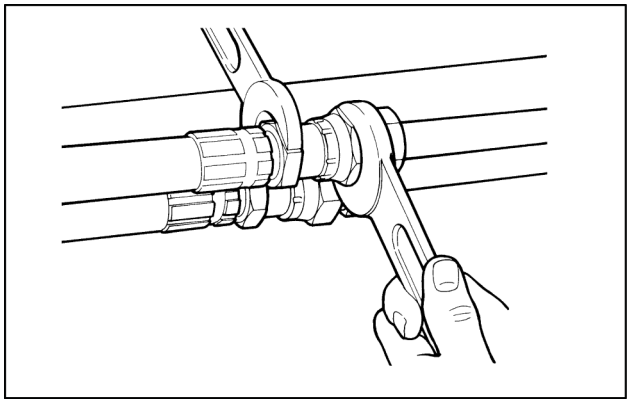
Hose connections which are damaged, dented, crushed or leaking, restrict oil flow and the productivity of the components being served. Connectors which show signs of movement from the original position have failed and will ultimately separate completely.

A hose with a frayed outer sheath will allow the water penetration. Concealed corrosion of the wire reinforcement will subsequently occur along the hose length with resultant hose failure.

Ballooning of the hose indicates an internal leakage due to structural failure. This condition rapidly deteriorates and total hose failure soon occurs.

Kinked, crushed, stretched or deformed hoses generally suffer internal structural damage which can result in oil restriction, a reduction in the speed of operation and ultimate hose failure.

Free-moving, unsupported hoses must never be allowed to touch each other or related working surfaces. This causes chafing which reduces hose life.



TULI12WEX2014AA 11

O-rings

Replace O-rings, seal rings and gaskets whenever they are disassembled.

Never mix new and old seals or O-rings, regardless of condition. Always lubricate new seal rings and O-rings with hydraulic oil before installation to relevant seats.

This will prevent the O-rings from rolling over and twisting during mounting which will jeopardize sealing.

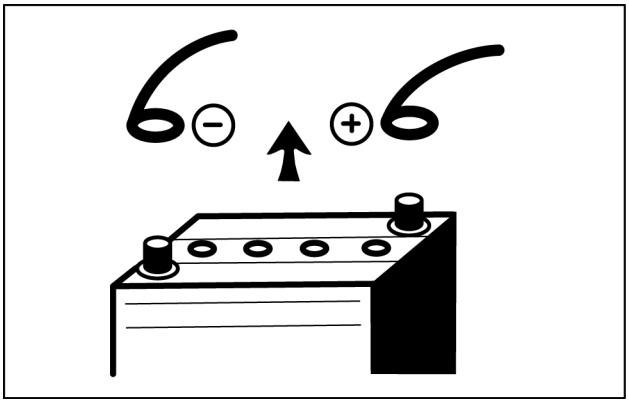
Battery

Batteries give off explosive gases.

Never handle naked flames and unshielded light sources near batteries, never smoke.

To prevent any risk of explosion, observe the following instructions:

- When disconnecting the battery cables, always disconnect the negative (-) cable first.
- To reconnect the battery cables, always connect the negative (-) cable last.
- Never short-circuit the battery terminals with metal objects.
- Do not weld, grind or smoke near a battery.

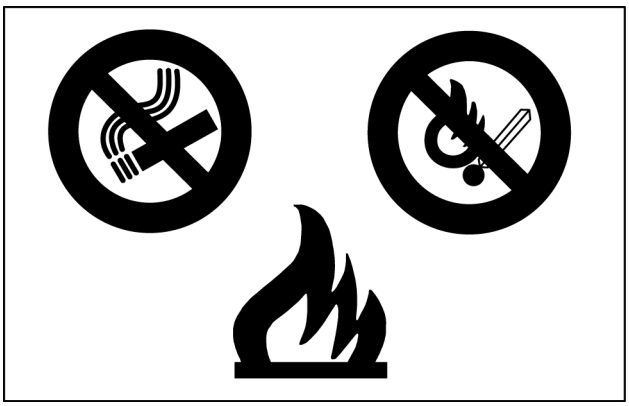


TULI12WEX2015AA 12

Battery electrolyte causes severe burns. The battery contains sulphuric acid. Avoid any contact with the skin, eyes or clothing.

Antidote:

- EXTERNAL: Rinse well with water, removing any soiled clothing.
- INTERNAL: Avoid vomiting. Drink water to rinse your mouth. Consult a doctor.
- EYES: Rinse abundantly with water for **15 min** and consult a doctor.
- When the electrolyte of a battery is frozen, it can explode if you attempt to charge the battery or if you try to start the engine using a booster battery. Always keep the battery charged to prevent the electrolyte freezing.



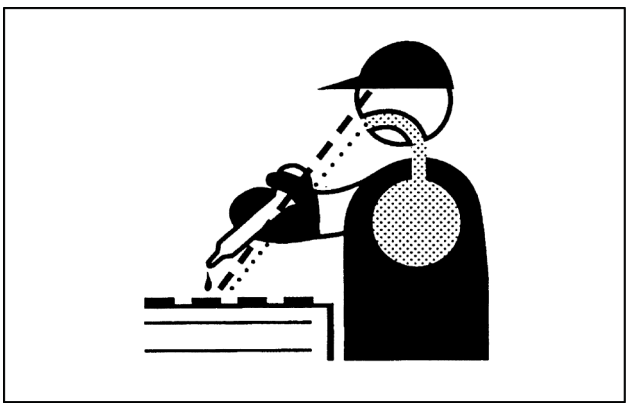
TULI12WEX2016AA 13

Provide good ventilation when changing a battery or using a battery in an enclosed space. Always protect your eyes when working near a battery.

Never set tools down on the battery. They may induce a short circuit, causing irreparable damage to the battery and injuring persons.

Never wear metal necklaces, bracelets or watch straps when working on the battery. The metal parts may induce a short circuit resulting in burns.

Dispose of used batteries separately from other waste in the interests of environmental protection.



TULI12WEX2017AA 14

Flammable liquids

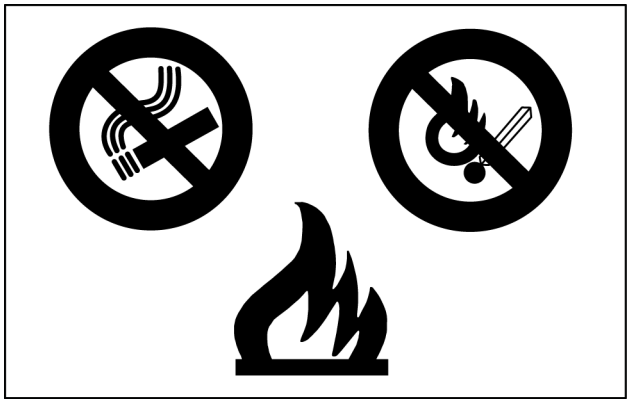
When handling flammable liquids:

- Do not smoke.
- Keep away from unshielded light sources and naked flames.

Fuels often have a low flash point and are readily ignited.

Never attempt to extinguish burning liquids with water. Use:

- Dry powder
- With carbon dioxide
- With foam



TULI12WEX2016AA 15

Water used for extinguishing purposes would vaporize instantaneously on contact with burning substances and spread burning oil, for example, over a wide area. Water generates short circuits in the electrical system, possibly producing new hazards.

Stay away from open flames during refilling of hydraulic oil or fuel.

Fuel or oil splashes can cause slipping and therefore accidents; clean immediately and accurately the areas eventually smeared.

Always tighten the safety plugs of fuel tank and hydraulic oil tank firmly.

Never use fuel to clean the machine parts eventually smeared with oil or dust.

Use a non-inflammable product for cleaning parts.



TULI12WEX2018AA 16

Always perform fuel or oil refilling in well aired and ventilated areas.

During refuelling hold the pistol firmly and keep it always in contact with the filler neck until the end of the refuelling, to avoid sparkles due to static electricity.

Do not overfill the tank but leave a space for fuel expansion.

Never refuel when the engine is running.

Take all the necessary safety measures when welding, grinding or when working near a naked flame.



TULI12WEX2019AA 17

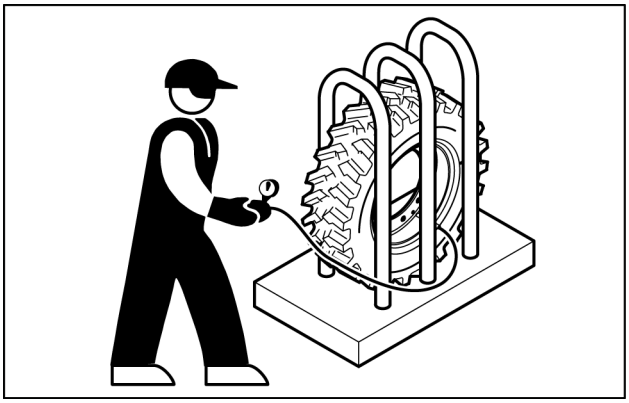
Tyres

Before inflating the tyres, always check the condition of rims and the outer condition of tyres to find out the presence of dents, cuts, tears of reinforcement plies or other faults. Before inflating a tyre, make sure that there are no nearby persons, then position yourself at tread side.

Make sure that the inflating pressure of tyres is the same prescribed by manufacturer and that the pressure of the right tyre corresponds to the pressure of the left tyre.

Never use reconditioned rims because possible welds, heat treatments or brazings not performed correctly can weaken the wheels and cause following damages or failures. Deflate the tyres before their disassembly.

Before taking out possible jammed objects from the rims, it is necessary to deflate the tyres. Inflate tyres by means of a pistol complete with extension and pressure switch of control.



TULI12WEX2020AA 18

Cleaning

Clean the exterior of all components before carrying out any form of repair. Dirt and dust can reduce the efficient working life of a component and lead to costly replacement.

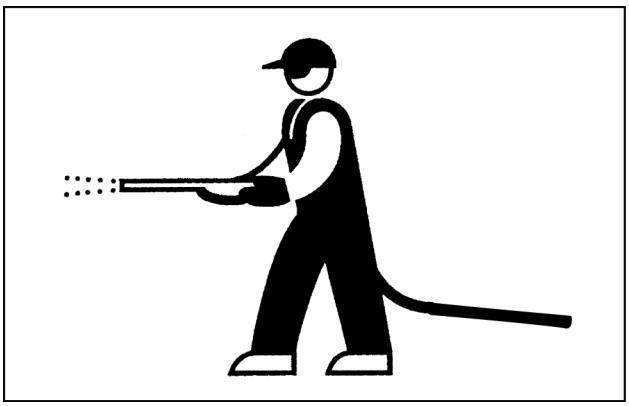
Solvents should be checked that they are suitable for the cleaning of components and also that they do not risk the personal safety of the user.

Dirt from oil or grease and scattered tools or faulty pieces are dangerous for persons, because they can generate slipping or falls.

For the machine cleaning, use a jet of warm water or steam under pressure and commercial detergents. Never use fuel, petroleum or solvents, because the first ones leave an oily layer that favours the sticking of dust, while solvents (even if weak) damage the paint and favour the formation of rust.

Never use water jets or steam on sensors, connectors or other electric components.

Prevent that the water jet penetrates inside the cab.



TULI12WEX2021AA 19