DANISH QUALITY

BOBMAN

MADE BY JYDELAND

User Manual

MADMAX

READ BEFORE USE

DANGER

DANGER

WWW.BOBMAN.COM
JANUARY 2026

EU DECLARATION OF CONFORMITY
ACC. MACHINE DIRECTIVE 2006/42/EC ANNEX II A

Manufacturer:
Company: **Jydeland Maskinfabrik A/S**
Address: **Drammelstrupvej 2, 8400 Ebeltoft, Denmark**

Hereby the manufacturer declares that the machine type which follows:

Machine designation: **BOBMAN MADMAX- BMM3KD**
Machine serial no.: .....
Year built: .....

Product description: ***Farming machine /*****tool carrier**
has been manufactured in accordance with the following directive:

2006/42/EC – MACHINE DIRECTIVE 2006/42/EC: Directive of the European Parliament and of the Council of 17 May 2006 on machinery and amending Directive 95/16/EC

Standards applied in the overall production risk assessment:

DS/EN ISO 4254-1/2015 Agricultural machinery — Safety — Part 1: General requirements

The technical file of the product is kept by the manufacturer, i.e.:
Jydeland Maskinfabrik A/S

Place & date: **Drammelstrup, January 2026**

Signature:

Flemming Gits Jensen
Director of Development

INTRODUCTION

Congratulations on the purchase of your Bobman Madmax tool carrier!
Jydeland Maskinfabrik A/S would like to thank you for choosing the BOBMAN MADMAX tool carrier. Read this manual first to understand it contents before operating the tool carrier. This User Manual is provided to allow the user/operator to:

- operate of the tool carrier safely and efficiently;
- recognise and avoid conditions which may lead to risks of injury and damage;
- maintain the tool carrier in good working order and maximise its service life.

The following safety symbols and signal words are used to indicate factors that must be considered to reduce risks of injury and damage:

CAUTION: WARNING SYMBOL
This safety symbol indicates important safety information in this User Manual. Failure to comply may result in a serious accident to the tool carrier operator and bystanders.
The safety symbol itself and the explanatory text indicate important safety considerations throughout this manual. It indicates the mandatory and prohibited actions that are relevant to the safety of the operator and bystanders. When you see this symbol, remember to be cautious: Carefully read the explanatory text indicated by the safety symbols and make other operators understand and comply with it.

DANGER	This symbol indicates a hazardous condition the failure of avoiding which will result in death or severe injury.
WARNING	This symbol indicates a hazardous condition the failure of avoiding which may result in death or severe injury.
CAUTION	This symbol indicates the risk of minor injury or damage if the explanatory text is not complied with.
NOTE	This symbol indicates the procedures for proper operation and maintenance of the tool carrier. Failure to comply may result in tool carrier failure and other damage.

The necessary documents and manuals must be available to the operators.

DANGER

Non-intended or careless use of the tool carrier or its implements may result in severe injury or damage. Before operating the tool carrier, you need to read and understand the User Manual and applicable health and safety regulations. Keep the User Manual for future reference by the tool carrier operators.

Contact your local BOBMAN dealer for servicing, spare parts and any questions about using the tool carrier and its implements.
Always keep this manual with the tool carrier. If the User Manual is lost or damaged, contact your local Bobman dealer for another copy or download a copy from the website at www.bobman.dk.
If the tool carrier is sold to another user, hand the carrier over with this User Manual.

Engine OEM manual

Aside from the tool carrier User Manual, you must read and understand the engine manual provided by the engine OEM (original equipment manufacturer).
Follow the engine OEM manual. If this User Manual contradicts anything in the engine OEM manual, the latter shall prevail.

Intended use
The BOBMAN MADMAX is a tool carrier designed for clean, healthy and comfortable cattle farming conditions that promote the production of milk of superior quality.

The tool carrier facilitates daily cleaning and maintenance work at cattle farms. With a feedturner installed, the tool carrier can pick up and mix feed, increasing the feeding efficiency while reducing feed material losses. The double brush makes it easier to sweep and clean the feeding areas, while the optionally available 145 cm scraper enables efficient removal of manure, which promotes better hygiene in the barn.

Jydeland Maskinfabrik A/S provides various models of bedding spreaders to meet the different needs of dairy farmers, regardless of the size of their farm. The tool carrier is designed for minimal maintenance requirements — basic maintenance work can be done by the operator, while major repairs should be ordered from a professional service.

Use personal protective equipment when working with the tool carrier and follow all applicable health and safety regulations, including the restrictions for motor vehicle approval for operation on public roads. If you have any questions about operation, maintenance or spare parts, contact the local authorised BOBMAN dealer.

Operator qualifications
Only operators who have read this User Manual and understand all other applicable requirements may use this tool carrier. Regardless of the operator's previous experience with operating ride-on mowers, mini-loaders and similar machines, it is important for the operator to have a thorough understanding of how to operate the tool carrier. Practice safe operation of the tractor and its implements in a large, open area before attempting to operate near other personnel.
The operator must be physically and mentally fit for operation of the tool carrier and always pay attention to the surroundings while operating. Do not operate the tool carrier while under the influence of any medication that may impair your ability for safe operation of motor vehicles. Do not operate the tool carrier while under the influence of alcohol or other intoxicants (like narcotic substances). Depending on the work planned to be done with the tool carrier, it may be necessary to read, understand and comply with all the regulations, standards and policies prevailing on site and in the country of tool carrier operation.

Manual revisions
Jydeland Maskinfabrik A/S has a policy of continuous product development. The latest revision of this User Manual supersedes its previous revisions. The latest revision of the User Manual is available from the local dealer. Some of the features and technical details shown in this manual may change in the tool carriers manufactured after the issue of the current manual revision without notice. The figures in the User Manual may show additional accessories or features not present in the machines currently on the market. Jydeland Maskinfabrik A/S reserves the right to modify the content of the User Manual without notice.

BOBMAN commercial warranty

This warranty is provided for the Bobman MADMAX tool carrier. Any repairs or alterations attempted out without consent of Jydeland Maskinfabrik A/S will automatically void the commercial warranty rights of the buyer/owner.

For a period of **12 months** from the date of product delivery or until 1,000 operating hours (whichever comes first), Jydeland Maskinfabrik A/S, at its sole discretion, will repair or replace any part claimed by the buyer and verified to have a manufacturing or assembly defect subject to the following conditions:

1. The commercial warranty rights of the buyer will remain valid provided that the product is maintained in compliance with its manufacturer's instructions, with records of such maintenance kept by the buyer. Failure to comply will void the commercial warranty rights.
2. The warranty does not cover any damage resulting from non-intended use, negligent operation or operating the product outside of its performance limits specified in the User Manual.
3. Jydeland Maskinfabrik A/S shall not be liable for downtime or any indirect or consequential losses arising from product failure.
4. Maintenance and repairs shall use genuine spare parts or their manufacturer-approved counterparts only.
5. The warranty does not cover any damage caused by operation with non-approved fuel, lubricants, fluids, cleaning products or other consumables.
6. The warranty does not apply to consumable parts (which means wearing parts like tyres, batteries, filters, drive belts, etc.) unless a manufacturing defect in such parts, existing at the time of delivery of the product to the customer, is demonstrated beyond any doubt.
7. Any damage caused by the use of tools, implements or accessories not authorised for the product by the manufacturer will void all commercial warranty rights of the buyer.
8. Manufacturing or assembly defects can only be repaired at the authorised dealer or at an authorised service centre. The warranty does not cover reimbursement of any transport and travel costs involved.
9. Jydeland Maskinfabrik A/S reserves the right to introduce design and technical changes and improvements to the product at any time, without any obligation to implement such changes in any product already manufactured and delivered to the buyer.

1. SAFETY FIRST

Non-intended or careless use of the tool carrier or its implements may result in severe injury or damage.
Before starting the tool carrier, you need to understand its correct operation.
Read this User Manual carefully and follow all applicable health and safety regulations.
You need to understand the ground speed, braking, steering, and balance limits of the tool carrier before you begin using it. All personnel operating the tool carrier must understand the right safety precautions.

General safety instructions:

1. When operating the tool carrier, the operator must maintain a correct posture which facilitates the correct position on the seat, correct placement of the feet during operation and steering the tool carrier with at least one hand.
2. Before leaving the operator's seat, always lower the A-frame lift for it or the attached implement to rest on the ground, turn off the engine and remove the ignition key.
3. When you have finished working with the tool tractor or want to leave it unattended, switch off the main battery disconnect.
4. The user manual for the implement in operation must always be available to the operator, who needs to read and understand it before attempting to operate the implement.
5. Never carry passengers on the tool carrier.
6. Be careful while operating near obstacles and other personnel.
7. Any abnormalities in the operation of the tool carrier, e.g. unexpected noise, vibration or symptoms of other abnormalities must be reported immediately to the competent personnel on site.
8. Keep your hands, feet and clothing away from moving parts, hydraulic components and hot surfaces.
9. Keep a distance between the tool carrier and any obstacles and people that allows safe driving and operation.
10. Do not operate the tool carrier in indoor locations or explosion hazard areas, or where dust or gases are or could be present, resulting in a risk of fire or explosion.
11. Keep all flammable materials away from the engine. Contamination of the engine compartment with dirt, hay or dust increases the risk of fire.

12. Keep proper conditions during storage or transport of the tool carrier for its safety and continued proper performance.
13. Follow all inspection, servicing and maintenance instructions. Any faults or damage to the tool carrier must be repaired before releasing the tool carrier for operation.
14. Before any maintenance or repair, turn off the engine, depressurize the hydraulic system and wait for the tool carrier to cool down.
15. This tool carrier shall only be operated by personnel who have read and understood the safety instructions and the safe and correct operating procedures of the tool carrier.
16. No personnel shall be allowed to operate the tool carrier if they are intoxicated by alcohol, drugs, medications which reduce sound judgement or cause drowsiness; this also applies to personnel in poor health.
17. When operating on slopes, the operator is liable for all damage of the tool carrier and safety of nearby personnel. Do not drive the tool carrier into areas which cause a risk of slipping, skidding or turning over. Do not attempt to drive on slopes steeper than 10°.

DANGER

Hydraulic pressure: risk of severe injury!
There can be residual pressure in hydraulic hoses and components, which may result in release of high pressure jets of hydraulic fluid that can penetrate the skin and into the tissues. Never attempt to check for hydraulic fluid leaks with your hands; use a piece of cardboard instead. Before checking for hydraulic fluid leaks, disconnecting hydraulic fittings or any servicing, remove all residual pressure from the hydraulic system. If hydraulic fluid comes into contact the skin or is penetrates under pressure under the skin and deep into the tissues, seek immediate medical attention. This type of accident is a risk of severe injury, even if the first symptoms appear to be harmless.

The tool carrier may fall over on uneven terrain. The tool carrier is not designed for operation on slopes. Operate at low speed an only on a flat, level and hard-paved ground. When driving up or down a slope within the permitted grade, reduce your speed and proceed with extreme caution. Do not attempt to drive on slopes steeper than 10°. When operating on slopes, the operator is liable for all damage of the tool carrier and safety of nearby personnel.

Reduce speed before turning or cornering.
Do not drive diagonally or across a slope; always drive along the slope to clear it. Do not attempt to turn at full driveline speed. Reduce the driving speed and complete the turn in a controlled way. Always keep a safe distance from slopes and edges of drops.

Risk of pinching!
Before working near locations marked with this sign make sure the tool carrier is shut down completely.

Risk of crushing!
Operate the A-frame lift with extreme caution and in compliance with all safety precautions.

Personal protective equipment.
Always use approved hearing protection when operating the tool carrier.
Safety goggles and a dust mask are recommended during operations which generate airborne dust.
Always wear safety glasses when servicing hydraulic components or attempting any other servicing or maintenance.

Risk of hand injury!
Be extremely careful to avoid cutting the fingers. Keep hands and fingers away from locations with a danger of crushing or pinching.

Wear protective gloves
Always wear protective gloves when servicing hydraulic components or attempting any other servicing or maintenance. The gloves protect against mechanical injuries, burns, exposure to oil/fluids and other chemicals.

Risk of burns!
Hot machine components, like cases, tanks, hydraulic lines or fluids may only seem to be safe. Be extremely careful near the locations with this sign and use proper personal protective equipment. Before attempting any maintenance, make sure that the tool carrier has cooled down.

Risk of touching moving parts!
Always turn off the engine before opening the engine cowl.
When the engine is running, the radiator fan, drive belt and pulleys rotate at high speed, which is a risk of serious injury.
Do not open the engine cowl while the engine is running.

Alterations and modifications
Never attempt to modify the tool carrier or its implements. Do not drill holes or weld any chassis components. Welding may reduce the structural integrity of the tool carrier and shall only be done by qualified service technicians.

Any modifications to the tool carrier require the prior approval of an authorised Bobman dealer. Unauthorised modification can lead to serious risks, including severe injury or death, while reducing the service life of the tool carrier.

Modifications of the engine modifications may result in non-compliance with emission standard. Use original spare parts only.

Electrical system and battery

The tool carrier battery is installed under the operator's seat. Be careful when servicing the battery. Lead-acid batteries can release flammable and explosive gases if handled or operated improperly. Provide sufficient ventilation when charging the battery. Avoid any conditions that may result in sparking, arcing, or exposure of the battery to open flames or glowing heat, like lit cigarettes.

WARNING

Battery risks

An electrical shorting of the battery terminals may result in sparking or fire.

Before opening the engine cowl or any maintenance work, isolate the battery from the electrical system of the tool carrier by turning off the main battery disconnect.

Do not place any metal objects on top of the battery: risk of electrical shorting.

Keep the top of the battery and its surroundings clean.

Battery acid may cause severe skin burns. Handle damaged batteries with care and wear suitable protective gloves, safety goggles, and protective clothing. The battery is a sealed unit. Do not attempt to open the housing.

Never charge a frozen battery: risk of explosion.

Lead warning:

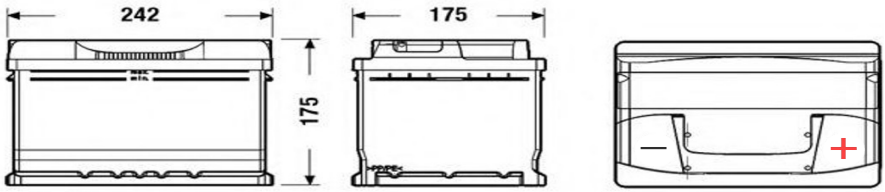
- Wear protective gloves when handling the battery.
- The battery contains lead, which is a substance harmful to health. Avoid unnecessary contact.
- Wash your hands thoroughly with soap and water after handling the battery.
- Dispose of waste electrical batteries by recycling according to the prevailing laws.

Battery handling precautions:

- The battery contains corrosive sulphuric acid (the electrolyte), which can cause severe skin burns. Avoid exposure of the skin and clothing to battery acid. In the event of skin or clothing exposure to battery acid, immediately rinse the exposed area with plenty of water. If battery acid gets into your eyes, rinse them with running water for at least 15 minutes and immediately seek medical attention.
- To avoid sparking when disconnecting the battery from the onboard electrical system, first disconnect the negative (-) cable. When reconnecting the battery to the onboard electrical system, connect the negative (-) cable after connecting the positive (+) cable.
- Before connecting the battery to the onboard electrical system, verify the correct polarity of the battery cables. Swapping the battery cable connection polarity may result in severe damage to the onboard electrical system, resulting in sparking, fire, or battery explosion.

- If a fuse frequently blows, the root cause must be identified. It is critical to use replacement fuses of the same form factor and ratings.

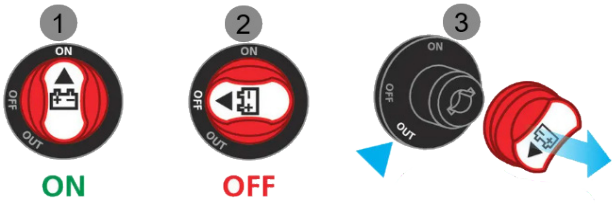
If the battery needs to be replaced, the dimensions, terminal locations, and electrical performance of the replacement battery must be identical. Always properly and firmly secure the battery in the tool carrier to avoid shifting. Return spend batteries to an authorised recycling location according to the prevailing laws.



Main battery disconnect

The main disconnect isolates the battery from the onboard electrical system, enabling quick isolation of the supply voltage when necessary. Before leaving the tool carrier, switch off the main battery disconnect to secure the onboard electrical system and prevent unauthorised use.

1. **ON position** – the battery is connected to the onboard electrical system.
2. **OFF position** – the battery is isolated from the onboard electrical system.
3. **OUT position** – the main disconnect key can be removed; the supply voltage to the tool carrier is isolated.



CAUTION Do not attempt to switch off the main disconnect when the tool carrier is running. Stop the engine before switching off the main disconnect.

2. OVERVIEW OF THE TOOL CARRIER

2.1. Machine identification

Note down the identification details of your tool carrier. You will need to provide it to expedite your request when ordering spare parts, servicing, and contacting the manufacturer.

1. Tool carrier type code: .....
2. Tool carrier serial number: .....
3. Year/month built: .....
4. Engine serial number: .....

The tool carrier serial number and model are shown on the nameplate.

Dealer: _____

Contact details: _____

CAUTION Note down the serial number and the year/month built, and have these details on hand when contacting the Bobman dealer or service point. The details will help choosing the right spare parts for your tool carrier.

Machine nameplate:

1. Manufacturer's name and address
2. CE marking
3. Tool carrier type code
4. Year/month built
5. Serial number

Engine nameplate:

The engine nameplate is under the operator's seat and on the engine. The nameplate contents include the engine model and serial number, year/month built, and type approval reference.

2.2. Main components

The figure below shows the essentila components of the **Bobman Madmax**:

1. Emergency stop device
2. Steering column
3. LED work light
4. Forward/reverse pedal
5. A-frame lift
6. Hydraulic couplings
7. Hydraulic directional control valve enable lever
8. Ignition switch
9. 1WD/3WD selector (one- or three-wheel drive mode)
10. Throttle lever
11. A-frame lift up/down control lever
12. Instrument cluster display
13. Hydraulic fluid tank
14. Fuel tank

2.3. Signs and labels

This section explains the signs and labels that must be displayed on the tool carrier. Replace missing or illegible signs and labels with new ones. New signs and labels can be purchased from the local Bobman dealer or the manufacturer.

Warning labels read important safety information, making it easier to understand the hazards of operating the tool carrier. Ensure that the following signs and labels are clean, undamaged, and legible. If any sign or label is not legible or missing, do not use the tool carrier until the sign or label is replaced. Ask your Bobman dealer about new signs and labels.

1. “Emergency Stop” label
2. Warning signs (generic)
3. “MADMAX” model label
4. “BOBMAN” brand label, 85 cm
5. “BOBMAN” brand label, 23 cm
6. “MADMAX” model label
7. “Risk of Crushing” warning sign
8. “Hot Surface” warning sign
9. “Brush/Aguer On/Off” legend
10. Logo
11. “Ignition Switch” label
12. “1WD/3WD” label
13. “Engine Speed” label
14. “A-Frame Lift Up/Down” legend
15. “Lifting Point” sign
16. “Lubrication Point” sign

Warning signs and labels

2

7

8

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16

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BOBMAN

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BOBMAN

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MADMAX

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MADMAX

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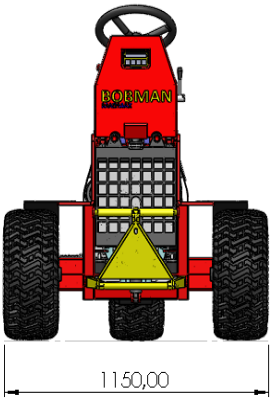
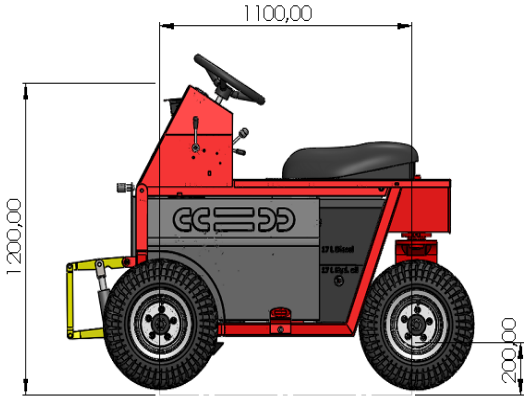
Locations of warning signs and labels

2.4. Technical specifications
Dimensions of the Bobman Madmax





Bobman Madmax general specifications	
Wheel drive	1WD/3WD (one- or three-wheel drive, selectable)
Fuel tank capacity	10 L (Diesel fuel)
Hydraulic fluid tank capacity	15 L (**HV 46** fluid)
Operating pressure	Max. 200 bar
Width	1150 mm
Length	1800 mm
Height	1300 mm
Weight	500 kg
Turning radius	1200 mm
Ground clearance	200 mm
Width with 145 cm scraper	1450 mm
Width with 135 cm feedturner	1350 mm
Noise level	87 dB
Tyre size	20*10.00-10/6 TL LG-306

2.5. Engine specifications

Kubota Z482-E4 internal combustion engine specifications	
Type	Vertical, water-cooled, four-stroke Diesel engine
Cylinders	2
Cylinder bore and stroke (mm)	67 × 68 (2.64 × 2.68 in)
Total displacement (L)	0.479 (29.23 cu. in.)
Combustion chamber	Spherical (ETVCS)
SAE NET instantaneous power (kW/rpm)	9.3 / 3600 (12.5 KM / 3600)
SAE NET continuous power (kW/rpm)	8.1 / 3600 (10.8 KM / 3600)
Maximum idling speed (rpm)	3800
Minimum idling speed (rpm)	1250-1350
Cylinder firing sequence	1-2
Sense of rotation	Counterclockwise (viewed from the flywheel end)
Injection pump	Bosch MD mini-pump
Injection pressure	13.73 MPa, 1991 psi (140 kgf/cm²)
Injection timing (before the piston TDC)	0.331 rad (19°)
Compression ratio	23.5:1
Fuel type	Diesel fuel No. 2-D
Lubricant (API classification)	CF+
Dimensions (L × W × H) mm (in)	351 × 389 × 520 mm (13.82 × 15.31 × 20.47 in)
Dry weight (kg)	53.1 kg (117.1 lbs)
Starting system	Electric starter cell (with glow plug)
Starter	12 V, 0.8 kW
Generator (alternator)	12 V, 150 W
Recommended battery capacity	12 V, 28 Ah (replacement)
EU-marketed engine family designation	HKBXL.778KCB
CO_2 emission level (g/kWh), non-road, steady state engine run	1019.8

Emission control notice
The engine OEM (original equipment manufacturer) certifies that the engine meets the emissions limits listed in the table above and on the engine labels. Any modification of the operating settings of the engine, engine control system, fuel injection system, exhaust system, or air intake system can result in violation of emission limits. Use the fuel and engine oil specified by the manufacturer. The engine requires servicing according to the service schedule. All engine problems and faults must be remedied due to the applicable exhaust gas emission standards.

2.6. Engine oil requirements
Use only good quality engine oil with a viscosity class range recommended by the engine OEM according to API classification CF, CF-4, CG-4, CH-4 or Ci-4. See also the Kubota engine OEM manual. In extremely cold weather, use a high quality all-season engine oil.
The engine is factory filled with **SAE 15W-40 engine oil.**

Above 25° C (77° F)	SAE30 or SAE10W-30 SAE15W-40
-10° C to 25° C (14° F to 77° F)	SAE10W-30 or SAE15W-40
Below -10° C (14° F)	SAE10W-30

IMPORTANT:
Before changing to another engine oil class or specifications, drain all engine oil from the engine.

2.7. Tyres

Tyres: 20*10.00-10/6 TL LG-306
Wheel rim: 7.00Ix10 S 5/M12.5/80/115

Tyre inflation pressure: 2.2 bar maximum

Solid tyres
Some tyre types are filled with a special heavy foam that provides additional counterweight. These foam-filled tyres, known as solid tyres, are especially recommended whenever there is a high risk of puncturing standard inflatable tyres. When operating the tool carrier with solid tyres, they may increase the acceleration rate and braking distance. Solid tyres are puncture-proof and do not require inflation pressure checks.

3. STARTING AND CONTROLS

Remember: **safety first**.
Before operating, test all tool carrier functions in a safe, open area. No personnel is allowed in the path of tool carrier movement and the hazardous area of tool carrier implements.

Risk of suffocation: Do not operate the tool carrier indoors.
Exhaust gases can be fatal within a few minutes. Do not operate the tool carrier in indoor or poorly ventilated areas: open the door to the room before starting the engine.

Risk of fire, explosion and severe engine damage: Do not use engine starting fluids.
Engine starting fluids, like **Start-Rapid** and similar, are a risk of fire, explosion and severe engine damage. Never mix Diesel fuel with petrol (gasoline) or other fuel types.

Risk of collision: Secure the tool carrier against accidental starting from park.
Keep your hands and feet away from the controls when turning on the ignition and starting the engine.

Risk of accident and uncontrolled starting: Do not start the engine by bypassing the factory engine starter components and operating components.
Use the ignition switch and its key only to start the engine. Jump starting the engine by bypassing the ignition switch system may result in sparking, burns, fire, engine failure, and contact with moving engine parts.

3.1. Commissioning the tool carrier for operation

Before starting the tool carrier, each driver and operator must understand this User Manual.

Using the tool carrier in poor working order may result in serious injury or damage to the tool carrier.

- If any defects or anything missing is found during an inspection, do not operate the tool carrier until repaired.
- Operate the tool carrier only in good working order and according to the intended use defined in the User Manual.

Technical condition check of the tool carrier and implement

1. Walkaround and visual inspection:

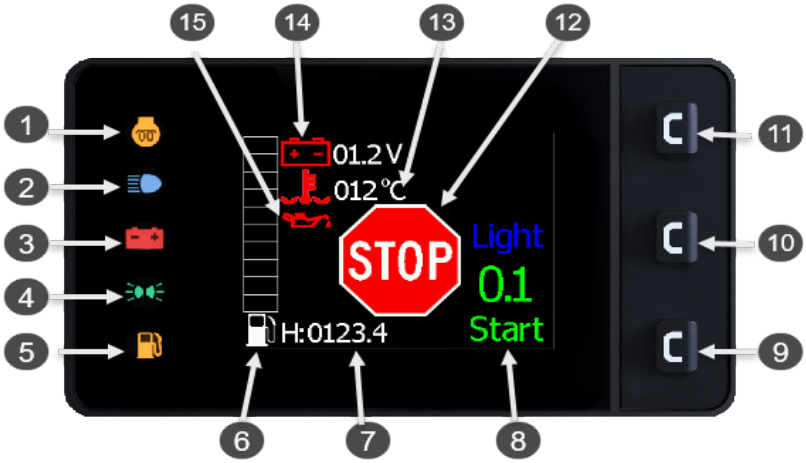
- The exterior of the tool carrier cannot be damaged (broken or deformed).
- The components must not leak.
- The hydraulic system must not leak; if a leak is found, replace the affected parts of the system.
- The implement must be properly mounted and secured.
- The implement should rest on the ground.
- Check that the implement is properly mounted and secured on the tool carrier.
- The tyres must not be damaged or worn out.
- Check that the air pressure in the tyres is correct (max. 2.2 bar).

2. Checking the fluid levels:

- Check the fuel tank level.
- Check the engine oil level.
- Check the hydraulic fluid tank level.
- Check the engine coolant level.

3.2. Multifunction display

CAUTION **Do not wash the instrument cluster display with pressurised water.** Otherwise water can penetrate into the display, resulting in its failure or other component failure.



1. **Glow plug preheat indicator**: indicates the glow plug preheating is on before ignition.
2. **Work light indicator**: comes on with the work light.
3. **Low battery voltage warning indicator**: comes on when the battery voltage drops below 11.5 V.
4. Not used.
5. **Fuel reserve indicator**: indicates low fuel level.
6. **Fuel level gauge**: actual reading from pin 8.
7. **Operating hours counter**: counts the operating time since the ignition was switched on; the LED flashes every second.
8. **Ignition countdown timer**: indicates the time until the engine is ready to start.
9. **Engine starter switch**: holding it down for 0 to 8 seconds automatically starts the glow plug preheating. The starter engages when the starter switch remains depressed for more than 8 seconds after the glow plugs have been heated up. If the engine temperature is above 40°C, it takes 2 seconds for the glow plugs to heat up. The engine STOP solenoid is released after 5 seconds of glow plug preheating, but only if the starter switch remains depressed.
10. **Work light switch**: turns the work light on and off.
11. Not used.
12. **Check engine indicator**: indicates incorrect oil temperature or pressure.
13. **Engine temperature gauge**: actual reading from pin 26.
14. **Battery voltage gauge**: actual voltage reading. The charging relay switches on 20 seconds after a successful engine start.
15. **Oil pressure gauge**: actual reading from pin 25.

3.3. Starting the tool carrier

NOTE **When starting the engine, the implement hydraulic control lever must be in its neutral (zero) position.**

The ignition switch controls the engine and the supply voltage to the onboard electrical system. The ignition switch positions:
OFF – the engine is off. Most onboard electrical circuits are de-energised. The ignition key can be removed from the switch. The electrical system can be completely de-energised by turning off the main battery disconnect.
ON – the supply voltage is on. The onboard electrical system is operational.

Engine start-up:

1. Carry out the daily check of the tool carrier.
2. Turn on the main battery disconnect (switching it ON).
3. Sit in the operator's seat.
4. Move the throttle lever to approximately 1/4 of the range.
5. Make sure that the implement hydraulic system is turned off (the enable lever must be in the neutral). ***Do not press the forward/reverse pedals.***
6. Turn the ignition key clockwise to switch it ON. The instrument cluster multifunction display will come on.
7. Press the starter switch (2); the countdown will begin for the glow plugs to heat up for 8 seconds, after which the engine should crank and start.

CAUTION Turn off the engine immediately during each of the following emergencies. Determine the root cause of the emergency before attempting to start the engine again.

CAUTION

Turn off the engine whenever:

- The oil pressure or check engine indicator light comes on while the tool carrier is running.
- The engine speed increases or decreases rapidly on its own, without operating the throttle.
- An unexpected, unusual noise is heard.
- The engine vibration suddenly gets stronger.
- The exhaust fumes suddenly become dark or white.

3.4. Engine shutdown (safe stop procedure)

The safe stop procedure is intended to fully protect the operator and the tool carrier's surroundings when the operator wants to stop the tool carrier. Carrying out the steps of the following procedure in the listed order allows a controlled shutdown of the engine, stable shutdown of the mechanical and electrical systems, and the tool carrier to be prepared for parking or servicing.

CAUTION Do not turn off the engine immediately after running the tool carrier at high revs. Let the engine idle for about one minute before turning it off. This will extend the service life of the engine.

Engine shutdown

1. Stop the tool carrier on a flat, firm, and dry surface.
2. Set all hydraulic control levers to neutral.
3. Turn the ignition key counter-clockwise to switch it OFF.
4. Remove the ignition key from the switch.
5. Turn the main battery disconnect counter-clockwise to switch it OFF.
4. Remove the key from the main disconnect.
5. Keep the ignition key and main disconnector key in a safe place.

✓ The tool carrier is now secured against unauthorised operation.

3.5. Driving the tool carrier

The BOBMAN Madmax has a hydrostatic powertrain. The hydraulic pump of the hydrostatic power train is a variable displacement unit controlled proportionally by the forward/reverse pedals. The driving involves operating the forward/reverse pedals and the throttle lever.

- The engine speed is set using the throttle lever (1) on the instrument panel. The driving direction and speed are controlled using the forward/reverse pedal to the right.
- Maximum pushing force: press the forward/reverse pedal (2) a bit. Increase travel speed: press the forward/reverse pedal deeper.

Operating the forward/reverse pedal:

Drive forward: carefully press the top part of the forward/reverse pedal to start driving forward.

Driving in reverse: carefully press the bottom part of the forward/reverse pedal.

The tool carrier does not have a regular service brake. The tool carrier will brake automatically when the forward/reverse pedal (2) is released. Slowly release the forward/reverse pedal when you want to stop. If you want to brake quickly, press the forward/reverse pedal to reverse the driving direction or release it completely.

The throttle lever (1) can be used to control the engine speed while driving. In general: use a low engine speed for light work; use a higher engine speed for heavier work or driving faster, e.g. when a higher engine output is needed.

Risk of tipping over.

Do not attempt to corner at high speed. A sharp turn of the steering wheel while driving can tip over the tool carrier. Reduce your speed before attempting to turn. Steer the tool carrier using smooth, controlled motions.

3.6. Hydraulic and other controls

All controls are provided close to the operator's seat for convenient operation. The controls are installed on the steering column.

All work functions are hydraulically powered. A work function can be switched on and off by setting the hydraulic valve lever by turning the valve to the position shown in its legend.

When operating an implement or function for the first time, slowly operate the control to test and verify that the hydraulic movement and its range are correct.

CAUTION

When operating an implement which requires a continuous hydraulic fluid supply, e.g. a hydraulic motor-powered implement, the hydraulic control lever of the implement must be set to maximum flow (to fully open the directional control valve). If the directional control valve supplying hydraulic fluid to the implement is not fully open, the pressurized fluid flow is reduced, which may quickly overhead the hydraulic system.

1. Implement hydraulic system enable control.
2. 1WD/3WD selector.
3. A-frame lift up/down control.

3.7. Emergency response to tool carrier overturning

The tool carrier should not overturn if the operator is careful and follows this User Manual. It is important to be always ready for emergencies and to know what to do if the tool carrier tips over. The tool carrier is in danger of overturning or tipping over in certain conditions.

Risk of crushing between the tool carrier and the ground during an overturn.

CAUTION **Emergency response to tool carrier overturning:**

1. Immediately stop the engine. To do this, press the emergency stop device or turn the ignition key OFF. If the engine and hydraulic pumps continue to run after the tool carrier has overturned, the tool carrier can quickly fail and there can be a fuel and hydraulic fluid spill.
2. Put the tool carrier back on its wheels as soon as possible.
3. Contact the service point before restarting the engine.

4. OPERATING WITH IMPLEMENTS

CAUTION

Wear protective clothing, footwear and gloves when installing, removing and operating any implement.

Never attempt to use implements not intended for the tool carrier. Using implements not approved by the manufacturer can be hazardous to the operator and the tool carrier, potentially leading to the loss of commercial warranty rights of the owner.

Never use any implements that could become hazardous or make the tool carrier unstable in operation.

Risk of pinching during implement installation.
Keep your hands away from between the A-frame lift and the implement.

Risk of burns by touching hot hydraulic couplings.
Wear protective gloves while disconnecting hydraulic couplings.

Starting the engine when the operator is not in the seat may result in severe injury by contact with rotating parts of the implement.

4.1. Implement types

The implements compatible with the front A-frame lift are shown in the figure below.

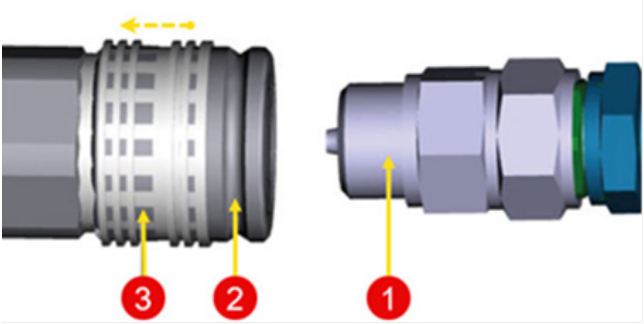
1. 135 cm feedturner
2. 2 × Ø75 cm double brush
3. 145 cm scraper

4.2. Implement installation/removal

1. Open the locking handle on the implement mounting frame (1). Lower the A-frame lift so that the A-frame can be hooked onto the implement mounting frame. Drive the tool carrier up to the back side of the implement mounting frame to align the A-frame fixtures with the mounting frame.

2. Operate the up/down lever (2) to raise the lift enough to lift the implement attached to the A-frame off the ground.
3. Close the locking handle to secure the mounting frame to the A-frame.
4. Turn off the engine.
5. Move the hydraulic control lever back and forth several times to depressurize the hydraulic system.
6. Connect the hydraulic couplings of the implement to the hydraulic system of the tool carrier:

CAUTION **Risk of damage:** keep the hydraulic couplings clean. Clean the cap and coupling with a cloth before use.



1. Nipple coupling / 2. Socket coupling / 3. Ring

1. Pull off and hold the socket coupling ring (3).
2. Push the nipple coupling (1) on the implement's hydraulic line into the socket coupling (2) to stop.
3. Release the socket coupling ring. Verify that the connection is secure.
4. To disconnect a hydraulic coupling, pull back and hold the socket coupling ring while pulling out the nipple coupling on the implement hydraulic line.

CAUTION **Risk of accidents.** Make sure that the installed implement and all its couplings are correctly attached, connected and secured.

7. Start the engine.
8. Before operating the implement, test its hydraulic functions.

✓ Now the implement is ready for use.

4.3. Operating the implement hydraulic system

CAUTION When starting the engine, the implement hydraulic control lever must be in its neutral (**OFF**) position.

1. Implement hydraulic power enable control:
the hydraulic system enable control lever is on the left-hand side of the steering column.

2. A-frame lift up/down lever:
the lever (2) controls raising and lowering the A-frame lift. The A-frame lift hydraulic circuit has a floating position that can be selected with the up/down lever.

a) Pull the lever up to raise the A-frame lift.

b) Pull the lever down to lower the A-frame lift.

c) Press the lever in to select the floating position of the A-frame lift.

The floating position of the A-frame lift allows the lift and the implement mounted on it to follow irregularities of the ground. When the floating position is selected, the A-frame lift only moves under its own weight and load, without operating the hydraulic cylinders. The floating position is designed for use in rough terrain and should be turned off during travel (when the implement is not operated).

5. STORAGE, TRANSPORT, AND LIFTING POINTS

5.1. Storage

If the tool carrier will not be used for a long time, it is necessary to perform this procedure first:

Preparing for prolonged standstill:

Before parking and removing the tool carrier from service, clean it thoroughly, including the engine compartment, and let it dry thoroughly. Store the tool carrier parked in a dry indoor location that is protected against moisture, water and freezing. It is recommended to cover the tool carrier with a tarpaulin.

Pre-storage maintenance:

- Fully refuel the tool carrier.
- Carefully lubricate all lubrication points.

In-storage maintenance:

Start the engine at least once a month during storage.

Drive the tool carrier over a short distance to evenly distribute the hydraulic fluid through the systems and protect moving parts from corrosion.

Keep the battery charged.

Preparations after storage:

After prolonged standstill, check the engine oil and hydraulic fluid levels and refill if required. The machine must be lubricated before operation.

5.2. Transport and lifting points

The tool carrier can be transported on a vehicle once cleaned and with its implement removed. Transport the tool carrier using a truck with a sufficient load capacity and the load body/platform ramps in working order. Park the tool carrier on the load platform of the transport vehicle and move the hydraulic controls to the neutral. Remove the keys from the ignition switch and the main battery disconnect.

Lash the tool carrier with cargo straps by putting them through the front A-frame lift and the rear wheel axle (as shown in the figure).

If improperly secured to the transport vehicle, the tool carrier may roll off and cause a traffic accident.

6. SERVICE AND MAINTENANCE

All maintenance and servicing require compliance with the essential health and safety regulations, as well as the following mandatory instructions and prohibitions:

1. Stop the tool carrier and wait for it to cool down before servicing.
2. Turn OFF the main battery disconnect.
3. Before servicing the onboard electrical system or the battery, disconnect the battery cables from the batter terminals.
4. Maintenance of the hydraulic system should only be done by qualified personnel.

Information about the servicing procedures can provided by the nearest Bobman dealer.

Risk of burns, cuts and exposure to oil/fluids and dirt. Wear safety goggles, protective gloves and protective clothing during all maintenance work. Hot surfaces and sharp edges are a risk burns and cuts. Exposure of the skin to hydraulic fluid can be harmful to health; always wash your hands thoroughly after handling hydraulic fluids.

Risk of injury by pressurised hydraulic fluid. Before servicing hydraulic components, make sure that the hydraulic system has been completely depressurised. When connecting or separating hydraulic couplings, keep your hands away from the coupling. Keep your hands away from all spots which may leak pressurised hydraulic fluid: a pressurised leak can be verified by placing a piece of cardboard near the suspected location. If hydraulic fluid punctures the skin and penetrates the tissues, or there is a suspicion of such injury, seek medical attention immediately.

Warning: risk of burns and machine damage. Pressurised hydraulic fluid can cause serious injury; hydraulic fluid spills are harmful to the environment. Hot hydraulic fluid can cause severe burns.

Before inspecting hydraulic lines or components, always make sure that the tool carrier is completely shut down and that the hydraulic system has been depressurized. Do not operate the tool carrier or any implement if a leak is found.

Routinely check the condition of the hydraulic hoses for cracks, signs of wear, and damage to the outer sheath. If any damage is found, immediately stop the operation and take the tool carrier out of service. Have the failed hydraulic lines and components replaced immediately.

Every hydraulic fluid leak, no matter how small, requires immediate repair, or it will become bigger quickly.

CAUTION

Operating fluids are harmful to the environment.

Waste oils and fluids must be returned to an authorised waste collection facility. Consult the relevant local regulations for the recycling and disposal of other machine components.

6.1. Daily inspection and periodic maintenance schedule

Periodic maintenance and servicing are intended to maintain good repair, safety and maximum service life of the tool carrier. This section specifies key maintenance tasks, the maintenance schedule for the tool carrier and its engine, and relevant work procedures. See the following pages for the procedures.

In this User Manual, the mandatory maintenance tasks are grouped as follows:

1. **Daily maintenance**: simple servicing to be done by the user that require no special tools or training. It includes checking the technical condition of the tool carrier and implements before the day of work, as well as simple troubleshooting.

2. **Periodic maintenance**: may require special tools and training. Along with the daily maintenance tasks, it includes a thorough inspection of the technical condition. Certain tasks in this maintenance group may only be carried out by qualified service technicians. They are indicated in the service schedule. Authorised Bobman dealers have the tools necessary for such tasks.

All servicing must be carried out when the tool carrier is stopped and shut down, unless the procedures require servicing with the engine running. Follow the established service plan schedule, record the completed maintenance and contact the Bobman service if you have any concerns or need to purchase spare parts.

6.2. Inspection after the first 50 operating hours

CAUTION

It is essential to carry out the inspection after the first 50 operating hours. This first inspection is critical for continued performance and life of the hydraulic systems and the engine. During the first 50 operating hours, the hydraulic components and engine are run-in, while the oil, fluid and filters collect the debris and byproducts generated by running in. Failure to carry out the first inspection in the specified interval may lead to accelerated wear of hydraulic pumps and motors, valves and the internal combustion engine, with the risk of irreversible failure. Any damage caused by this is not covered by the commercial warranty. The first inspection includes tasks relevant to the safety and reliability of the tool carrier.

Periodic maintenance intervals	First 50 operating hours	* Every 400 hours or once a year (whichever comes first)
Check and replace the engine air intake filter	●	●* *
Change the engine oil	●	●*
Change the engine oil filter	●	●*
Change the hydraulic fluid		●
Change the hydraulic fluid filter	●	●
Check the level and condition of the hydraulic fluid and fuel tanks	●	●
Change the fuel filter	●	●
Inspect the fuel lines	●	●
Inspect the battery-to-battery cable clamp and clamp-to-cable connections	●	●
Inspect the onboard electrical wiring, relays and other electrical components	●	●
Inspect the hydraulic lines/hoses and couplings	●	●
Measure the hydraulic fluid circuit pressure	●	●
Inspect and test the operation of the drive motor system	●	●
Check the engine vibration level and overall performance	●	●
Retighten the bolts, including wheel rim bolts	●	●

* Every 100 operating hours or once a year (whichever comes first)
* * Every year of every 6th air intake filter cleaning

6.3. Engine maintenance schedule

Interval	Tasks	Ref. page
Every 50 hrs	Inspect the fuel lines with clamps	13 @
See NOTE	Change the engine oil	14, 15 O
Every 100 hrs	Clean the air intake filter	19 *1 @
	Clean the fuel filter	14
	Check fan belt tension	20
	Drain water from the separator	-
Every 200 hrs	Change the hydraulic fluid filter (depends on the tank type installed)	16 O
	Inspect the air intake zip tube	- @
Every 200 hrs or six months	Inspect the radiator hoses with clamps	18
Every 400 hrs	Change the fuel filter	14 @
	Clean the water separator in the fuel tank	-
Every 500 hrs	Clean the coolant coil (the radiator core)	-
	Replace the fan belt	20
Ever year of every 6th air intake filter cleaning	Replace the air intake filter	19 *2 @
Every 800 hrs	Check the valve clearance	- *3
Every 1500 hrs	Check the fuel injector delivery pressure	- *3 @
Every 3000 hrs	Inspect the air intake zip tube	- *3 @
Every two years	Replace the radiator hoses with clamps	18
	Replace the fuel lines with clamps	13 *3 @
	Change the coolant (use a concentrated coolant/water mix)	16
	Replace the air intake zip tube	- *4 @

Important:

- The tasks indicated with this symbol O must be completed after the first 50 operating hours.
- *1. Clean the air intake filter more frequently if the tool carrier is operated in a dusty environment.
- *2. Every sixth cleaning.
- *3. Contact your nearest KUBOTA representative for this servicing.
- *4. Replace only if necessary.
- The components indicated with the @ symbol are KUBOTA-brand OEM components critical to conformity with the emission standards established by U.S. EPA (U.S.

Environmental Protection Agency) for non-road approved internal combustion engines. The owner is responsible for proper maintenance in compliance with the foregoing requirements. For more information, refer to the commercial warranty terms and conditions.

CAUTION

For more information about engine servicing and maintenance, refer to the engine OEM manual. During periodic maintenance and servicing of the tool carrier, the additional tasks for the engine must be completed as specified in the engine OEM manual. Some engine servicing tasks may require special tools and knowledge. For periodic maintenance and service of the engine, contact the local authorised Kubota service point.

Use the fuel, fluids and oil which meet the requirements specified in this User Manual. If the engine OEM manual specifies anything contrary to this User Manual, the User Manual shall prevail.

6.4. Inspection and maintenance

6.4.1 Lubrication

CAUTION Lubrication of articulated joints is critical to reduce wear and tear. Failure to relubricate or poor lubrication can quickly lead to extensive damage.

The following figure shows the locations of the lubrication points:

1. The steering gear chain, beneath the front cover.
2. Rear wheel steering.

All joints must be cleaned and properly lubricated. The lubrication intervals depend on the actual operating conditions. Inspect every 30 operating hours or more frequently. If the joints are dirty, relubricate them. Poor lubrication results in faster wear of the joints.
Use multi-purpose lithium grease fed using a pump lubricator. All grease nipples are standardised: replace them if damaged. Before lubricating, clean the grease nipple, inject a small portion of grease and wipe off the excess bleed.

Every lubrication point is identified with the label shown above.

6.4.2 Refuelling

The fuel level can be checked on the display gauge. Park the tool carrier on level ground so that the fuel gauge reading is accurate. It is recommended to refuel before running out of fuel, as it will reduce condensation and dirt build-up in the fuel tank.

Only use clean diesel fuel grade compliant with EN 590. Keep water and dirt from entering the fuel tank. Fuel which does not conform with the required standards may result in non-compliance with emission standards.

Risk of fire or explosion.

Do not refuel indoors. Do not smoke or use open flames near fuel. When refuelling, do not let the fuel to spill on hot surfaces.

Refuelling procedure:

1. Turn off the ignition switch.
2. Open the fuel filler cap, which is under the operator's seat.
3. Only use the fuel specified in the User Manual.
4. After refuelling, wipe off all stains thoroughly.
5. Close the fuel filler cap.

6.4.3 Checking the hydraulic fluid level

Check the hydraulic fluid level, especially after installing a new implement, once the hydraulic fluid charge in the onboard system fills the implement circuit, which will reduce the overall fluid level in the tool carrier. Check for hydraulic fluid leaks during this procedure.

CAUTION Park the tool carrier on firm and level ground. Turn off the engine and all hydraulic powered and other components must be stopped. Wait a few minutes for the hydraulic fluid to drain back into the tank before checking the fluid level.

(1) Hydraulic fluid filler cap / (2) Fluid level gauge

Refill with hydraulic fluid if the level is below the mark on the gauge:

- Slowly pour fresh and clean fluid into the filler of the tank until the gauge shows the correct level.
- Do not overfill: too much fluid in the system may cause the hydraulic components to malfunction.

Close the hydraulic fluid filler cap once the check is complete. Next, start the tooling carrier and test the operation of the hydraulic system. If the system works correctly, the tooling carrier is ready for use.

6.4.4 Checking the engine coolant level

Do not open the coolant expansion tank when the engine is hot. The coolant level should only checked on a cold engine, through the clear wall of the expansion tank.

WARNING

Risk of burns by hot coolant. Never attempt to undo a hot radiator cap or a hot expansion tank cap. Do not open the radiator filler cap (1) when the coolant is hot. Wait for the coolant to cool down. Now, twist the cap to STOP to depressurize the coolant system. Next, remove the cap. If the engine overheats, steam may vent from the radiator cap or the coolant expansion tank. It is a risk of severe burns.

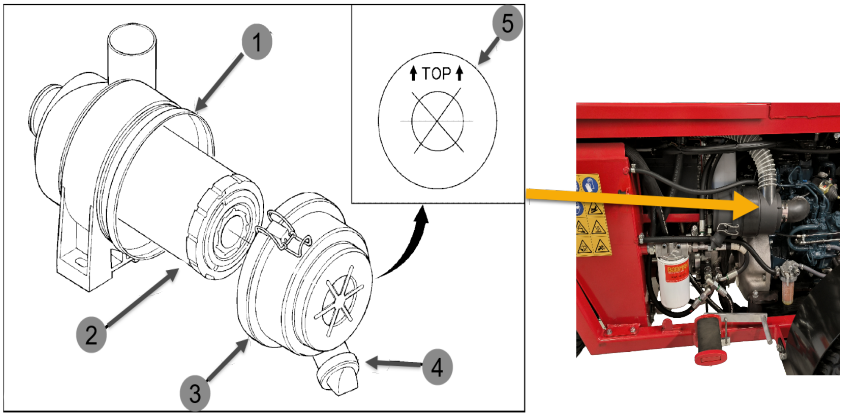
Refill the coolant if necessary using a mixture of 50% concentrated glycol-based coolant and 50% of demineralised water. This will provide effective protection against corrosion of the engine internals. Do not mix different grades of coolant. Otherwise undesirable chemical reactions may occur and damage the cooling system. If frequent coolant refilling is necessary, it may indicate a coolant leak or other engine failure. If this is the case, report the issue immediately to the nearest authorised BOBMAN service point.

Check the coolant level in the coolant expansion tank (2), which is between the engine and the battery. The coolant expansion tank is transparent, allowing the fluid level to be visually checked. With the engine cold and stopped off, the coolant level should be between the FULL and LOW marks.

6.4.5 Checking and replacing the engine air intake filter

The air intake filter prevents dust and debris from entering the engine. In dusty conditions, it may be necessary to clean the air intake filter more frequently between filter changes.

Routinely inspect the condition of the air intake filter regularly, clean it and replace it if necessary. The air intake filter needs replacement every 6th cleaning or once a year, whichever comes first. The air intake filter is dry — never coat it with oil.



Cleaning and checking the air intake filter:

1. Open the air intake filter box (3) and carefully remove the filter (2).
2. If the filter is dry yet dusty, blow it clean with compressed air from the bottom side (the downstream one). **Do not use compressed air above 205 kPa (2.1 kgf/cm², 30 psi).**
3. If the inside of the air intake filter box (1) is dirty or wet, clean it with a cloth.
4. Install the cleaned or new filter, making sure that the filter gasket fits snugly to the cover of the air intake filter box.
5. Close the air intake filter box and carefully secure the latch on the cover.

CAUTION

Make sure that the cover latch is tight enough after doing it up on the air intake filter box. If the latch is loose, the air intake may aspirate dust and debris, causing premature wear of the cylinder sleeves and piston rings which will reduce the engine output.

6.4.6 Changing the hydraulic fluid filter

CAUTION Turn off the tool carrier and wait for the hydraulic system to cool down. Use personal protective equipment (gloves and safety goggles) when servicing the hydraulic system.

1. Remove the right side panel (1) of the engine.
2. Locate the hydraulic fluid filter (2) between the hydraulic fluid tank and the engine.
3. Unscrew the filter using a filter wrench. Be careful of fluid leaks.
4. Apply a thin layer of fresh hydraulic fluid to the gasket of the new filter to ensure a tight connection.
5. Install the new filter by screwing it in with your fingers until it stops firmly. Tighten it slightly if necessary.
6. Start the tool carrier and make sure that there are no hydraulic fluid leaks around the filter.
7. Check the hydraulic fluid level in the tank and refill if necessary.
8. Reinstall the engine panel.

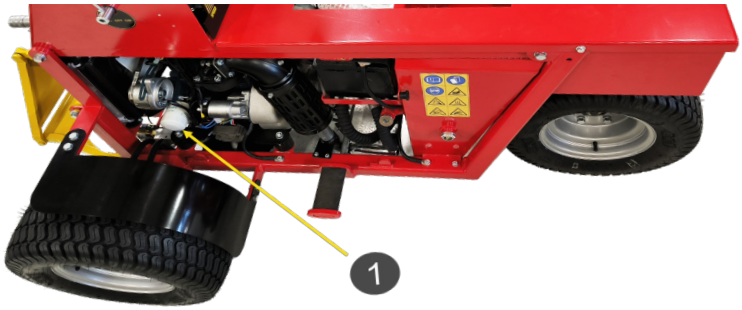
6.4.7 Changing the engine oil filter

WARNING

Always wear protective gloves to avoid exposure to hot oil.

Stop the engine and remove the ignition key. Wait until the engine has cooled down. The oil should still be rather warm (approx. 50-60°C) to drain it easily.

Changing the engine oil



1. **Preparations:** Park the tool carrier on firm and level ground. Start the engine to run in idle for 5-10 min to warm up the oil. Turn off the engine and wait for the oil to cool to 50-60°C. Remove the engine side panels. Open the engine oil filler cap.

2. **Draining the oil:** Place a suitable container under the oil drain plug. Unscrew the drain plug and drain the oil. Clean the plug, replace its gasket and screw the plug back into the drain port.

3. **Changing the oil filter:** Unscrew the oil filter with a suitable wrench. Apply a thin film of fresh engine oil to the new filter's gasket. Install the new filter by screwing it in with your fingers (tighten until it just becomes harder to turn further).

4. **Filling the oil:** Fill with the recommended oil using a funnel. Check the engine oil level on the dipstick and refill if necessary.

5. **Test start:** Start the engine and leave it at low idle for 2 minutes. Inspect the filter and the drain plug for leaks.

6. **Disposal:** Dispose of spent engine oil and filter in accordance with local regulations.

✓ The engine is ready to run after the oil and filter change.

6.4.8 Checking the battery and cables

WARNING

Risk of electrical shorting and exposure to battery acid and lead. For safety instructions before attempting to service the battery, see the battery handling section on p. 15.

Inspect the condition of the battery and the tightness of the battery cable clamps.

1. Routinely check the condition of the battery clamps. If the clamps are corroded, clean them.
2. Check that the battery is properly mounted and secured in the tool carrier. A loose battery can damage the electrical wiring and lead to a short in the system.
3. Replace the battery with a counterpart of the same dimensions and ratings.
4. Thoroughly clean the battery and its surroundings. Routinely remove dirt from the battery, underneath it and the adjacent surfaces.

Check the onboard electrical system wiring, including the battery cables.
Inspect the condition of the wiring, its management throughout the tool carrier and attachment. If there is evidence of damage to any wiring or electrical component, remove the tool carrier from service and isolate the battery from the onboard electrical system. Damaged wiring must be replaced before releasing the tool carrier for operation.

BOBMAN

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