The first part of this manual covers the features of the common M series tractor. The second part covers the special features of the M5N-091 POWER KRAWLER™ tractor. Please read both parts before operation.
KUBOTA Corporation is …

Since its inception in 1890, KUBOTA Corporation has grown to rank as one of the major firms in Japan. To achieve this status, the company has through the years diversified the range of its products and services to a remarkable extent. 30 plants and 35,000 employees produce over 1,000 different items, large and small.

All these products and all the services which accompany them, however, are unified by one central commitment. KUBOTA makes products which, taken on a national scale, are basic necessities. Products which are indispensable. Products which are intended to help individuals and nations fulfill the potential inherent in their environment. KUBOTA is the Basic Necessities Giant.

This potential includes water supply, food from the soil and from the sea, industrial development, architecture and construction, and transportation.

Thousands of people depend on KUBOTA’s know-how, technology, experience and customer service. You too can depend on KUBOTA.

Abbreviation List

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<td>2 Wheel Drive</td>
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<td>4WD</td>
<td>4 Wheel Drive</td>
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<td>API</td>
<td>American Petroleum Institute</td>
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<tr>
<td>ASABE</td>
<td>American Society of Agricultural and Biological Engineers, USA</td>
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<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials, USA</td>
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<tr>
<td>DIN</td>
<td>Deutsches Institut für Normung, GERMANY</td>
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<tr>
<td>DEF</td>
<td>Diesel Exhaust Fluid</td>
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<tr>
<td>DPF</td>
<td>Diesel Particulate Filter</td>
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<tr>
<td>DT</td>
<td>Dual Traction (4WD)</td>
</tr>
<tr>
<td>fpm</td>
<td>Feet Per Minute</td>
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<tr>
<td>GST</td>
<td>Glide Shift Transmission</td>
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<tr>
<td>Hi-Lo</td>
<td>High Speed-Low Speed</td>
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<tr>
<td>HST</td>
<td>Hydrostatic Transmission</td>
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<tr>
<td>m/s</td>
<td>Meters Per Second</td>
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<td>PTO</td>
<td>Power Take Off</td>
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<tr>
<td>RH/LH</td>
<td>Right-hand and left-hand sides are determined by facing in the direction of forward travel</td>
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<td>ROPS</td>
<td>Roll-Over Protective Structures</td>
</tr>
<tr>
<td>rpm</td>
<td>Revolutions Per Minute</td>
</tr>
<tr>
<td>r/s</td>
<td>Revolutions Per Second</td>
</tr>
<tr>
<td>SAE</td>
<td>Society of Automotive Engineers, USA</td>
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<tr>
<td>SCR</td>
<td>Selective Catalytic Reduction</td>
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<tr>
<td>SMV</td>
<td>Slow Moving Vehicle</td>
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© California Proposition 65

⚠️ WARNING ⚠️

Engine exhaust, some of its constituents, certain vehicle components and fluids, contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
As a guide to the operation of your tractor, various universal symbols have been utilized on the instruments and controls. The symbols are shown below with an indication of their meaning.

### General

- Safety Alert Symbol
- Master System Warning
- Fast
- Slow
- Creep
- Lock
- ON (Engaged)
- OFF (Disengaged)

### Engine-related

- Diesel Fuel
- Empty
- Full
- Hourmeter/Elapsed Operating Hours
- Engine Coolant-Temperature
- Low Temperature Regulation
- Engine Intake/Combustion Air-Filter
- Engine Oil-Pressure
- Water Separator
- Engine-Warning
- Engine-Rotational Speed
- Engine-Rev Limiter
- Engine-Constant RPM management
- Engine-Over Speed
- Engine-RPM Increase
- Engine-Run
- Engine-Start
- Engine-Stop
- Electrical Power-accessories
- Diesel Preheat/Glow Plugs (Low Temperature Start Aid)
- Emission Control
- Regeneration
- Regeneration inhibit
- Regeneration (Switch)
- Parked Regeneration
- DEF/AdBlue®-Level
- DEF/AdBlue®-Low Level
- DEF/AdBlue®-Poor Quality
- DEF/AdBlue®-Trouble
- DEF/AdBlue®-Thawing

### Vehicle body-related

- 4-Wheel Drive-On
- 4-Wheel Drive-Off
- 4-Wheel Drive-On
- Bi-Speed turn
- Clutch
- Brake
- Parking Brake
Differential Lock
Steering Wheel-Tilt
PTO-Off (Disengaged)
PTO-On (Engaged)
PTO-540 rpm
PTO-540E rpm
PTO-1000 rpm

Hydraulic-related
Draft Control-Shallow Position
Draft Control-Deep Position
Position Control-Raised Position
Position Control-Lowered Position
3-Point Lowering Speed Control
Remote Cylinder-Retракt
Remote Cylinder-Extend

Electric-related
Battery Charging Condition
Headlight-Low Beam
Headlight-High Beam
Turn Signal
Hazard Warning Lights
Audible Warning Device
Windshield Wiper
Windshield Wiper-Intermittent
Windshield Washer
Rear Window Defroster
FOREWORD

You are now the proud owner of a KUBOTA Tractor. This tractor is a product of KUBOTA quality engineering and manufacturing. It is made of fine materials and under a rigid quality control system. It will give you long, satisfactory service. To obtain the best use of your tractor, please read this manual carefully. It will help you become familiar with the operation of the tractor and contains many helpful hints about tractor maintenance. It is KUBOTA's policy to utilize as quickly as possible every advance in our research. The immediate use of new techniques in the manufacture of products may cause some small parts of this manual to be outdated. KUBOTA distributors and dealers will have the most up-to-date information. Please do not hesitate to consult with them.

SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully. It is essential that you read the instructions and safety regulations before you attempt to assemble or use this unit.

⚠️ DANGER : Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠️ WARNING : Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠️ CAUTION : Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

IMPORTANT : Indicates that equipment or property damage could result if instructions are not followed.

NOTE : Gives helpful information.
POWER KRAWLER® TRACTOR
FOREWORD

Thank you very much for choosing the POWER KRAWLER™ model of the M series tractor.
This operator's manual covers the operation, inspection and preventive maintenance instructions that are specific to the M series POWER KRAWLER™ model. For other information and instructions, refer to the first part of this manual. Please read this manual carefully to operate the machine properly and safely. Proper daily inspection, servicing and lubrication keeps your machine in good condition.

SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully. It is essential that you read the instructions and safety regulations before you attempt to assemble or use this unit.

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<td>EVERY 1500 HOURS</td>
<td>Checking Exhaust Manifold, Checking EGR Pipe, Checking DPF Differential Pressure Sensor Pipe, Checking CAB Isolation Cushion, Checking Antifrost Heater for Oil Separator, Replacing DEF/AdBlue® Pump Filter, Checking DEF/AdBlue® injector, Cleaning DPF Muffler, Checking and Cleaning EGR System, Checking Intake Air Heater, Checking Supply Pump, Checking Turbocharger, Anti-Freeze, Checking Brake Hose</td>
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<td>EVERY 1000 HOURS</td>
<td>Changing Engine Oil, Replacing Engine Oil Filter, Replacing Fuel Filter, Replacing Hydraulic Oil Filter, Checking Power Steering Line, Checking Radiator Hose and Clamp, Checking Fuel Line, Checking Intake Air Line, Checking Lift Cylinder Hose, Checking Air Conditioner Pipe and Hose, Checking Brake Hose</td>
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<td>EVERY 600 HOURS</td>
<td>Changing Engine Oil, Replacing Engine Oil Filter, Replacing Fuel Filter, Replacing Hydraulic Oil Filter, Checking Power Steering Line, Checking Radiator Hose and Clamp, Checking Fuel Line, Checking Intake Air Line, Checking Lift Cylinder Hose, Checking Air Conditioner Pipe and Hose, Checking Brake Hose</td>
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<tr>
<td>EVERY 1500 HOURS</td>
<td>Cleaning Fuel Injector Nozzle Tip, Checking DEF/AdBlue® Injector Tip, Checking DEF/AdBlue® Line, Replacing Oil Separator Element, Checking PCV (Positive Crankcase Ventilation) Valve, Checking and Cleaning EGR Cooler, Flushing Cooling System and Changing Coolant, Anti-Freeze</td>
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<td>EVERY 2000 HOURS</td>
<td>Checking Turbocharger, Checking Supply Pump, Checking Intake Air Heater, Checking and Cleaning EGR System, Cleaning DPF Muffler, Checking DEF/AdBlue® injector, Replacing DEF/AdBlue® Pump Filter, Replacing DEF/AdBlue® Pump Filter</td>
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<td>EVERY 1 YEAR</td>
<td>Checking Antifrost Heater for Oil Separator, Checking CAB Isolation Cushion, Checking DPF Differential Pressure Sensor Pipe, Checking EGR Pipe</td>
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Careful operation is your best insurance against an accident. 
Read and understand this manual carefully before operating the tractor.
All operators, no matter how much experience they may have, should read this and other related manuals before operating the tractor or any implement attached to it. It is the owner's obligation to instruct all operators in safe operation.

1. BEFORE OPERATING THE TRACTOR

1. Know your equipment and its limitations. Read this entire manual before attempting to start and operate the tractor.
2. Pay special attention to the danger, warning and caution labels on the tractor.
3. Do not operate the tractor or any implement attached to it while under the influence of alcohol, medication, controlled substances or while fatigued.
4. Before allowing other people to use your tractor, explain how to operate and have them read this manual before operation.
5. Never wear loose, torn, or bulky clothing around tractor. It may catch on moving parts or controls, leading to the risk of an accident. Use additional safety items, e.g. hard hat, safety boots or shoes, eye and hearing protection, gloves, etc., as appropriate or required.
6. Do not allow passengers to ride on any part of the tractor at anytime. The operator must remain in the tractor seat during operation.
7. Check brakes, clutch, linkage pins and other mechanical parts for improper adjustment and wear. Replace worn or damaged parts promptly. Check the tightness of all nuts and bolts regularly. (For further details, see "MAINTENANCE" section.)
8. Keep your tractor clean. Dirt, grease, and trash build up may contribute to fires and lead to personal injury.
9. Use only implements meeting the specifications listed under "IMPLEMENT LIMITATIONS" in this manual or implements approved by KUBOTA.
10. Use proper weights on the front or rear of the tractor to reduce the risk of upsets. Follow the safe operating procedures specified in the implement or attachment manual.

11. The narrower the tread, the greater the risk of a tractor upset. For maximum stability, adjust the wheels to the widest practical tread width for your application. (See "TIRES, WHEELS AND BALLAST" section.)

12. Do not modify the tractor. Unauthorized modification may affect the function of the tractor, which may result in personal injury.

◆ CAB, ROPS

1. KUBOTA recommends the use of a CAB or Roll Over Protective Structures (ROPS) and seat belt in almost all applications. This combination will reduce the risk of serious injury or death, should the tractor be upset. Check for overhead clearance which may interfere with a CAB or ROPS.
2. If the CAB or ROPS is loosened or removed for any reason, make sure that all parts are reinstalled correctly before operating the tractor.
3. Never modify or repair any structural member of a CAB or ROPS because welding, bending, drilling, grinding, or cutting may weaken the structure.
4. A damaged CAB or ROPS structure must be replaced, not repaired or revised.
5. If any structural member of the CAB or ROPS is damaged, replace the entire structure at your local KUBOTA Dealer.
6. Always use the seat belt if the tractor has a CAB or ROPS. Do not use the seat belt if there is no CAB or ROPS. Check the seat belt regularly and replace if frayed or damaged.
SAFE OPERATION

2. OPERATING THE TRACTOR

Operator safety is a priority. Safe operation, specifically with respect to overturning hazards, entails understanding the equipment and environmental conditions at the time of use. Some prohibited uses which can affect overturning hazards include traveling and turning with implements and loads carried too high etc. This manual sets forth some of the obvious risks, but the list is not, and cannot be, exhaustive. It is the operator's responsibility to be alert for any equipment or environmental condition that could compromise safe operation.

Starting
1. Always sit in the operator's seat when starting engine or operating levers or controls. Adjust seat per instructions in the operating the tractor section. Never start engine while standing on the ground.
2. KUBOTA recommends that you get on and off the tractor from the left side only; however, in the event of an EMERGENCY, you may exit using the right side door. Use caution in using the EMERGENCY right side door, as there are no steps from the CAB to the ground on the right side.
3. Before starting the engine, make sure that all levers (including auxiliary control levers) are in their neutral positions, that the parking brake is engaged, and that both the clutch and the Power Take-Off (PTO) are disengaged or "OFF". Fasten the seat belt if the tractor has a CAB, a fixed ROPS or a foldable ROPS in the upright and locked position.
4. Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed.
5. Do not operate or idle engine in a non-ventilated area. Carbon monoxide gas is colorless, odorless, and deadly.
6. Check before each use that operator presence controls are functioning correctly. Test safety systems. (See "Checking Engine Start System" in "EVERY 50 HOURS" in "PERIODIC SERVICE" section.) Do not operate unless they are functioning correctly.

Working
1. Pull only from the drawbar. Never hitch to axle housing or any other point except drawbar; such arrangements will increase the risk of serious personal injury or death due to a tractor upset.
2. For trailing PTO-driven implements, set the drawbar to the towing position.
3. Attach pulled or towed loads to the drawbar only.
4. Keep all shields and guards in place. Replace any that are missing or damaged.
5. Avoid sudden starts. To avoid upsets, slow down when turning, on uneven ground, and before stopping.
6. The tractor cannot turn with the differential locked and attempting to do so could be dangerous.
7. Do not operate near ditches, holes, embankments, or other ground surface features which may collapse under the tractor's weight. The risk of tractor upset is even higher when the ground is loose or wet. Tall grass can hide obstacles, walk the area first to be sure.
8. Watch where you are going at all times. Watch for and avoid obstacles. Be alert at row ends, near trees, and other obstructions.
9. When working in groups, always let the others know what you are going to do before you do it.
10. Never try to get on or off a moving tractor.
11. Always sit in the operator's seat when operating levers or controls.
12. Do not use "Bi-speed Turn" at high speed.
13. "Bi-Speed Turn" enables short and fast turns, therefore, become familiar with its performance before operating in close or confined areas.
14. Do not stand between tractor and implement or trailed vehicle unless parking brake is applied.

**Safety for children**

Tragedy can occur if the operator is not alert to the presence of children. Children generally are attracted to machines and the work they do.

1. Never assume that children will remain where you last saw them.
2. Keep children out of the work area and under the watchful eye of another responsible adult.
3. Be alert and shut your machine down if children enter the work area.
4. Never carry children on your machine. There is no safe place for them to ride. They may fall off and be run over or interfere with your control of the machine.
5. Never allow children to operate the machine even under adult supervision.
6. Never allow children to play on the machine or on the implement.
7. Use extra caution when backing up. Look behind and down to make sure area is clear before moving.

**Operating on slopes**

Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. All slopes require extra caution.

1. To avoid upsets, always back up steep slopes. If you cannot back up the slope or if you feel uneasy on it, do not operate on it. Stay off slopes too steep for safe operation.
2. Driving forward out of a ditch, mired condition or up a steep slope increases the risk of a tractor to be upset backward. Always back out of these situations. Extra caution is required with 4-wheel drive models because their increased traction can give the operator false confidence in the tractor's ability to climb slopes.
3. Keep all movement on slopes slow and gradual. Do not make sudden changes in speed, direction or apply brake and make sudden motions of the steering wheel.
4. Avoid disengaging the clutch or changing gears speed when climbing or going down a slope. If on a slope disengaging the clutch or changing gears to neutral could cause loss of control.
5. Special attention should be made to the weight and location of implements and loads as such will affect the stability of the tractor.
6. To improve stability on slope, set widest wheel tread as shown in "TIRES, WHEELS AND BALLAST" section.
7. To avoid free wheeling:
   - Do not shift the shuttle lever while on a slope.
   - Stop completely by using the brake and by depressing the clutch pedal, then shift the shuttle lever.
   - Start off after selecting shuttle direction, by releasing the clutch pedal.
8. When driving down a slope, ensure that 4-wheel drive is engaged to increase traction (if equipped).

**Driving the tractor on the road**

1. Lock the 2 brake pedals together to help assure straight-line stops. Uneven braking at road speeds could cause the tractor to tip over.
2. Check the front wheel engagement. The braking characteristics are different between 2 and 4-wheel drive. Be aware of the difference and use carefully.
3. Always slow the tractor down before turning. Turning at high speed may tip the tractor over.
4. Make sure that the Slow Moving Vehicle (SMV) sign is clean and visible. Use hazard lights and turn signals as required.
5. On public roads use the SMV emblem and hazard lights, if required by local traffic and safety regulations.
6. Observe all local traffic and safety regulations.
7. Turn the headlights on. Dim them when meeting another vehicle.
8. Drive at speeds that allow you to maintain control at all times.
9. Do not apply the differential lock while traveling at road speeds. The tractor may run out of control.
10. Avoid sudden motions of the steering wheel as they can lead to a dangerous loss of stability. The risk is especially great when the tractor is traveling at road speeds.
11. Do not operate an implement while the tractor is on the road. Lock the 3-point hitch in the raised position.
12. When towing other equipment, use a safety chain and place an SMV emblem on it as well.

3. Avoid parking on steep slopes, if at all possible park on a firm and level surface; if not, park across a slope and chock the wheels. Failure to comply with this warning may allow the tractor to move and could cause injury or death.

4. OPERATING THE PTO

1. Wait until all moving components have completely stopped before getting off the tractor, connecting, disconnecting, adjusting, cleaning, or servicing any PTO driven equipment.
2. Keep the PTO shaft cover in place at all times. Replace the PTO shaft cap when the shaft is not in use.

3. Before installing or using PTO driven equipment, read the manufacturer's manual and review the safety labels attached to the equipment. To prevent PTO driven equipment from improper or unsafe use, select the lower speed (540rpm) unless the higher one is specifically recommended as safe by the equipment manufacturer.
4. When operating stationary PTO driven equipment, always apply the tractor parking brake and place chocks behind and in front of the rear wheels. Stay clear of all rotating parts. Never step over rotating parts.

3. PARKING THE TRACTOR

1. Disengage the PTO, lower all implements to the ground, place all control levers in their neutral positions, set the parking brake, stop the engine, remove the key from the ignition and lock the cab door (if equipped). Leaving transmission in gear with the engine stopped will not prevent tractor from rolling.
2. Make sure that the tractor has come to a complete stop before dismounting.
5. USING 3-POINT HITCH

1. Use the 3-point hitch only with equipment designed for 3-point hitch usage.
2. When using a 3-point hitch mounted implement, be sure to install the proper counterbalance weight on the front of the tractor.
3. To avoid injury from separation:
   Do not extend lift rod beyond the groove on the threaded rod.

6. SERVICING THE TRACTOR

Before servicing the tractor, park it on a firm, flat and level surface, set the parking brake, lower all implements to the ground, place the gear shift lever in neutral, stop the engine and remove the key.
1. Allow the tractor time to cool off before working on or near the engine, muffler, radiator, etc.
2. Do not remove radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely. If the tractor has a coolant recovery tank, add coolant or water to the tank, not the radiator. (See "Checking Coolant Level" in "DAILY CHECK" in "PERIODIC SERVICE" section.)
3. Always stop the engine before refueling. Avoid spills and overfilling.
4. Do not smoke when working around battery or when refueling. Keep all sparks and flames away from battery and fuel tank. The battery presents an explosive hazard, because it gives off hydrogen and oxygen especially when recharging.
5. Before "jump starting" a dead battery, read and follow all of the instructions. (See "JUMP STARTING" in "OPERATING THE ENGINE" section.)
6. Keep first aid kit and fire extinguisher handy at all times.
7. Disconnect the battery’s ground cable before working on or near electric components.
8. To avoid the possibility of battery explosion, do not use or charge the refillable type battery if the fluid level is below the LOWER (lower limit level) mark. Check the fluid level regularly and add distilled water as required so that the fluid level is between the UPPER and LOWER levels.
9. To avoid sparks from an accidental short circuit, always disconnect the battery’s ground cable (-) first and reconnect it last.
10. Do not attempt to mount a tire on a rim. This should be done by a qualified person with the proper equipment.
11. Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure shown in the operator's manual.

12. Securely support the tractor when either changing wheels or adjusting the wheel tread width.

13. Make sure that wheel bolts have been tightened to the specified torque.

14. Disconnect the battery's ground cable and stop the engine to avoid the possibility of the machine runaway due to 4WD braking system during testing, service or repair with only rear wheels off the ground.

15. Do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered. If it is necessary to work under tractor or any machine elements for servicing or adjustment, securely support them with stands or suitable blocking beforehand.

16. Escaping hydraulic fluid under pressure has sufficient force to penetrate skin, causing serious personal injury. Before disconnecting hydraulic lines, be sure to release all residual pressure. Before applying pressure to the hydraulic system, make sure that all connections are tight and that all lines, pipes, and hoses are free of damage.

17. Fluid escaping from pinholes may be invisible. Do not use hands to search for suspected leaks; use a piece of cardboard or wood. Use of safety goggles or other eye protection is also highly recommended. If injured by escaping fluid, see a medical doctor at once. This fluid will produce gangrene or severe allergic reaction.

18. Do not open high-pressure fuel system. High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect nor attempt to repair fuel lines, sensors, or any other components between the high-pressure fuel pump and injectors on engines with high pressure common rail fuel system.

19. To avoid hazardous high voltage, turn the key switch to the OFF position if it is necessary to check to repair the computer, harness or connectors.

20. During Diesel Particulate Filter (hereinafter called DPF) regenerating operations, exhaust gases and exhaust filter components reach temperatures hot enough to burn people, or ignite or melt common materials.

21. Keep the tractor away from people, animals or structures which may be susceptible to harm or damage from hot exhaust gases.

22. To prevent fires, keep the DPF muffler and its surroundings clear of anything flammable and keep clean at all times.

23. To prevent fires, keep the DPF/SCR muffler and its surroundings clear of anything flammable and keep clean at all times. [Selective Catalytic Reduction (hereinafter called SCR)]

24. During regeneration, white exhaust gas may be visible. Do not allow regeneration in a non-ventilated space.

25. During regeneration, do not leave the tractor.
7. DANGER, WARNING AND CAUTION LABELS

(1) Part No. K3512-4719-1
Do not touch hot surface like supply pump, etc.

(2) Part No. 6C090-4958-2
Do not get your hands close to engine fan and fan belt.

(3) Part No. 3Y205-9892-1

(4) Part No. 3A851-7295-1
(1) Part No. 6C090-4958-2
Do not get your hands close to engine fan and fan belt.

(2) Part No. TC660-9861-1

**WARNING**

**TO AVOID PERSONAL INJURY OR DEATH:**
When the Diesel Particulate Filter (DPF) is in the regenerating mode, the exhaust gas and the DPF muffler become hot. During regeneration, take into account that the muffler will be very hot and keep the machine away from other people, animals, plants, and flammable material. Also keep the area near the DPF muffler clean and away from flammable material.

(3) Part No. TA040-4958-1
Do not touch hot surface like muffler, etc.

(4) Part No. K3512-4719-1
Do not touch hot surface like supply pump, etc.
(1) Part No. 3C581-9858-1

**DANGER**

TO AVOID POSSIBLE INJURY OR DEATH FROM A MACHINE RUNAWAY.

1. Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed.
2. Start engine only from operator’s seat with transmission and PTO OFF. Never start engine while standing on the ground.

(2) Part No. 3F240-9857-1

**WARNING**

To avoid free wheeling when shifting the shuttle lever while on a slope: Stop completely by using the brake and by depressing the clutch pedal. Start off after selecting shuttle direction by releasing the clutch pedal.

(3) Part No. 6C150-4743-1

**WARNING**

BEFORE DISMOUNTING TRACTOR:

1. ALWAYS SET PARKING BRAKE.
2. PARK ON LEVEL GROUND WHENEVER POSSIBLE.
3. LOWER ALL IMPLEMENTS TO THE GROUND.
4. STOP THE ENGINE.

(4) Part No. 3F240-9821-1

**WARNING**

TO AVOID MACHINE RUNAWAY DUE TO 4WD BRAKING SYSTEM:
Do not run engine with only rear wheels off ground.

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1AGAIAZAP009A
1AGAIIBDAP039A
1AGAIIBDAP040A
1AGAIIBIAP1820
1AGBDABAP078B
1AGBDABAP109A
(1) Part No. 3S205-9836-1

**WARNING**

**TO AVOID PERSONAL INJURY OR DEATH:**

1. Read and understand the operator’s manual before operation.
2. Before starting the engine, make sure that everyone is at a safe distance from the tractor and the PTO is off.
3. Do not allow passengers on the tractor at any time.
4. Before allowing other people to use the tractor, have them read the operator’s manual.
5. Check the tightness of nuts and bolts regularly.
6. Keep all shields in place and stay away from all moving parts.
7. Lock the two brake pedals together before driving on the road.
8. Slow down for turns, or rough roads, or when applying individual brakes.
9. On public roads use SMV emblem and hazard lights, if required by local traffic and safety regulations.
10. Pull only from the drawbar.
11. Before dismounting, lower the implement to the ground, set the parking brake, stop the engine and remove the key.
12. Securely support tractor and implements before working underneath.

(2) Part No. TA040-4902-1

**WARNING**

**TO AVOID INJURY OR DEATH FROM ROLL-OVER:**

Always use seat belt when driving.

(3) Part No. 3F240-4905-2

**WARNING**

To avoid personal injury; use “Bi-speed Turn” only in low gears and slow speed. Do not use “Bi-speed Turn” in high gears or road speed.

(4) Part No. 3B794-9839-1

Emergancy exit

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1. AGBEAAAP061A
2. AGBAIBIAPI780
3. AGAMAOAP078A
4. AGBDABAP216A
5. AGBDABAP077A
6. AGBDABAP081P
8. CARE OF DANGER, WARNING AND CAUTION LABELS

1. Keep danger, warning and caution labels clean and free from obstructing material.
2. Clean danger, warning and caution labels with soap and water, dry with a soft cloth.
3. Replace damaged or missing danger, warning and caution labels with new labels from your local KUBOTA Dealer.
4. If a component with danger, warning and caution label(s) affixed is replaced with new part, make sure new label(s) is (are) attached in the same location(s) as the replaced component.
5. Mount new danger, warning and caution labels by applying on a clean dry surface and pressing any bubbles to outside edge.
Your dealer is interested in your new tractor and has the desire to help you get the most value from it. After reading this manual thoroughly, you will find that you can do some of the regular maintenance yourself. However, when in need of parts or major service, be sure to see your KUBOTA Dealer. For service, contact the KUBOTA Dealership from which you purchased your tractor or your local KUBOTA Dealer. When in need of parts, be prepared to give your dealer the tractor, CAB/ROPS and engine serial numbers. Locate the serial numbers now and record them in the space provided.

<table>
<thead>
<tr>
<th>Type</th>
<th>Serial No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tractor</td>
<td></td>
</tr>
<tr>
<td>CAB / ROPS</td>
<td></td>
</tr>
<tr>
<td>Engine</td>
<td></td>
</tr>
<tr>
<td>Date of Purchase</td>
<td></td>
</tr>
<tr>
<td>Name of Dealer</td>
<td></td>
</tr>
</tbody>
</table>

(To be filled in by purchaser)

◆ **Warranty**
This tractor is warranted under the KUBOTA Limited Express Warranty, a copy of which may be obtained from your selling dealer. No warranty shall, however, apply if the tractor has not been handled according to the instruction given in the Operator's Manual even it is within the warranty period.

◆ **Scraping the tractor and its procedure**
To put the tractor out of service, correctly follow the local rules and regulations of the country or territory where you scrap it. If you have questions, consult your local KUBOTA Dealer.
(1) CAB identification plate (CAB Serial No.)

(1) Diesel Particulate Filter (DPF) serial number

(1) Diesel Particulate Filter (DPF) serial number
(2) Selective Catalytic Reduction (SCR) muffler serial number
## SPECIFICATIONS

### SPECIFICATION TABLE

<table>
<thead>
<tr>
<th>Model</th>
<th>M4N-071</th>
<th>M5N-091</th>
<th>M5N-111</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>V3800-TE4</td>
<td>V3800-TIEF4</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Direct Injection, Water-cooled 4 Cycle Diesel, Common Rail System, Turbocharger</td>
<td>Direct Injection, Water-cooled 4 Cycle Diesel, Common Rail System, Turbocharger, Intercooler</td>
<td></td>
</tr>
<tr>
<td>Number of cylinders</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total displacement</td>
<td>cm³ (cu.in.)</td>
<td>3769 (230)</td>
<td></td>
</tr>
<tr>
<td>Bore and stroke</td>
<td>mm (in.)</td>
<td>100 x 120 (3.9 x 4.7)</td>
<td></td>
</tr>
<tr>
<td>Rated revolution</td>
<td>rpm</td>
<td>2400</td>
<td>2600</td>
</tr>
<tr>
<td>Low idling revolution</td>
<td>rpm</td>
<td>800 to 850</td>
<td></td>
</tr>
<tr>
<td>Engine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated Engine HP (97/68/EC)</td>
<td>kW (HP)</td>
<td>54.1 (72.6)</td>
<td>70.8 (95.0)</td>
</tr>
<tr>
<td>Net power *1</td>
<td>kW (HP)</td>
<td>52.5 (70.4)</td>
<td>65.2 (87.5)</td>
</tr>
<tr>
<td>PTO power *1 (factory observed)</td>
<td>kW (HP)</td>
<td>[without DS] 58.1 (78)</td>
<td>[with DS] 55.9 (75)</td>
</tr>
<tr>
<td>Maximum torque</td>
<td>N·m (ft-lbs) / rpm</td>
<td>270 (199) / 1500</td>
<td>307 (226) / 1500</td>
</tr>
<tr>
<td>Battery capacity</td>
<td></td>
<td>12V, RC: 160min, CCA 900A</td>
<td></td>
</tr>
<tr>
<td>Fuel tank capacity</td>
<td>L (U.S.gals.)</td>
<td>76 (20.1)</td>
<td></td>
</tr>
<tr>
<td>Engine oil capacity</td>
<td>L (U.S.qts.)</td>
<td>10.7 (11.3)</td>
<td></td>
</tr>
<tr>
<td>Coolant capacity</td>
<td>L (U.S.qts.)</td>
<td>10.0 (11)</td>
<td></td>
</tr>
<tr>
<td>DEF/AdBlue® capacity</td>
<td>L (U.S.gals.)</td>
<td>---</td>
<td>12.3 (3.2)</td>
</tr>
<tr>
<td>Dimensions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall length</td>
<td>mm (in.)</td>
<td>3790 (149.2)</td>
<td>3950 (155.5)</td>
</tr>
<tr>
<td>Overall width (minimum tread)</td>
<td>mm (in.)</td>
<td>1220 (48)</td>
<td></td>
</tr>
<tr>
<td>Overall height</td>
<td>mm (in.)</td>
<td>2290 (90.2)</td>
<td></td>
</tr>
<tr>
<td>Wheel base</td>
<td>mm (in.)</td>
<td>2130 (83.9)</td>
<td></td>
</tr>
<tr>
<td>Tread</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>mm (in.)</td>
<td>1050 (41.3)</td>
<td></td>
</tr>
<tr>
<td>Rear</td>
<td>mm (in.)</td>
<td>970 to 1385 (38.2 to 54.5)</td>
<td></td>
</tr>
<tr>
<td>Minimum ground clearance</td>
<td>mm (in.)</td>
<td>310 (12.2) (Drawbar bracket)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>kg (lbs.)</td>
<td>2400 (5291)</td>
<td>2550 (5622)</td>
</tr>
</tbody>
</table>
### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>M4N-071</th>
<th>M5N-091</th>
<th>M5N-111</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traveling system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard tire size</td>
<td>Front tires</td>
<td>8-16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rear tires *2</td>
<td>12.4-24</td>
<td></td>
</tr>
<tr>
<td>Clutch</td>
<td>Multiple wet disc, Electronic Hydraulically operated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steering</td>
<td>Hydraulic Power Steering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Braking system</td>
<td>Hydraulically operated wet disc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differential</td>
<td>Bevel gears with differential lock (Rear)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulic control system</td>
<td>Position, draft (top link sensing) &amp; mix control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pump capacity</td>
<td>L (U.S.gals.) / min</td>
<td>63.3 (16.7)</td>
<td>68.6 (18.1)</td>
</tr>
<tr>
<td>3-point hitch</td>
<td>Category 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. lifting force</td>
<td>At lifting points *3</td>
<td>kg (lbs.)</td>
<td>2300 (5071)</td>
</tr>
<tr>
<td></td>
<td>24 in. behind lifting point *3</td>
<td>kg (lbs.)</td>
<td>1500 (3307)</td>
</tr>
<tr>
<td>Remote hydraulic control</td>
<td>2 standard valves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System pressure</td>
<td>MPa (kgf/cm²)</td>
<td>19.1 (195)</td>
<td></td>
</tr>
<tr>
<td>Traction system</td>
<td>Swinging drawbar, adjustable in direction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTO</td>
<td>Direction of turning</td>
<td>Clockwise, viewed from tractor rear</td>
<td></td>
</tr>
<tr>
<td>Live PTO (Independent)</td>
<td>PTO/ Engine speed</td>
<td>rpm</td>
<td>6 spline: 540 / 2385</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6 spline: 540E / 1764</td>
</tr>
</tbody>
</table>

The company reserves the right to change the specifications without notice.

**NOTE:**
*1 Manufacturer's estimate
*2 Cast iron disks available for wheels.
*3 At lower link end with links horizontal.
## TRAVELING SPEEDS

* M4N-071

(At rated engine rpm)

<table>
<thead>
<tr>
<th>Model</th>
<th>M4N-071</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>F12 / R12 model</td>
</tr>
<tr>
<td>Tire size (Rear)</td>
<td>12.4-24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shuttle shift lever</th>
<th>Range gear shift lever</th>
<th>Main gear shift lever</th>
<th>km/h</th>
<th>mph</th>
</tr>
</thead>
<tbody>
<tr>
<td>CREEP (option)</td>
<td>1</td>
<td>0.28</td>
<td>0.17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0.38</td>
<td>0.24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>0.46</td>
<td>0.29</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>0.63</td>
<td>0.39</td>
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</tr>
<tr>
<td></td>
<td>5</td>
<td>0.78</td>
<td>0.49</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
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The company reserves the right to change the specifications without notice.
### M5N-091, M5N-111

(At rated engine rpm)

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<tr>
<th>Model</th>
<th>M5N-091, M5N-111</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>F12 / R12 model</td>
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<td>Tire size (Rear)</td>
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#### Shuttle shift lever

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<th>Range gear shift lever</th>
<th>Main gear shift lever</th>
<th>CREEP (option)</th>
<th>Dual speed:H</th>
<th>Dual speed:L</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>km/h</td>
<td>mph</td>
<td>km/h</td>
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#### Forward

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<th>Dual speed:H</th>
<th>Dual speed:L</th>
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<tr>
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<td>km/h</td>
<td>mph</td>
<td>km/h</td>
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The company reserves the right to change the specifications without notice.
IMPLEMENT LIMITATIONS

The KUBOTA Tractor has been thoroughly tested for proper performance with implements sold or approved by KUBOTA. Use with implements which are not sold or approved by KUBOTA and which exceed the maximum specifications listed below, or which are otherwise unfit for use with the KUBOTA Tractor may result in malfunctions or failures of the tractor, damage to other property and injury to the operator or others. [Any malfunctions or failures of the tractor resulting from use with improper implements are not covered by the warranty.]

<table>
<thead>
<tr>
<th>Tread (max. width) with farm tire</th>
<th>Lower link end max. lifting capacity: W 0</th>
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</thead>
<tbody>
<tr>
<td>Front</td>
<td>Rear</td>
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<tr>
<td>1050 mm (41.3 in.)</td>
<td>1385 mm (54.5 in.)</td>
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</table>

Implement weight: W 1
Max. drawbar Load: W 2
Trailer loading weight: W 3

As in the following list (Shown on the next page)

Lower link end max, hydraulic lifting capacity......................W 0
Implement weight......................................................W 1
Max. drawbar load....................................................W 2
Trailer loading weight..............................................W 3

**NOTE:**
- Implement size may vary depending on soil operating conditions.
- Strictly follow the instructions outlined in the operator’s manual of the mounted or trailed machinery or trailer, and do not operate the combination tractor - machine or tractor - trailer unless all instructions have been followed.
- Forestry Application
  Following hazards exist;
  (a) toppling trees, primarily in case a rear-mounted tree grab-crane is mounted at the rear of the tractor;
  (b) penetrating objects in the operator’s enclosure, primarily in case a winch is mounted at the rear of the tractor.
Optional equipments such as OPS (Operator Protective Structure), FOPS (Falling Object Protective Structure), etc. to deal with these hazards and other related hazards are not available for this tractor. Without such optional equipment use is limited to tractor specific applications like transport and stationary work.
<table>
<thead>
<tr>
<th>No.</th>
<th>Implement</th>
<th>Remarks</th>
<th>M4N-017 4WD</th>
<th>M5N-091 4WD</th>
<th>M5N-111 4WD</th>
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<tr>
<td>1</td>
<td>Trailer</td>
<td>Max. Load Capacity kg (lbs.)</td>
<td>5000 (11000)</td>
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<td>Max. Drawbar Load kg (lbs.)</td>
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<td>Mower</td>
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<td>Max. Weight kg (lbs.)</td>
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<td>Flail Mower (Heavy)</td>
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<td>Sickle Bar</td>
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<td>Max. Tank-Capacity Mid L (gals.)</td>
<td>680 (180)</td>
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<td>Rear 3P L (gals.)</td>
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<td>16 in. x 2</td>
<td>18 in. x 1</td>
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<td>Cultivator</td>
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<td>Max. Weight kg (lbs.)</td>
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**NOTE:**
- Implement size may vary depending on soil operating conditions.
INSTRUMENT PANEL AND CONTROLS

ILLUSTRATED CONTENTS

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(5) Horn button .................................................. 37
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(11) Key switch .................................................... -
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# FOOT AND HAND CONTROLS

<table>
<thead>
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<th></th>
<th>ILLUSTRATED CONTENTS</th>
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<tr>
<td>(1)</td>
<td>Foot throttle ............................... 44</td>
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<td>(2)</td>
<td>Differential lock pedal ....................... 56</td>
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<td>(3)</td>
<td>Operator’s seat ............................... 34</td>
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<td>(4)</td>
<td>Seat belt ........................................ 35</td>
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<td>(5)</td>
<td>3-Point hitch lowering speed knob ............... 68</td>
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<td>(6)</td>
<td>RPM dual memory switch ......................... 53</td>
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<td>(7)</td>
<td>Main gear shift lever ........................... 41</td>
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<td>(8)</td>
<td>Clutch off switch [Dual speed model] ............ 42</td>
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<td>(9)</td>
<td>Dual speed shift switch [Dual speed model] ...... 41</td>
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<td>Range gear shift lever ......................... 41</td>
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<td>(11)</td>
<td>Parking brake lever ............................ 27, 55</td>
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<td>(12)</td>
<td>Remote control valve lever ..................... 69</td>
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<td>Hand throttle lever ............................. 44</td>
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<td>Position control lever .......................... 67</td>
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<td>Draft control lever ............................. 67</td>
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<td>PTO clutch control switch ..................... 58</td>
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<td>Electrical outlet ................................ 87</td>
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<td>(18)</td>
<td>Flow control knob ................................ 70</td>
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</table>
ILLUSTRATED CONTENTS

(1) Rear work light switch ......................... 80
(2) Front work light switch ....................... 80
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(6) Remote control valve coupler ............... 70
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DAILY CHECK
To prevent trouble from occurring, it is important to know the condition of the tractor well. Check it before starting.

⚠️ WARNING
To avoid personal injury or death:
- Be sure to check and service the tractor on a level surface with the engine shut off and the parking brake "ON" and implement lowered to the ground.

Check item
- Walk around inspection
- Check engine oil level
- Check transmission oil level
- Check coolant level
- Check washer liquid level
- Check water separator
- Clean grill and radiator screen
- Clean air conditioner condenser screen
- Clean intercooler
- Clean fuel cooler
- Clean oil cooler
- Check DPF/SCR muffler
- Check air cleaner evacuator valve
  (When used in a dusty place)
- Check air cleaner dust indicator
  (When used in a dusty place)
- Check brake pedal
- Check parking brake lever
- Check indicators, gauges and meter
- Check lights
- Check seat belt
- Check movable parts
- Supply DEF/AdBlue®
- Refuel
  (See "DAILY CHECK" in "PERIODIC SERVICE" section.)
- Care of danger, warning and caution labels
  (See "DANGER, WARNING AND CAUTION LABELS" in "SAFE OPERATION" section.)
OPERATING THE ENGINE

WARNING

To avoid personal injury or death:
- Read and understand "Safe Operation" in the front of this manual.
- Read and understand the danger, warning and caution labels located on the tractor.
- To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.
- Never start engine while standing on ground. Start engine only from operator's seat.
- Make it a rule to set all shift levers to the "NEUTRAL" positions and to place PTO clutch control switch in "OFF" position before starting the engine.
- Do not use starting fluid or ether.
- To protect the battery and the starter, make sure that the starter is not continuously turned for more than 10 seconds.

EXHAUST AFTERTREATMENT DEVICES

WARNING

To avoid personal injury or death:
- During Diesel Particulate Filter (DPF) regenerating operations, exhaust gases and exhaust filter components reach temperatures hot enough to burn people, or ignite or melt common materials.
- Keep tractor away from people, animals or structures which may be susceptible to harm or damage from hot exhaust gases.
- During regeneration, white exhaust gases may be visible. Do not allow regeneration in a non ventilated garage or confined area.
- During regeneration, do not leave the tractor.

NOTE:
- Exhaust aftertreatment devices vary depending on the model. In accordance with the table below, refer to the appropriate item.

<table>
<thead>
<tr>
<th>Model</th>
<th>Exhaust aftertreatment device</th>
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<tbody>
<tr>
<td>M4N-071</td>
<td>DPF muffler only</td>
</tr>
<tr>
<td>M5N-091</td>
<td>DPF and SCR muffler</td>
</tr>
<tr>
<td>M5N-111</td>
<td>DPF and SCR muffler</td>
</tr>
</tbody>
</table>

DIESEL PARTICULATE FILTER (DPF) MUFFLER

This tractor is equipped with an engine with a DPF (Diesel Particulate Filter) muffler which serves to reduce hydrocarbons, carbon monoxide and other gases, all of which are contained in diesel engine emissions, to harmless carbon dioxide and water. The DPF also traps PM (particulate matter).

Please handle exhaust aftertreatment devices correctly and in an environmentally responsible manner.

Dual Exhaust Aftertreatment Devices

Particulate matter (PM) and black smoke contained in exhaust gases are trapped and removed by the DPF (Diesel Particulate Filter) muffler.

The SCR system then decomposes residual nitrogen oxides (NOx) into harmless nitrogen (N2) and water (H2O) for purification.

This dual exhaust gas purifying device provides for clean exhaust gas at low fuel consumption.
Handling Points
When a specific amount of PM (particulate matter) has accumulated in the DPF muffler, it is necessary to refresh the DPF muffler by burning the PM inside it. This burning off work is called "Regeneration". To extend operating time to reach this regeneration, and to avoid DPF muffler trouble, make sure to observe the following handling matters.

◆ Fuel
Be sure to use Ultra Low Sulfur Fuel (S15).

IMPORTANT :
● Use of diesel fuel other than Ultra Low Sulfur Fuel may adversely affect the engine and DPF performance.
   Use of fuels other than Ultra Low Sulfur Fuel (S15) may not meet regulations for your region.

◆ Engine oil
Use DPF-compatible oil (CJ-4) for the engine.

IMPORTANT :
● If any engine oil other than CJ-4 is used, the DPF may become clogged earlier than expected and the fuel economy may drop.

◆ Prohibition of unnecessary idling operation
Generally, the lower the engine speed, the lower the exhaust gas temperature is, so the PM contained in exhaust gas will not be burnt, and begins to accumulate. Therefore, don't idle unnecessarily.

◆ Regeneration
When there is "Regeneration" instruction sign by lamp or buzzer, immediately perform the required procedure for regeneration.

IMPORTANT :
● Interrupting the regeneration cycle or continued operation by ignoring the warning signs may cause DPF and engine damage.

DPF Regeneration Process
DPF regeneration process can be performed by choosing from "Auto Regeneration" or "Regeneration inhibit" mode according to your job conditions. For jobs not affected by hot gases emitted during regeneration, the "Auto Regeneration" is advisable.

◆ Auto Regeneration Mode;
When starting the engine (switch operation is unnecessary), the "Auto Regeneration" mode is automatically activated.
With the auto regeneration mode on, when a specific amount of PM has accumulated, and the regeneration conditions are satisfied (See the "Tips on Diesel Particulate Filter [DPF] Regeneration"), the DPF will be automatically regenerated whether the tractor is in motion or parked.
By this way, work efficiency is improved. For details of auto regeneration, refer to "Operating Procedure for Auto Regeneration Mode" section.

◆ Regeneration Inhibit Mode;
After starting the engine, if the "DPF INHIBIT switch" is pressed to turn on the switch lamp, the "Regeneration inhibit" mode will be activated.
With "Regeneration Inhibit" mode on, the PM which has accumulated inside the DPF will not be burnt, unless the operator performs the regeneration work manually.
The "Regeneration Inhibit" mode is effective for work in poorly ventilated work spaces.
For details of regeneration prohibition, refer to "Operating Procedure for Regeneration Inhibit Mode" section.

NOTE :
● If stop the engine once, the "Auto Regeneration" mode will be activated.
### Operating Procedure for Auto Regeneration Mode

1. **Start the engine.**
   (Make sure that the DPF INHIBIT switch lamp is "OFF").

   - Switch lamp OFF: Auto Regeneration Mode activated.
   - Switch lamp ON: Regeneration Inhibit Mode activated.

**NOTE:**
- When the engine is started, the "Auto Regeneration" mode is automatically activated.
- "Regeneration Inhibit" mode is activated, when the DPF INHIBIT switch is pushed after the engine is started.

2. **When the regeneration indicator starts flashing:**

   A specific amount of PM has built up in the DPF.
   Continue to operate the tractor, and the regeneration process will begin automatically, make sure the working place is in a safe area as DPF and exhaust temperature will rise.

3. **When the engine rpm increase indicator starts flashing:**

   Keep on working and increase the engine rpm until the indicator turns "OFF".

**NOTE:**
- Even if the Auto Regeneration Mode is selected, DPF regeneration may not begin because system requirements have not been satisfied.
- The engine rpm increase indicator is used as a guide to satisfy the regeneration conditions. If the engine load is too heavy, the engine rpm increase indicator may continue to flash, even though regeneration system conditions are satisfied and regeneration may begin automatically. (See the "Tips on Diesel Particulate Filter [DPF] Regeneration")
**PM Warning Level and Required Procedures**

During Auto Regeneration Mode when the PM level has built up in the DPF, the regeneration cycle will begin automatically. If the regeneration cycle is interrupted or the regeneration conditions are not satisfied, the buzzer starts sounding and the indicator display changes in response to the PM level in order to prompt the operator to perform the required procedure listed below.

**IMPORTANT:**
- Once the regeneration level has been reached, immediately perform the required procedure for regeneration.
- Interrupting the regeneration cycle or continued operation by ignoring the warning signs may cause DPF and engine damage.

| Auto Mode |
|-----------------|-----------------|
| **DPF system status** | **Required procedure** |
| PM warning level: **1** | The regeneration indicator starts flashing. |
| Buzzer: Not sounding | A specific amount of PM has accumulated in the DPF muffler. Continue to work the tractor to raise the DPF temperature. |
| | The RPM increase indicator starts flashing. |
| | Continue the work and increase the engine rpm until the indicator turns "OFF". |
| | The regeneration indicator will stop flashing and remain "ON" constantly. |
| | The regeneration cycle begins and continues until cycle is complete then the indicator will turn "OFF". |
| PM warning level: **2-1** | The regeneration indicator starts flashing. |
| Buzzer: Sounding every 5 seconds | If the regeneration cycle was interrupted or conditions are not satisfied for regeneration then DPF system is now in Level 2. |
| | Start the regeneration, referring to PM warning level: 1 above. |
| | Now the parked regeneration indicator starts flashing, and the parked regeneration can also be started. |
| | If the regeneration conditions are not met, perform the parked regeneration. |
| | For the procedure, refer to "Operating Procedure for Parked Regeneration". |
| PM warning level: **2-2** | The RPM increase indicator starts flashing. |
| Buzzer: Sounding every 3 seconds | The parked regeneration indicator starts flashing. |
| PM warning level: **3** | If the regeneration fails in the warning level 2: |
| Buzzer: Sounding every 1 second | The engine warning indicator starts flashing. |
| Engine output: 50% | Immediately discontinue working the tractor and begin the parked regeneration cycle process. |
| | For the procedure, refer to "Operating Procedure for Parked Regeneration". |
| | At this PM warning level, the Auto Regeneration Mode does not function. |
| | If the tractor is operated further, the regeneration cycle will be disabled. |
| | The parked regeneration indicator starts flashing. |
| PM warning level: **4** | If the parked regeneration is interrupted or the tractor is continuously operated in the warning level 3: |
| Buzzer: Sounding every 1 second | The engine warning indicator remains constantly "ON". |
| Engine output: 50% | Immediately move the tractor to a safe place and park it there and turn the engine "OFF". |
| | Contact your local KUBOTA Dealer. |
| | At this level, never continue to operate the tractor otherwise damage will result to the DPF and engine. |
Operating Procedure for Regeneration Inhibit Mode

1. Start the engine.

2. Press the DPF INHIBIT switch, and the switch lamp illuminates.
   
   Switch lamp ON: Regeneration Inhibit Mode selected.
   Switch lamp OFF: Auto Regeneration Mode selected.

3. When the parked regeneration indicator starts flashing:
   
   A specific amount of PM has accumulated in the DPF muffler.
   Move the tractor to a safe place and activates the DPF muffler. Follow the "Operating Procedure for Parked Regeneration" procedure.
PM Warning Level and Required Procedures

In the Regeneration Inhibit Mode, the buzzer starts sounding and the indicator display changes in response to the PM level in order to prompt the operator to perform the required procedure listed below.

IMPORTANT:
- Once the regeneration level has been reached, immediately perform the required procedure for regeneration. Interrupting the regeneration cycle or continued operation by ignoring the warning signs may cause DPF and engine damage.

<table>
<thead>
<tr>
<th>Regeneration Inhibit Mode</th>
<th>DPF system status</th>
<th>Required procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PM warning level:</strong> 1</td>
<td>The regeneration indicator starts flashing.</td>
<td>A specific level of PM has built up in the DPF muffler. Continue with the operation as it is.</td>
</tr>
<tr>
<td>Buzzer: Not sounding</td>
<td>At PM warning levels range from 1 to 2-2, it is also possible to change DPF INHIBIT switch to auto regeneration mode then perform regeneration.</td>
<td></td>
</tr>
<tr>
<td><strong>PM warning level:</strong> 2-1</td>
<td>The regeneration indicator starts flashing.</td>
<td>Move the tractor to a safe area, then follow the &quot;Operating Procedure for Parked Regeneration&quot;.</td>
</tr>
<tr>
<td>Buzzer: Sounding every 5 seconds</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PM warning level:</strong> 2-2</td>
<td>The Parked regeneration indicator starts flashing.</td>
<td></td>
</tr>
<tr>
<td>Buzzer: Sounding every 3 seconds</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PM warning level:</strong> 3</td>
<td>If the parked regeneration cycle is interrupted or the tractor is continuously operated in the PM warning level 2:</td>
<td>Immediately stop working the tractor, move the tractor to a safe area, then follow the &quot;Operating Procedure for Parked Regeneration&quot;. If the tractor is operated further and the operator ignores the warning signs, then regeneration will be disabled.</td>
</tr>
<tr>
<td>Buzzer: Sounding every 1 second</td>
<td>The engine warning indicator starts flashing.</td>
<td></td>
</tr>
<tr>
<td>Engine output: 50%</td>
<td>The parked regeneration indicator starts flashing</td>
<td></td>
</tr>
<tr>
<td><strong>PM warning level:</strong> 4</td>
<td>If the regeneration cycle is interrupted or the tractor is continuously operated ignoring the warning signs, in the PM warning level 3:</td>
<td>Immediately move the tractor to a safe place and place in park, turn &quot;OFF&quot; engine. Contact your local KUBOTA Dealer.</td>
</tr>
<tr>
<td>Buzzer: Sounding every 1 second</td>
<td>The engine warning indicator remains constantly &quot;ON&quot;.</td>
<td></td>
</tr>
<tr>
<td>Engine output: 50%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

At this level never continue to operate the tractor, otherwise damage may result to the DPF and engine.
Operating Procedure for Parked Regeneration

1. Park the tractor in a safe area away from buildings, people, and animals.
2. Apply the parking brake.
3. Set the shuttle shift lever to the neutral position.
4. Turn "OFF" the PTO clutch control switch.
5. Return the engine rpm to the idle speed.
6. Lower the implement to the ground.
7. Press the DPF INHIBIT switch, and the switch lamp turns "OFF".
8. When the regeneration conditions are satisfied (2 to 5 and 7 mentioned above), the parked regeneration switch lamp start flashing.
9. Press the parked regeneration switch to start the regeneration cycle.
   (The switch lamp will stop flashing and remain "ON" constantly during the cycle.)
10. The engine rpm will automatically rise, and the regeneration process will begin.
11. Both indicators stay "ON" while regenerating the DPF.
    They turn "OFF" when the cycle is complete.
12. After the lamp turns "OFF", normal tractor work may resume.
    When driving in "Regeneration Inhibit" mode, press the DPF INHIBIT switch to turn on the switch lamp.

NOTE:
- During the regeneration cycle, do not touch the above levers, and switches (in steps 2, 3, 4), nor change the engine rpm other than an emergency stop. Otherwise, the regeneration will be interrupted.
- Never leave the tractor when parked regeneration process is activated.
- If the parked regeneration cycle is interrupted, the engine rpm is fixed at the idling level for about 30 seconds. For this period, keep the hand throttle lever and foot throttle pedal at the idle position. Do not move them. They will function again in 30 seconds.
Tips on Diesel Particulate Filter (DPF) Regeneration

**Operation**
The higher in speed or load the engine operates, the higher the exhaust temperature rises. As a result, particulate matter (PM) inside the DPF is consumed, therefore the regeneration process is required less frequently over time.
The lower in speed or load the engine operates, the lower the exhaust temperature. Accordingly, less particulate matter (PM) inside the DPF is consumed, therefore more accumulation of PM will occur, which requires frequent regeneration, therefore avoid prolonged idling if possible.

**Necessary conditions for "Regeneration"**
When conditions below are all satisfied, regeneration will start. However, if even one condition is deviated during the process, the regeneration will be interrupted.
1. The engine coolant temperature.
2. The DPF temperature.
3. The engine speed is 1200 rpm or higher.

Usually it takes 15-20 minutes to complete the regeneration cycle. Actual regeneration time may depend on ambient temperature, exhaust temperature and engine speed.

It is recommended to do the regenerating while the engine is warm.

Do not unnecessarily start and interrupt the regeneration process. Otherwise, a small amount of fuel becomes mixed with the engine oil, which degrades the oil quality.

While the DPF is being regenerated, the engine air flow rate is automatically limited to keep up the exhaust temperature. Because of this the engine may sound differently, this is normal for this engine.

Just after the regeneration has ended, the DPF muffler remains hot. It is advisable to keep the engine running for about 5 minutes to allow cooling of the exhaust components.

SELECTIVE CATALYTIC REDUCTION (SCR) MUFFLER

**Outline of the SCR**
The injector jets urea aqueous solution (DEF/AdBlue®) into the muffler, and the solution is hydrolyzed with the heat of exhaust gas to generate ammonia (NH3).
The ammonia generated thus is mixed with exhaust gas by the SCR muffler. In this way, nitrogen oxides (NOx) contained in exhaust gases are reduced by ammonia and decomposed into nitrogen and water vapor.
DEF/AdBlue®

CAUTION
To avoid personal injury:
- The urea aqueous solution (DEF/AdBlue®) is colorless, odorless and harmless.
- If the solution gets on your skin, immediately wash it away with water.

The DEF/AdBlue®, used as reducing agent of SCR, is a 32.5% urea aqueous solution.
No qualification for handling the urea aqueous solution is needed. As well, the solution is not designated as a hazardous material.
The product is available at gas stations, truck stops and specialty shops. Be sure to use the genuine product only.
Do not use any poor-quality products, or the engine may have trouble and be damaged.

NOTE:
- On the North American market, the high-grade NOx reducing agent called urea aqueous solution is sold in the name of DEF (Diesel Exhaust Fluid). On the European and Japanese markets, it is on sale under the trade name of AdBlue®.

Warning Indication and its Countermeasure
Before starting the day’s job, check the fluid level with the DEF/AdBlue® gauge on the instrument panel.
If the fluid runs short during operation, the warning indicator lights up. If you continue running the machine as it is, the engine output will be limited by 50% or so. If running is continued, the engine will be limited to idling.
For details, look at the table below.
These limitations are stipulated in conformity with the emission controls of each country and territory.

1. DEF/AdBlue® tank (Blue cap)

2. DEF/AdBlue® gauge

3. DEF/AdBlue® warning indicator

4. DEF/AdBlue® system warning indicator
OPERATING THE ENGINE  23

◆ SCR system inducement display on the LCD

(1) SCR system icon
(2) Engine output level
(3) Time limit to next level or remaining DEF/AdBlue®
(4) Performance monitor (Error code and DTC)

◆ SCR system icon appearing on inducement display

<table>
<thead>
<tr>
<th>Low-level icon of DEF/AdBlue®</th>
<th>Trouble icon of SCR system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor-quality icon of DEF/AdBlue®</td>
<td>Freeze icon of DEF/AdBlue®</td>
</tr>
</tbody>
</table>

◆ DTC (Diagnostic Trouble Code)
DTC can be used to diagnose the problem in engine and SCR muffler.
(e.g. P208B: The code beginning with the letter "P" or "U" is the DTC)
If a DTC appears, immediately contact your local KUBOTA Dealer.

NOTE:
- When operating in cold weather, the DEF/AdBlue® is automatically thawed while the engine is running. However, in weather conditions of under -30°C (-22°F), the DEF/AdBlue® cannot be completely thawed and thus, a DTC(P208B) appears on the instrument panel's LCD screen.
  If the DTC(P208B) appears on the screen, stop the engine and restart it after 10 seconds. After restarting the engine, the DTC(P208B) will disappear and the thawing of the DEF/AdBlue® will resume.
  In case the DTC(P208B) remains on the screen even after restarting the engine several times, contact your local KUBOTA Dealer.
For SCR system inducement display appearing on LCD, refer to measures of the table below.

On the SCR system, the remaining amount and quality of DEF/AdBlue® as well as machine troubles are monitored. If anything goes wrong during operation, the following warnings are issued. Follow the warning contents to take proper measures.

<table>
<thead>
<tr>
<th>Displays</th>
<th>Warning indicator</th>
<th>Status</th>
<th>Measures</th>
<th>DPF Parked Regeneration</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="15%" /></td>
<td><img src="image" alt="15%" /></td>
<td>1</td>
<td>The amount of remaining DEF/AdBlue® has decreased up to 15% of the maximum capacity. Refuel the DEF/AdBlue® tank to reset the warning system. If operation is continued without refueling, the engine output will be limited.</td>
<td>permit</td>
</tr>
<tr>
<td><img src="image" alt="Lv.1" /></td>
<td><img src="image" alt="Lv.1" /></td>
<td>2</td>
<td>The amount of remaining DEF/AdBlue® has decreased up to 5% of the maximum capacity. Refuel the DEF / AdBlue® tank. (*1) The engine output is limited to 50% (Lv.1: Level.1). If operation is continued without refueling, the engine output will be limited to Idle Status (Lv.2:Level.2).</td>
<td>inhibit</td>
</tr>
<tr>
<td><img src="image" alt="Lv.1" /> <img src="image" alt="25min" /></td>
<td><img src="image" alt="Lv.1" /> <img src="image" alt="25min" /></td>
<td>2</td>
<td>The amount of remaining DEF/AdBlue® has decreased up to 5% of the maximum capacity. Refuel the DEF / AdBlue® tank. (*1) The engine output is limited to 50% (Lv.1: Level.1). If operation is continued without refueling, after 25 minutes, the engine output will be limited to Idle Status (Lv.2:Level.2).</td>
<td>inhibit</td>
</tr>
<tr>
<td><img src="image" alt="Lv.2" /></td>
<td><img src="image" alt="Lv.2" /></td>
<td>3</td>
<td>The amount of remaining DEF/AdBlue® has decreased up to 5% of the maximum capacity. The engine output will remain limited. Refuel the DEF / AdBlue® tank. (*1) The engine output is limited to Idle Status (Lv.2:Level.2).</td>
<td>inhibit</td>
</tr>
<tr>
<td><img src="image" alt="60min" /></td>
<td><img src="image" alt="60min" /></td>
<td>1</td>
<td>Contains poor quality DEF/AdBlue® or other non-regulated solutions. After draining the tank, refuel with DEF/AdBlue® to reset the warning system. If operation is continued without refueling the DEF/AdBlue® tank, after 60 minutes, the engine output will be limited to 50% (Lv.1:Level.1).</td>
<td>permit</td>
</tr>
<tr>
<td><img src="image" alt="Lv.1" /> <img src="image" alt="25min" /></td>
<td><img src="image" alt="Lv.1" /> <img src="image" alt="25min" /></td>
<td>2</td>
<td>Contains poor quality DEF/AdBlue® or other non-regulated solutions. After draining the tank, refuel with DEF/AdBlue®. (*1) The engine output is limited to 50% (Lv.1: Level.1). If operation is continued without refueling the DEF/AdBlue® tank, after 25 minutes, the engine output will be limited to Idle Status (Lv.2:Level.2).</td>
<td>inhibit</td>
</tr>
<tr>
<td><img src="image" alt="Lv.2" /></td>
<td><img src="image" alt="Lv.2" /></td>
<td>3</td>
<td>Contains poor quality DEF/AdBlue® or other non-regulated solutions. After draining the tank, refuel with DEF/AdBlue®. (*1) The engine output is limited to Idle Status (Lv.2:Level.2).</td>
<td>inhibit</td>
</tr>
</tbody>
</table>

*1 When DEF/AdBlue® has been added or a poor-quality solution replaced by a genuine product, the low-level warning indicator and icons go off. The engine output limitation will also be cleared.
## Displays Warning Status Measures DPF Parked Regeneration

<table>
<thead>
<tr>
<th>Displays</th>
<th>Warning Indicator</th>
<th>Status</th>
<th>Measures</th>
<th>DPF Parked Regeneration</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="120min" /></td>
<td><img src="image" alt="120min" /></td>
<td>1</td>
<td>The SCR system has experienced an abnormality. Verify the DTC displayed on the performance monitor and contact your local KUBOTA dealer. The engine output is unrestricted. After 120 minutes, the engine output will be limited to 50% (Lv.1:Level.1).</td>
<td>inhibit</td>
</tr>
<tr>
<td><img src="image" alt="80%" /> <img src="image" alt="120min" /></td>
<td><img src="image" alt="80%" /> <img src="image" alt="120min" /></td>
<td>1</td>
<td>The SCR system has experienced an abnormality. Verify the DTC displayed on the performance monitor and contact your local KUBOTA dealer. The engine output is limited to 80%. After 120 minutes, the engine output will be limited to 50% (Lv.1:Level.1).</td>
<td>inhibit</td>
</tr>
<tr>
<td><img src="image" alt="Lv.1" /> <img src="image" alt="25min" /></td>
<td><img src="image" alt="Lv.1" /> <img src="image" alt="25min" /></td>
<td>2</td>
<td>The SCR system has experienced an abnormality. Verify the DTC displayed on the performance monitor and contact your local KUBOTA dealer. The engine output is limited to 50% (Lv.1:Level.1). After 25 minutes, the engine output will be limited to Idle Status (Lv.2:Level.2).</td>
<td>inhibit</td>
</tr>
<tr>
<td><img src="image" alt="Lv.2" /></td>
<td><img src="image" alt="Lv.2" /></td>
<td>3</td>
<td>The SCR system has experienced an abnormality. Verify the DTC displayed on the performance monitor and contact your local KUBOTA dealer. The engine output is limited to Idle Status (Lv.2:Level.2).</td>
<td>inhibit</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>Due to low temperatures, the DEF/AdBlue® has frozen. Continue the warm-up operation and the DEF/AdBlue® will thaw.</td>
<td>inhibit</td>
</tr>
<tr>
<td><img src="image" alt="80%" /></td>
<td><img src="image" alt="80%" /></td>
<td>---</td>
<td>Due to low temperatures, the DEF/AdBlue® has frozen. The engine output is limited to 80%. Continue the warm-up operation and the DEF/AdBlue® will thaw.</td>
<td>inhibit</td>
</tr>
</tbody>
</table>
**NOTE:**
- The limited engine output level:
  - Lv.1 (Level 1): Within 50% of max torque and 60% of engine speed.
  - Lv.2 (Level 2): Within engine near idling speed.
- After an error has occurred, it may be necessary for the engine output to become limited to Lv.2 (Level 2).
  Depending on trouble spots and contents, the indicator-prompted warnings and the engine output limits and timings may vary accordingly.
  The SCR warning status (from 1 to 3) represents the severity order of the engine output limitation. If the SCR system experiences abnormalities, an error code will be displayed, and it may be necessary to limit the engine output to Idle Status (Lv.2:Level.2).
  (e.g. When a P204F error code is displayed, the engine output changes from unrestricted to Lv.2 limited.)
- Points after taking measures.
  After the engine has stopped and the DEF/AdBlue® has drained, if the amount that was refueled is less than the pre-drain amount, the SCR system may experience a malfunction. (P20F5 error code is displayed)
  When the error occurs, turn the key switch to OFF, wait for the SCR system to complete the purge process (this may take several minutes) and then turn the key switch to ON again in order to clear the SCR system malfunction.
- The 40 hours warning record.
  1. Basically Warning and/or inducement reduction cancel when the fault location is repaired.
  2. However, if it detects any fault within 40 hours of the restoration, it soon becomes back to the previous failure and the timer restarts counting down.
  3. The 40 hours warning record will be reset if any fault has not been detected over 40 hours from the repair.
    If a fault would be detected after the 40 hours warning record reset, then the new countdown will be stated.
Storing and Handling DEF/AdBlue®

1. Because DEF/AdBlue® is a urea aqueous solution, it begins to freeze at ambient temperatures below -11°C (12°F). In winter, handle it with enough care.
2. DEF/AdBlue® may be stored in the tractor's tank for up to 4 months. If the storage area's ambient temperature rises above 30°C (86°F), however, its storage life will be markedly reduced.

Storage method

1. Store the solution in a well-sealed container.
2. Place the container in a location not exposed to direct sunlight.
3. Place the container in a well-ventilated spot.
4. Keep the container in a spot without violent temperature changes.
5. Keep the container away from any containers of gasoline and diesel fuel.

STARTING THE ENGINE

1. Make sure the parking brake is set.

1. To set the parking brake;
   (1) Depress the brake pedals.
   (2) Place the shuttle shift lever in neutral position.
   (3) Pull the parking brake lever to parking position.
2. To release the parking brake;
   (1) Depress the brake pedals.
   (2) Push the release button.
   (3) Shift the lever to transport position.

IMPORTANT:

- Bring the tractor to a complete stop before applying the parking brake lever.
- If the parking brake lever is moved while the shuttle shift lever is placed in forward or reverse position, an alarm buzzer will sound.

NOTE:

- In moving the parking brake lever, you may feel it heavy some time or light other time. This is not a trouble, however.
2. Make sure the fuel shutoff-valve is in the "OPEN" position.

3. Place the shift levers in "NEUTRAL" position.

4. Place the PTO clutch control switch in "OFF" position and hydraulic control levers in "LOWEST" position.

5. Set the throttle lever at the minimum speed position.
6. Insert the key into the key switch and turn it "ON".

![Image of key switch and indicators]

6. If the Water separator indicator (6) lights up, when water in the Water separator is very high, therefore drain the water and the indicator will turn "OFF".

7. If the parking brake warning indicator (5) does not illuminate, set the parking brake.

**Check Easy Checker(TM) Indicators:**

1. When the key is turned "ON", indicators (1) (2) should come on. If trouble should occur at any location while the engine is running, the indicator corresponding to problem will turn "ON".

2. Suppose that the engine coolant temperature is not high enough yet. The heater indicator (7) also turns "ON" when the key is turned "ON" to preheat the engine and goes off automatically when preheat is completed.

3. The PTO clutch indicator (3) comes on while PTO clutch control switch is engaged "ON" and goes off when disengaged.

4. If the fuel level indicator (8) lights up, when fuel level is very low, therefore add fuel and the indicator will turn "OFF".

5. If the DEF/AdBlue® warning indicator (4) lights up, check to see icon on LCD. (See "Warning Indication and its Countermeasure" in "SELECTIVE CATALYTIC REDUCTION (SCR) MUFFLER" in "OPERATING THE ENGINE" section.)

**NOTE:**

- The accessories can be used while the engine is stopped.
- Do not leave the key at "ACC" position. The battery will be quickly discharged. Turn it back to "OFF" after use.

Some of the Easy Checker(TM) indicators may illuminate or start flashing depending on the positions of the levers and switches.

The DEF/AdBlue® warning indicator corresponds only to the M5N-091 and M5N-111 tractor models.

**IMPORTANT:**

- Daily checks with the Easy Checker(TM) only, are not sufficient. Never fail to conduct daily checks carefully by referring to Daily Check. (See "DAILY CHECK" in "PERIODIC SERVICE" section.)
7. Fully depress the clutch pedal.

8. Turn the key to "START" position and release when the engine starts.

**IMPORTANT:**
- Because of the safety devices, the engine will not start except when the PTO clutch control switch is placed in the "OFF" position and shuttle shift lever is placed in the "NEUTRAL" position.

9. Check to see that all the indicators on the Easy Checker(TM) are "OFF".

   If an indicator is still on, immediately stop the engine and determine the cause.

10. Release the clutch pedal.

---

**COLD WEATHER STARTING**

If the ambient temperature is below 0°C (32°F) and the engine is very cold, follow the procedure below after taking the step 1 through 5 in the previous pages.

6. Turn the key to "ON" position and hold it until the heater indicator turns off.

   Heater indicator comes on when the key is turned to "ON" position and engine coolant temperature is below 0°C (32°F), and goes off automatically when preheat is completed.

7. Fully depress the clutch pedal.

8. Turn the key to the "START" position and the engine should start.

   (If the engine fails to start after 10 seconds, turn off the key for 30 seconds. Then repeat steps 6 through 8. To protect the battery and the starter, make sure that the starter is not continuously turned for more than 10 seconds.)

---

**Block Heater (if equipped)**

A block heater is available as an option from your dealer. It will assist you in starting your tractor when the ambient temperature is below -20°C (-4°F).
■ Engine Low Temperature Regulation
In order to prevent engine damage due to rapid acceleration, if starting the engine when coolant temperature is approximately 0°C (32°F) or below, the engine rpm will be kept at approximately 1400 for up to 3 minutes, and the operator will be informed by indicator and intermittent buzzer. The regulation time varies in response to the coolant temperature. During regulation, perform warm-up operation without using the accelerator. After regulation, the engine rpm can be gradually increased. When regulation has been completely released, the indicator will go off and the buzzer stop.

DEF/AdBlue® Freeze Warning

When operating in cold weather, the DEF/AdBlue® is automatically thawed while the engine is running. However, in weather conditions of under -30°C (-22°F), the DEF/AdBlue® cannot be completely thawed and thus, an error/warning code (P208B) appears on the instrument panel's LCD screen.

If the error/warning code (P208B) appears on the screen, stop the engine and restart it after 10 seconds. After restarting the engine, the error/warning code (P208B) will disappear and the thawing of the DEF/AdBlue® will resume.

In case the error/warning code (P208B) remains on the screen even after restarting the engine several times, contact your local KUBOTA Dealer.

(1) Low temperature regulation indicator

(1) Error/Warning code
STOPPING THE ENGINE

1. After slowing the engine to idle, wait 3 to 5 minutes for turbo to slow down and then turn the key to "OFF".
2. Remove the key.

IMPORTANT [M5N-091, M5N-111]
- When the engine is stopped-shutdown, DEF/AdBlue® flow is reversed in the DEF/AdBlue® lines and related piping and returned back into the DEF/AdBlue® tank after cooling the DEF/AdBlue® injector.
- The SCR system continues working several minutes after engine shutdown to complete this purge process.
- Do not turn the machine main battery power off to the engine until the DEF/AdBlue® return cycle purge process is completed. Turning off the main battery power to the engine and aftertreatment system prior to completion may damage the system or cause it to malfunction.

NOTE :
- If key does not stop the engine, consult your local KUBOTA Dealer.

WARMING UP

WARNING
To avoid personal injury or death:
- Be sure to set the parking brake during warm-up.
- Be sure to set all shift levers to the "NEUTRAL" positions and to place PTO switch in "OFF" position during warm-up.

For 5 minutes after engine start-up, allow engine to warm up without applying any load, this is to allow oil to reach every engine part. If load should be applied to the engine without this warm-up period, trouble such as seizure, breakage or premature wear may develop.

Warm-up and Transmission Oil at Low Temperature Range

Hydraulic oil serves as transmission fluid. In cold weather, the oil may be cold with increased viscosity. This can cause delayed oil circulation or abnormally low hydraulic pressure for some time after engine start-up. This in turn can result in trouble in the hydraulic system.

To prevent the above, observe the following instructions:
Warm up the engine at about 50 % of rated rpm according to the table below:

<table>
<thead>
<tr>
<th>Ambient temperature</th>
<th>Warm-up time requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher than 0 °C (32 °F)</td>
<td>Approx. 5 minutes</td>
</tr>
<tr>
<td>0 to -10 °C (32 to 14 °F)</td>
<td>10 to 20 minutes</td>
</tr>
<tr>
<td>-10 to -20 °C (14 to -4 °F)</td>
<td>20 to 30 minutes</td>
</tr>
<tr>
<td>Below -20 °C (-4 °F)</td>
<td>More than 30 minutes</td>
</tr>
</tbody>
</table>

IMPORTANT :
- Do not operate the tractor under full load condition until it is sufficiently warmed up.
**JUMP STARTING**

**WARNING**

To avoid personal injury or death:
- Battery gases can explode. Keep cigarettes, sparks, and flames away from battery.
- If tractor battery is frozen, do not jump start engine.
- Do not connect the other end of the negative (-) jumper cable to the negative (-) terminal of the tractor battery.

When jump starting the engine, follow the instructions below to safely start the engine.

1. Bring the helper vehicle with a battery of the same voltage as disabled tractor within easy cable reach. "THE VEHICLES MUST NOT TOUCH".
2. Engage the parking brakes of both vehicles and put the shift levers in neutral. Shut both engines off.
3. Wear eye protection and rubber gloves.
4. Attach the red clamp to the positive (red, (+) or pos.) terminal of the dead battery and clamp the other end of the same cable to the positive (red, (+) or pos.) terminal of the helper battery.
5. Clamp the other cable to the negative (black, (-) or neg.) terminal of the helper battery.
6. Clamp the other end to the engine block or frame of the disabled tractor as far from the dead battery as possible.
7. Start the helper vehicle and let its engine run for a few moments. Start the disabled tractor.
8. Disconnect the jumper cables in the exact reverse order of attachment. (Steps 6, 5 and 4)

**IMPORTANT:**
- This machine has a 12 volt negative (-) ground starting system.
- Use only same voltage for jump starting.
- Use of a higher voltage source on tractor’s electrical system could result in severe damage to tractor’s electrical system.
- Use only matching voltage source when "Jump starting" a low or dead battery condition.
- Do not operate the tractor with the battery cable disconnected from the battery.
- Do not operate the tractor without the battery mounted.
- Do not operate the tractor with the battery dead. Charge the battery fully enough before operating the tractor. Otherwise the tractor might malfunction.

---

(1) Dead battery
(2) Jumper cables
(3) Helper battery
OPERATING NEW TRACTOR

How a new tractor is handled and maintained determines the life of the tractor.

A new tractor just off the factory production line has been, of course, tested, but the various parts are not accustomed to each other, so care should be taken to operate the tractor for the first 50 hours at a slower speed and avoid excessive work or operation until the various parts become "broken-in". The manner in which the tractor is handled during the "breaking-in" period greatly affects the life of your tractor.

Therefore, to obtain the maximum performance and the longest life of the tractor, it is very important to properly break-in your tractor. In handling a new tractor, the following precautions should be observed.

- **Do not Operate the Tractor at Full Speed for the First 50 Hours.**
  - Do not start quickly nor apply the brakes suddenly.
  - In winter, operate the tractor after fully warming up the engine.
  - Do not run the engine at speeds faster than necessary.
  - On rough roads, slow down to suitable speeds. Do not operate the tractor at fast speed.

The above precautions are not limited only to new tractors, but to all tractors. But it should be especially observed in the case of new tractors.

- **Changing Lubricating Oil for New Tractors**
  The lubricating oil is especially important in the case of a new tractor. The various parts are not "broken-in" and are not accustomed to each other; small metal grit may develop during the operation of the tractor; and this may wear out or damage the parts. Therefore, care should be taken to change the lubricating oil a little earlier than would ordinarily be required.

For further details of change interval hours. (See "MAINTENANCE" section.)

BOARDING AND LEAVING THE TRACTOR

1. Never try to get on or off a moving tractor or jump off the tractor to exit.
2. Face the tractor when getting into or out of the tractor. Do not use the controls as hand holds to prevent inadvertent machine movements.
3. Always keep steps and floor clean to avoid slippery conditions.

STARTING

1. **Adjusting the Operator's Position.**

**NOTE:**
- The seat and suspension should be adjusted to ensure that the controls are comfortably at hand for the operator, ensuring that the operator maintains a good posture and minimizes risks from whole body vibration.

**Operator's Seat**

**WARNING**
To avoid personal injury or death:
- Make adjustments to the seat only while the tractor is stopped.
- Make sure that the seat is completely secured after each adjustment.
- Do not allow any person other than the operator to ride on the tractor.

![Diagram of Seat Adjustment](image)

1. Travel adjust lever
2. Suspension adjust lever
3. Height adjust knob

(A) "UNLOCK"  
(B) "TO INCREASE TENSION"  
(C) "TO DECREASE TENSION"  
(D) "HIGH"  
(E) "LOW"

- **Travel adjustment**
  Unlock the travel adjust lever and slide the seat backward or forward, as required. The seat will lock in position when the lever is released.

- **Suspension adjustment**
  Turn the suspension adjust lever to achieve the optimum suspension setting.
◆ Height adjustment
Turn the height adjust knob to desired position while sitting in the seat.

IMPORTANT:
● After adjusting the operator’s seat, be sure to check to see that the seat is properly locked.

■ Seat Belt

⚠️ WARNING
To avoid personal injury or death:
● Always use the seat belt when any ROPS or CAB are installed.

Adjust the seat belt for proper fit and connect the buckle. This seat belt is auto-locking retractable type.

■ Muffler
[M5N-091, M5N-111]

⚠️ WARNING
To avoid personal injury or death:
● Do not touch the muffler pipe or muffler while the engine is running or while muffler pipes are hot.
The high temperature will cause burning.
● Remove all weeds, straw, and combustible material from the muffler pipe, muffler and exhaust manifold to prevent fires.

If necessary, loosen the bolt and adjust the muffler pipe to the proper direction for the work.
Muffler pipe is not directed toward of the front tire or fuel tank.

CAUTION
To avoid personal injury:
● Do not adjust the steering wheel while the tractor is in motion.

Press down the steering wheel tilt pedal, to release the lock so the steering wheel can be adjusted to the best driving positions.
2. Selecting Light Switch Position.

**Light Switch**

Turn the light switch clockwise, and the following lights are activated on the switch position.

- **Head lights OFF.**
- **Head lights dimmed, low beam.**
  - Tail lights ON.
- **Head lights ON, high beam.**
  - Tail light ON

**Turn Signal / Hazard Light Switch**

- **Hazard Light**
  1. When the hazard light switch is pushed, the hazard lights flash, along with the L/H and R/H indicators on the instrument panel.
  2. Push the hazard light switch again to turn off the hazard lights.

- **Turn Signal with Hazard Light**
  1. To indicate a right turn with the hazard lights already flashing, turn the switch clockwise.
  2. To indicate a left turn with the hazard lights already flashing, turn the switch counterclockwise.
  3. When the left or right turn signal is activated in combination with the hazard lights, the indicated turning light will flash and the other will stay on.

- **Turn Signal without Hazard Light**
  1. To indicate a right turn without hazard lights, turn the switch clockwise.
  2. To indicate a left turn without hazard lights, turn the switch counterclockwise.
  3. When the left or right turn signal is activated without the hazard lights, the indicated turning light will flash and the other will stay on.

**NOTE:**

- The hazard light switch is operative when the key switch is in either the "ON" or "OFF" position.
- The turn signal light switch is only operative when the key switch is in the "ON" position.
- Be sure to return the turn signal switch to center position after turning.
### Rear Turn Signal / Hazard Light
If necessary, raise and turn the light stay to the rearward for the work. Return the light stay to the original position when traveling on a road.

### Horn Button
The horn will sound when the key switch is "ON" position and horn button is pushed.

---

3. Checking the Brake Pedal.

### Brake Pedals (Right and Left)

⚠️ **WARNING**
To avoid personal injury or death:
- Be sure to interlock the right and left pedals. Applying only one rear wheel brake at high speeds could cause the tractor to swerve or roll-over.
- Be sure brake pedals have equal adjustment when using locked together. Incorrect or unequal brake pedal adjustment can cause the tractor to swerve or roll-over.

⚠️ **WARNING**
To avoid personal injury or death:
- Be aware of the enhanced braking characteristics of 4 wheel braking system. Appropriate care should be taken during hard braking and/or when pulling towed loads.
- Do not brake suddenly. An accident may occur as a result of a heavy towed load shifting forward or loss of control.
- To avoid skidding and loss of steering control when driving on icy, wet, or loose surfaces, make sure the tractor is correctly ballasted, operated at reduced speed, operated with front wheel drive engaged (if equipped).
- The braking characteristics are different between 2 and 4-wheel drive. Be aware of the difference and use carefully.
- Engage 4-wheel drive for 4-wheel braking when traveling down a slope.

1. Before operating the tractor on the road, be sure to interlock the right and left pedals as illustrated below.
2. Use individual brakes to assist in making sharp turns at slow speeds (Field Operation Only). Disengage the brake pedal lock and depress only one brake pedal.
3. Be sure brake pedals have equal adjustment when being used locked together.
4WD Braking System [4WD model]

4WD model tractor is equipped with 4WD braking system. When both brake pedals are applied together, the front axle is engaged for 4-wheel braking regardless of the mode selected at the 4WD switch. When you step on the brake pedal while driving in 2WD mode, the "4WD braking system" gets activated and the 4WD indicator lights up.

**WARNING**

To avoid the possibility of personal injury, death or property damage from machine runaway during testing, service or repair with the rear wheels off the ground, make sure:

- Battery is disconnected and engine is not started.

If it is necessary to run the engine, make sure:

- Both front and rear wheels are off the ground and secured with stands before starting engine.

4. Raise the Implement. (see "HYDRAULIC UNIT" section.)
5. Depress the Brake Pedals and Release the Parking Brake Lever.

**Parking Brake Lever**
To release the parking brake, depress the brake pedal, push the release button and move the lever to transport position.

**NOTE:**
- The parking brake warning indicator on the Easy Checker(TM) will turn off when the parking brake is unlocked.
- If the shuttle shift lever is moved when the parking brake is applied, an alarm buzzer will sound.

6. Depress the Clutch Pedal.

**Clutch Pedal**

⚠️ **WARNING**
To avoid personal injury or death:
- Sudden release of the clutch may cause the tractor to lunge in an unexpected manner.

The clutch is disengaged when the clutch pedal is fully pressed down.

**IMPORTANT:**
To help prevent premature clutch wear:
- The clutch pedal must be quickly disengaged and be slowly engaged.
- Avoid operating the tractor with your foot resting on the clutch pedal.
- Select proper gear and engine speed depending on the type of job.
7. Selecting the Travel Speed.

By combination of using the main gear shift lever, dual speed shift switch, range gear shift lever and shuttle shift lever, forward speeds and reverse speeds shown in the table below are obtained.

<table>
<thead>
<tr>
<th></th>
<th>Without creep</th>
<th>With creep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard model</td>
<td>12 forward speeds</td>
<td>18 forward speeds</td>
</tr>
<tr>
<td>(F12 / R12)</td>
<td>12 reverse speeds</td>
<td>18 reverse speeds</td>
</tr>
<tr>
<td>Dual speed model</td>
<td>24 forward speeds</td>
<td>36 forward speeds</td>
</tr>
<tr>
<td>(F24 / R24)</td>
<td>24 reverse speeds</td>
<td>36 reverse speeds</td>
</tr>
</tbody>
</table>

### Travel Speed Limiter
The highest travel speed is reachable when the engine rpm is at around the middle level with the maximum travel speed range. This provides for a fuel-efficient run while traveling along roads, pulling a trailer, etc. Step on the foot throttle, and the engine rpm rises proportionally and the travel speed goes up accordingly. But the engine speed is limited to 2080 rpm or so, and it does not increase even if the foot throttle is increased.

When the main gear shift lever is set to the H-6 position, the Rev-Limiter indicator illuminates.
OPERATING THE TRACTOR

Main Gear Shift Lever
The main gear shift is fully synchronized to shift without stopping.

IMPORTANT:
- The main gear shift may be shifted between speeds on-the-go, but the clutch must be depressed.

Range Gear Shift Lever
The range gear shift can only be shifted when the tractor is completely stopped and the clutch is depressed.

IMPORTANT:
- To avoid transmission damage, depress clutch pedal and stop the tractor before shifting between ranges.

Shuttle Shift Lever

WARNING
To avoid personal injury or death:
- If the shuttle shift lever is moved in forward or reverse position while the parking brake is applied, an alarm buzzer will sound. If the buzzer sounds, return the shuttle shift lever to neutral position.
- If the parking brake lever is released while the buzzer is sounding, the tractor will lunge unexpectedly.

Raise up and shift the shuttle shift lever forward to obtain forward speeds and shift back to obtain reverse speeds. This shifting does not require clutch operation.

IMPORTANT:
- The shuttle shift lever may be shifted while the tractor is moving slowly.

Dual Speed Shift Switch
[Dual speed model]
The dual speed shift switch can be operated when the tractor is traveling without using the clutch. (This switch effects tractor travel speed change by about 19%). "LO" speed and "HI" speed change at each time this switch is pushed.

Dual Speed Indicator
The indicator comes on when the dual speed switch is set to "LO". The indicator goes off when the dual speed switch is set to "HI".

NOTE:
- While the shuttle shift lever is at the "NEUTRAL" position, the "N" character appears on the LCD monitor.
Clutch Off Switch

[Dual speed model]

**WARNING**

To avoid personal injury or death:
- If you release the clutch off switch when the travel speed is selected, the clutch becomes engaged and the tractor will begin to move.
- Always use the clutch pedal to start the tractor.

The clutch off switch can be shifted a gear without using the clutch pedal.
While pressing the clutch off switch, the clutch is disengaged.
When releasing the clutch off switch, the clutch is engaged.
(As if to shift the shuttle shift lever from N to F (or R), clutch is engaged by modulate.)

**NOTE:**
- While pressing the clutch off switch, position display of the shuttle shift lever on the LCD monitor is flashed.

Creep Speed (if equipped)

Shift the range gear shift lever to \(\text{\textit{Creep ON}}\) to obtain low speeds.
This shifting requires clutch operation.

- **Creep speed should be used only when doing one of the following jobs:**
  1. Deep rotary-tilling and harrowing
  2. Planting
  3. Turf application

- **Creep speed can not be used for any of the followings:**
  1. Pulling a trailer
  2. Front-loader operation
  3. Front-blade operation
  4. Earth-moving
  5. Entering and leaving a field
  6. Loading onto and unloading from a truck

**WARNING**

To avoid personal injury or death:
- When you leave the tractor, be sure to apply the parking brake and stop the engine.
- **IN APPLYING THE BRAKES:**
  - The torque of the wheel axle is extremely high while creep speed is being used. Be sure to step down on the clutch pedal completely before applying the brakes, or they will not work
  - When starting to operate the tractor, be sure to release the parking brakes. Misuse of the brakes may cause damage to the transmission and is therefore not acceptable to KUBOTA for coverage under the warranty.

**IMPORTANT:**
- Press the clutch pedal completely down and stop the tractor's motion before shifting the range gear shift lever.
■ 4WD / Bi-speed Turn Switch

**WARNING**

To avoid personal injury or death:
- Do not engage the front wheel drive when traveling at road speed.
- When driving on icy, wet, or loose surfaces, make sure the tractor is correctly ballasted to avoid skidding and loss of steering control. Operate at reduced speed and engage front wheel drive.
- 4WD model tractor is equipped with 4 wheel braking and appropriate care should be taken during hard braking.
- An accident may occur if the tractor is suddenly braked, such as by heavy towed loads shifting forward or loss of control.
- The braking characteristics are different between 2 and 4 wheel drive tractor models. Be aware of the difference and use carefully.
- Do not use "Bi-speed Turn" at high speed.
- "Bi-speed Turn" enables short and fast turns, therefore, become familiar with its performance before operating in close or confined areas.

Press the right half of this switch;

The front wheel drive (4WD) is engaged.
The 4WD indicator comes on when the system is in 4WD mode.

Press the left half;

The Bi-speed turn system activates.
The 4WD indicator and Bi-speed turn indicator come on when the system is in Bi-speed turn mode.

It returns to a central position;

The drive system returns to 2WD mode
The all indicators goes off when the system is in 2WD mode.

**NOTE:**
- This switch can be operated when the tractor is on the go or at rest without depressing the clutch.
- Bi-speed turn system works when you press the "4WD/Bi-speed turn switch" and the front tire (inside of the turn) exceeds 35 degrees.
  Bi-speed turn makes the front tire speed 1.6 times faster than the standard 4WD front tire speed.
- "Bi-speed Turn" operates only when the tractor travel speed is 10 km/h (6.2 mph) or less at the start of the turn.

◆ Front wheel drive is effective for the following jobs:
1. When greater pulling force is needed, such as working in a wet field, when pulling a trailer, diskimg or harrowing.
2. When working in sandy soil.
3. When working on a hard soil where a rotary tiller might push the tractor forward.
4. For increased braking at reduced speed.
OPERATING THE TRACTOR

- Bi-speed turn use is effective for the following jobs:
  1. Turning at the end of rows. (planting, cultivating, harrowing.)
  2. Increasing maneuverability when working in tight spaces.

**IMPORTANT:**
- Tires will wear quickly if the front wheel drive is engaged on paved roads.

8. Accelerate the Engine.

**Hand Throttle Lever**
Pulling the throttle lever back decreases engine speed, and pushing it forward increases engine speed.

**Foot Throttle**
Use the foot throttle when traveling on the road. Press down on it for higher speed. The foot throttle is interlocked with the hand throttle lever; when using the foot throttle, keep the hand throttle lever in low idling position.

9. Unlock the Brake Pedals and Slowly Release the Clutch.

---

**STOPPING**

- **Stopping**
  1. Slow down the engine.
  2. Step on the clutch and brake pedal.
  3. After the tractor has stopped, disengage the PTO, lower the implement to the ground, shift the transmission to neutral, release the clutch pedal, and set the parking brake.

**CHECK DURING DRIVING**

- **Engine Over-speed Limiting Indicator**
The Engine Overspeed Limiting Indicator informs the operator of engine overspeed by indicator and warning buzzer.
If the warning sounds, immediately lower engine rpm with brakes, etc. When the engine rpm decreases, the warning will stop.

![Engine over-speed limiting indicator](image)

(1) Engine over-speed limiting indicator

**NOTE:**
- Normal operation will not lead to overspeed, but, for instance, if suddenly shifting down when running with a trailer at full speed, the tractor will be pushed by the trailer and may go into overspeed.

- **Immediately Stop the Engine if:**
  - The engine suddenly slows down or accelerates,
  - Unusual noises are suddenly heard,
  - Exhaust fumes suddenly become very dark,
Easy Checker(TM)
If the warning indicators in the Easy Checker(TM) come on during operation, immediately stop the engine, and find the cause as shown below. Never operate the tractor while Easy Checker(TM) indicator is on.

Engine warning
This indicator serves the following two functions. If the warning indicator lights up, pinpoint the cause and take a proper measure.

1. Error with the engine control system
   If during operation the water temperature gauge reads an acceptable level but the warning indicator in the Easy Checker(TM) comes on, stop the engine and get it restarted. If the error happens again, consult your local KUBOTA Dealer.

IMPORTANT:
• If the warning indicator lights up, the following phenomena may appear depending on the engine’s trouble spot.
  • The engine stops unexpectedly.
  • The engine fails to start or gets interrupted just after start.
  • The engine output is not enough.
  • The engine output is enough, but the warning indicator stays on.
If the engine output is not enough, immediately interrupt the operation and move the tractor to a safe place and stop the engine.

2. Engine overheating
   If the water temperature gauge reads an unusual level and the warning indicator in the Easy Checker(TM) comes on, the engine may have got overheated. Check the tractor by referring to "TROUBLESHOOTING" section.

Engine oil pressure
If the oil pressure in the engine goes below the prescribed level, the warning indicator in the Easy Checker(TM) will light up. If this should happen during operation, and it does not go off when the engine is accelerated to more than 1000 rpm, check level of engine oil. (See "Checking Engine Oil Level" in "DAILY CHECK" in "PERIODIC SERVICE" section.)

DEF/AdBlue® system warning
If trouble should occur at the DEF/AdBlue® system, the warning indicator in the Easy Checker(TM) will light up. If this should happen during operation, check the DEF/AdBlue® system or consult your local KUBOTA Dealer.

Fuel level
If the fuel in the tank goes below the prescribed level, the indicator in the Easy Checker(TM) will come on. (less than 17 L (4.9 gals.)) If this should happen during operation, refuel as soon as possible. (See "Checking and Refueling" in "DAILY CHECK" in "PERIODIC SERVICE" section.)

IMPORTANT:
• When the fuel indicator lights up, refuel the tank as soon as possible. If the tractor runs out of fuel and stalls, the engine and its components may be damaged.

Water separator
If water or impurities collect in the water separator, the indicator in the Easy Checker(TM) will light up. If this should happen during operation, drain the water from the water separator as soon as possible. (See "Checking Water Separator" in "DAILY CHECK" in "PERIODIC SERVICE" section.)

DEF/AdBlue® level
If the DEF/AdBlue® in the tank goes below the prescribed level, or if a poor-quality product is added, the indicator in the Easy Checker(TM) will right up. If this should happen during operation, refill or replace with DEF/AdBlue® as soon as possible. (See "Selective Catalytic Reduction (SCR) MUFFLER" in "OPERATING THE ENGINE" section.)

Emission indicator
If this indicator lights up, take the steps to lower the water temperature. This helps keep the emission clean.
### Electrical charge

If the alternator is not charging the battery, the warning indicator in the Easy Checker(TM) will light up. If this should happen during operation, check the electrical charging system or consult your local KUBOTA Dealer.

### Master system warning

If trouble should occur at the engine, transmission or other control parts, the indicator flashes as a warning. If the trouble is not corrected by restarting the tractor, consult your local KUBOTA Dealer.

**NOTE:**
- For checking and servicing of your tractor, consult your local KUBOTA Dealer for instructions
- The DEF/AdBlue® system warning indicator and the DEF/AdBlue® level indicator correspond only to the M5N-091 and M5N-111 tractor models.

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### Fuel Gauge

When the key switch is on, the fuel gauge indicates the fuel level. Be careful not to empty the fuel tank. Otherwise air may enter the fuel system. Should this happen, the system should be bled (See "Bleeding Fuel System" in "SERVICE AS REQUIRED" in "PERIODIC SERVICE" section.)

If the engine stall in out of fuel, master system warning indicator lights up. When the indicator appears, turn the key switch to OFF and then to ON again in order to turn off the indicator.

If the indicator does not turn off by restarting the tractor, consult your local KUBOTA Dealer.

![Diagram of fuel gauge and master system warning indicator](1AGBDABAP103)

(1) Fuel gauge
(2) Master system warning indicator

(A) "FULL"
(B) "EMPTY"
DEF / AdBlue® Gauge

The DEF/AdBlue® level in the DEF/AdBlue® tank is indicated with LCD blocks. If DEF/AdBlue® level drops too low, the engine output is restricted. With this in mind, be careful not to empty the tank. When the fluid level in the tank has dropped below 15%, the DEF/AdBlue® warning indicator on the instrument panel lights up and stays on. Immediately add DEF/AdBlue® to the specified level.

Coolant Temperature Gauge

**WARNING**

To avoid personal injury or death:

- Do not remove radiator cap until coolant temperature is well below its boiling point. Then loosen cap slightly to the stop to relieve any pressure before removing cap completely.

1. With the key switch at "ON", this gauge indicates the temperature of the coolant. "C" for "cold" and "H" for "hot.

2. If the indicator reaches the red zone position, engine coolant is overheated. Check the tractor by referring to "TROUBLESHOOTING" section.

Tachometer

The tachometer indicates the engine speed on the dial.
**LCD MONITOR**

This display provides the operator with a variety of information necessary to operate the tractor. Further, part of the display can be modified by the operator as required.

**NOTE:**
- Errors may occur in the fuel consumption display depending on the conditions of use. Use the displayed data only as an approximate guide. In particular, do not use the total fuel consumption display mode in place of the fuel gauge.
- The travel speed displayed when the wheels slip under traction is different from the actual one.
- In cold weather the LCD monitor response will normally be slower and the visibility be less, than in warmer weather.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Ref. page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Forward operation is selected with the shuttle lever.</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>Reverse operation is selected with the shuttle lever.</td>
<td>---</td>
</tr>
<tr>
<td>3</td>
<td>The shuttle lever is at neutral position.</td>
<td>---</td>
</tr>
<tr>
<td>4</td>
<td>The parking brake lever is at parking position.</td>
<td>---</td>
</tr>
<tr>
<td>5</td>
<td>The parking brake is applied and F or R is selected with the shuttle lever.</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Blinking Clutch off switch is pushed. (Clutch is disengaged) [Dual speed model]</td>
<td>---</td>
</tr>
<tr>
<td>6</td>
<td>No display Shuttle lever system trouble.</td>
<td>---</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Ref. page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DEF/AdBlue® low level icon indicator [M5N-091, M5N-111]</td>
<td>22</td>
</tr>
<tr>
<td>2</td>
<td>DEF/AdBlue® poor quality icon indicator [M5N-091, M5N-111]</td>
<td>22</td>
</tr>
<tr>
<td>3</td>
<td>DEF/AdBlue® freeze icon indicator [M5N-091, M5N-111]</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>SCR system trouble [M5N-091, M5N-111]</td>
<td>22</td>
</tr>
<tr>
<td>5</td>
<td>Low temperature regulation indicator</td>
<td>31</td>
</tr>
<tr>
<td>6</td>
<td>Engine over-speed limiting indicator</td>
<td>44</td>
</tr>
<tr>
<td>7</td>
<td>AdBlue® (DEF) gauge [M5N-091, M5N-111]</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Displays the fluid level in the DEF/AdBlue®</td>
<td>22</td>
</tr>
<tr>
<td>8</td>
<td>Trouble display A trouble-spot-pinpointing error code is displayed.</td>
<td>137</td>
</tr>
<tr>
<td>9</td>
<td>Clock</td>
<td>49</td>
</tr>
<tr>
<td>10</td>
<td>Travel speed</td>
<td>49</td>
</tr>
<tr>
<td>11</td>
<td>PTO speed</td>
<td>49</td>
</tr>
<tr>
<td>12</td>
<td>Performance monitor Various information can be selected by the operator.</td>
<td>52</td>
</tr>
</tbody>
</table>
**Various Setting Mode**

While pressing the mode selector switch, turn the key switch to ON position.

Various setting mode screen appears in LCD monitor.

The various setting mode can set 5 items.

Turn the key switch to OFF position, setting is finished.

- **Clock setting**
  1. Press the mode selector switch to choose "Clock setting".
     Then press the "Select" switch, and the clock setting screen appears.

  2. Setting the "Hour" of the clock:
     1. Press the mode selector switch to choose the "Hour" (highlighted).
     2. To put the clock forward, press the "Select" switch.

  3. Setting the "Minute" of the clock:
     1. Press the mode selector switch to choose the "Minute" (highlighted).
     2. Carry out the "Minute" setting in the same way as the "Hour" setting.

  4. Press the mode selector switch.
  5. To complete the setting, select "Set" with the "Select" switch.

The various setting mode screen appears again.
Setting the clock display ON/OFF
1. Press the mode selector switch to choose "Clock ON/OFF setting".
   Then press the "Select" switch, and the clock ON/OFF setting screen appears.

2. Press the "Select" switch and select "ON" or "OFF".
3. Press the mode selector switch.
4. To complete the setting, select "Set" with the "Select" switch.
   The various setting mode screen appears again.

Setting the tire circumference
When optional different-diameter tires are fitted on the machine, the travel speed display mode must be changed.
Otherwise the travel speed will not get correctly displayed.
Such mode switching is also needed when the original tires are back on the machine.

1. Press the mode selector switch to choose "Tire circumference".
   Then press the "Select" switch, and the tire circumference setting screen appears.
2. According to the following table, enter the tire circumference value.
   (1) Press the mode selector switch to select a digit.
   (2) To put the number forward, press the "Select" switch. (The numeral changes from 0 to 9 at each push of the switch.)

<table>
<thead>
<tr>
<th>Tire circumference table (reference)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear tire size</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>12.4-24 R1</td>
</tr>
<tr>
<td>380/85 R24</td>
</tr>
<tr>
<td>18.4-16.1 R1</td>
</tr>
<tr>
<td>320/85 R20</td>
</tr>
<tr>
<td>480/65 R24</td>
</tr>
</tbody>
</table>

3. Press the mode selector switch.
4. To complete the setting, select "Set" with the "Select" switch.
The various setting mode screen appears again.

◆ Setting the unit
1. Press the mode selector switch to choose "Unit setting". Then press the "Select" switch, and the unit setting screen appears.

   (1) Unit setting

   ![Unit setting screen](1AGBDAAAP007P)

2. Press the "Select" switch and select "Inch" or "cm".
3. Press the mode selector switch.
4. To complete the setting, select "Set" with the "Select" switch.
The various setting mode screen appears again.

◆ Setting the PTO speed display
The PTO rpm is set automatically and does not require adjusting.
Performance Monitor

Display change

Use the mode selector switch and "Select" switch to choose one of the items shown in the table below to be displayed on screen.

Priority display

1. When the RPM dual memory setting is "ON", the engine rpm A/B is displayed on the screen. When selecting any other information such as "Hour meter" or "PM buildup", the item will displayed for approx. 5 second before resuming the engine rpm A/B display.

2. Turn "OFF" the RPM dual memory setting to display any other information continuously.

(See "RPM Dual Memory Setting" in "ELECTRONIC ENGINE CONTROL" in "OPERATING THE TRACTOR" section.)

List of types of information displayed on the performance monitor

<table>
<thead>
<tr>
<th>Selected screen (mode)</th>
<th>Display</th>
<th>Remarks</th>
<th>Reference page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td><img src="image" alt="Elapsed time (Hour meter)" /></td>
<td>The hour meter indicates in 6 digits the hours the tractor has been used; the last digit indicates 1/10 of an hour.</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Trip meter" /></td>
<td>The total operating hours, counted from the previous resetting, is displayed.</td>
<td>---</td>
</tr>
<tr>
<td>2/4</td>
<td><img src="image" alt="Instantaneous fuel consumption" /></td>
<td>The &quot;Instantaneous fuel consumption&quot; is measured per hour.</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Average fuel consumption" /></td>
<td>The &quot;Average fuel consumption&quot; is measured per hour from the previous resetting.</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Total fuel consumption" /></td>
<td>Displays the total fuel consumption measured from the previous resetting.</td>
<td>---</td>
</tr>
<tr>
<td>3/4</td>
<td><img src="image" alt="PM buildup (percentage)" /></td>
<td>Displays the PM buildup inside the DPF muffler. Regeneration is needed when the 100% level has been reached. The more the bar is extended to the right, the more PM builds up.</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="PM buildup (graph)" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4/4</td>
<td><img src="image" alt="Memory A rpm" /></td>
<td>Engine RPM dual memory A rpm is displayed.</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Memory B rpm" /></td>
<td>Engine RPM dual memory B rpm is displayed.</td>
<td>53</td>
</tr>
</tbody>
</table>

NOTE:
- Hold down the mode selector switch for 2 seconds or longer to reset the "Trip meter", "Average fuel consumption" and "Total fuel consumption" displays to [0.0]
ELECTRONIC ENGINE CONTROL

The electronically controlled engine which is installed in this tractor performs the following 2 types of control.
1. RPM dual memory setting
2. Constant RPM management control

RPM Dual Memory Setting

Two different engine speeds can each be set with a single touch by pressing the RPM dual memory switch to the (A) or (B) side. This can be used to eliminate troublesome acceleration operations.

Example of use

Consider an example in which an engine speed of 2000 rpm is set for the switch (A) side and a speed of 1000 rpm is set for the switch (B) side.

Setting RPM dual memory switch (A)

1. Turn the key switch to "ON". (The speed setting can be made both when the engine is running or stopped.)
2. Set the hand throttle lever slightly toward the higher-speed side.
3. Press the switch (A) side and then release the switch.

4. Again press and hold down the switch (A) side (2.5 seconds) until the buzzer sounds, then release the switch.

5. Press the switch to the (A) or (B) side and set the speed. Pressing and holding down the switch will cause the speed to change continuously. Pressing and releasing the switch changes the speed by 10 rpm each time. Set the desired engine speed while watching the speed display.

6. If the switch is released and not operated for 4 seconds, a continuous buzzer sound occurs and the setting is completed.

7. Follow the same procedure as for the (A) side to set the speed for the switch (B) side.

**NOTE:**
- The set speeds will be stored even after the engine is stopped.

◆ **Canceling the setting**
Any of the actions below will cancel the RPM dual memory settings.

1. **[Switch (A) side]**
   When the memory speed is engaged, press the switch (A) again to cancel.
   **[Switch (B) side]**
   When the memory speed is engaged, press the switch (B) again to cancel.
   When the memory speed is canceled, the speed will return to the speed that is determined by the hand throttle lever (foot throttle).
   (When the switch is pressed, the LCD will display the engine speed that is in effect after memory speed is canceled.)

2. Return the hand throttle lever to the lowest speed position.
3. Turn the key switch to "OFF".
Constant RPM Management Control

Constant RPM Management can be turned "ON" or "OFF" by operating the switch. Pressing the switch turns the control "ON" and pressing the switch again turns it "OFF".

◆ When constant RPM management is "ON"
Fluctuations in the engine speed due to load fluctuations are reduced and the travel speed and PTO speed are kept nearly constant, allowing stable work. When constant RPM management is "ON", the switch’s indicator light up.

◆ When constant RPM management is "OFF"
As in a conventional engine, the engine speed increases or decreases according to changes in the load. The operator judges the size of the load from the engine speed and engine sound, and can adjust the travel speed or plowing depth to prevent overload on the tractor.

The purpose of constant RPM management is not to increase the engine power.

PARKING

Parking

WARNING

To avoid personal injury or death:
BEFORE DISMOUNTING TRACTOR
- ALWAYS SET PARKING BRAKE AND LOWER ALL IMPLEMENTS TO THE GROUND.
- Leasing transmission in gear with the engine stopped will not prevent the tractor from accidental rolling.
- STOP THE ENGINE AND REMOVE THE KEY.

1. Before getting off the tractor, disengage the PTO, lower all implements, place all control levers in their neutral positions, pull the parking brake lever to parking position, stop the engine and remove the key.
2. If it is necessary to park on an incline, be sure to chock the wheels to prevent accidental rolling of the machine.
OPERATING TECHNIQUES

■ Differential Lock

**WARNING**

To avoid personal injury or death due to loss of steering control:
- Do not operate the tractor at high speed with differential lock engaged.
- Do not attempt to turn with the differential lock engaged.
- Be sure to release the differential lock before making a turn in field conditions.

If one of the rear wheels should slip, step on the differential lock pedal. Both wheels will turn together, then reduce slippage.

Differential lock is maintained only while the pedal is depressed.

**IMPORTANT:**

- When using the differential lock, always slow the engine down.
- To prevent damage to power train, do not engage differential lock when one wheel is spinning and the other is completely stopped.
- If the differential lock cannot be released, step lightly on the brake pedals alternately.

■ Operating the Tractor on a Road

**WARNING**

To avoid personal injury or death:
- To help assure straight line stops when driving at transport speeds, lock the brake pedals together. Uneven braking at road speeds could cause the tractor to roll-over.
- When traveling on road with 3-point hitch mounted implement attached, be sure to have sufficient front weight on the tractor to maintain steering ability.
- When traveling on road with trailer, you must comply with local regulation at all time. The maximum traveling speed with trailer is provided by each country and regulated speed may be different depending on the size of the trailer and type of trailer brake system.

Be sure SMV emblem and warning lamps are clean and visible. If towed or rear-mounted equipment obstructs these safety devices, install SMV emblem and warning lamps on equipment.

Consult your local KUBOTA Dealer for further details.
### Operating the Tractor

#### Operating on Slopes and Rough Terrain

**WARNING**

To avoid personal injury or death:

- Always back up when going up a steep slope. Driving forward could cause the tractor to tip over backward. Stay off hills and slopes too steep for safe operation.
- Avoid changing gears when climbing or descending a slope.
- If operating on a slope, never disengage the clutch or shift levers to neutral. Doing so could cause loss of control.
- Do not drive the tractor close to the edges of ditches or banks which may collapse under the weight of the tractor. Especially when the ground is loose or wet.

1. Be sure wheel tread is adjusted to provide maximum stability. (See "WHEEL ADJUSTMENT" in "TIRES, WHEELS AND BALLAST" section.)
2. Slow down for slopes, rough ground, and sharp turns, especially when transporting heavy, rear mounted equipment.
3. Before descending a slope, shift to a gear low enough to control speed without using brakes.

#### Transport the Tractor Safely

1. The tractor, if damaged, must be carried on a truck. Secure the tractor tightly with ropes.
2. Follow the instruction below when towing the tractor: Otherwise, the tractor’s powertrain may get damaged.
   - Set the all shift levers to "NEUTRAL" position.
   - If possible, start engine and select 2WD, if creep speed is fitted ensure that it is disengaged.
   - Tow the tractor using its front hitch or drawbar.
   - Never tow faster than "10 km/h (6.2 mph)".

#### Directions for Use of Power Steering

1. Power steering is activated only while the engine is running. Slow engine speeds make the steering a little heavier. While the engine is stopped, the tractor functions in the same manner as tractors without power steering.
2. When the steering wheel is turned all the way to the stop, the relief valve is activated. Do not hold the steering wheel in this position for a long period of time.
3. Avoid turning the steering wheel while the tractor is stopped, or tires may wear out sooner.
4. The power steering mechanism makes the steering easier. Be careful when driving on a road at high speeds.

#### Trailer Electrical Outlet

A trailer electrical outlet is supplied for use with trailer or implement.

- **Function of each terminals in trailer electrical outlet**

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Ground</td>
</tr>
<tr>
<td>(2)</td>
<td>Tail light</td>
</tr>
<tr>
<td></td>
<td>Sidemarker light</td>
</tr>
<tr>
<td></td>
<td>Parking light</td>
</tr>
<tr>
<td>(3)</td>
<td>Turn signal light (LH)</td>
</tr>
<tr>
<td>(4)</td>
<td>Brake stop light</td>
</tr>
<tr>
<td>(5)</td>
<td>Turn signal light (RH)</td>
</tr>
<tr>
<td>(6)</td>
<td>Registration plate light</td>
</tr>
<tr>
<td>(7)</td>
<td>---</td>
</tr>
</tbody>
</table>
PTO OPERATION

WARNING
To avoid personal injury or death:
- Disengage PTO, stop engine, and allow all rotating components to come to a complete stop before connecting, disconnecting, adjusting, or cleaning any PTO driven equipment.

PTO Clutch Control Switch
The PTO clutch control switch engages or disengages the PTO clutch which gives the PTO independent control. Turn the switch to "ON" to engage the PTO clutch. Turn the switch to "OFF" to disengage the PTO clutch.

To Turn OFF
Tap on top of the switch, and the switch will return to the OFF position.

IMPORTANT:
- To avoid shock loads to the PTO, reduce engine speed when engaging the PTO, then open the throttle to the recommended speed.

NOTE:
- Tractor engine will not start if PTO clutch control switch is in the engaged "ON" position.
- If the PTO system is engaged and you stand up from the seat, the warning buzzer will whistle for about 10 seconds after standing up. This is because the tractor is equipped with "Operator Presence Control System".

PTO Clutch Indicator
The PTO clutch indicator turns on while PTO clutch control switch is in "ON" (Engage) position.

To turn ON
While pushing the switch, turn clockwise to the "ON" position and release your hand. (In the ON position, switch slightly rises itself.)
PTO Gear Shift Lever

WARNING
To avoid personal injury or death:
- Be sure to observe the PTO shaft speed prescribed for the individual implements. It is extremely dangerous to run an implement at high speed that is meant to be operated at low speed. Use only when this higher rpm is specifically recommended by the implement manufacturer.

The PTO gear shift lever can be set to either 540 rpm or 540E rpm positions. Move this lever to either position with the PTO clutch control switch set to "OFF".

NOTE:
- When light load, select the "540E" position for economical operation.

<table>
<thead>
<tr>
<th>PTO gear shift lever</th>
<th>Engine speed rpm</th>
<th>PTO speed rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>540</td>
<td>2385</td>
<td>540</td>
</tr>
<tr>
<td>540E</td>
<td>1764</td>
<td>540</td>
</tr>
</tbody>
</table>

PTO Speed Limiter

NOTE:
- Move the PTO gear shift lever (if equipped) to "540E" and then turn on the PTO clutch control switch, and the rev-limiter indicator lights up on the meter panel.
- If the PTO clutch control switch is turned on with the engine rpm higher than the PTO 540E limit level, the PTO clutch indicator on the meter panel starts blinking and the PTO is disabled. After a while, the engine rpm automatically drops below the PTO 540E limit level and the PTO starts functioning. At the same time, the flashing PTO clutch indicator stays "ON".
- If the PTO clutch control switch is turned "OFF" but the engine rpm fails to rise with the throttle, return the engine rpm to a lower level. This enables acceleration again.

<table>
<thead>
<tr>
<th>PTO</th>
<th>Limitation PTO / Engine speed (rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>540E</td>
<td>630 / 2057</td>
</tr>
</tbody>
</table>
### LCD Monitor Message

1. The PTO rpm can be checked in the LCD monitor.
2. When the PTO system gets engaged (ON), the indicator lights up.

![LCD Monitor Message Diagram](image1)

(1) PTO speed
(2) PTO clutch indicator

### PTO Shaft Cover and Shaft Cap

Keep the PTO shaft cover in place at all times. Replace the PTO shaft cap when the PTO is not in use. Before connecting or disconnecting a drive shaft to PTO shaft, be sure engine is "OFF".

![PTO Shaft Cover and Shaft Cap](image2)

(1) PTO shaft cover
(2) PTO shaft cap

**IMPORTANT:**
- The universal joint of the PTO drive shaft is technically limited in its moving angle. Refer to the PTO Drive Shaft Instructions for proper use.
(1) Top link
(2) Lifting rod (Left)
(3) Stabilizer
(4) Lower link
(5) Lifting rod (Right)
(6) Drawbar
3-POINT HITCH

1. Make preparations for attaching implement.

Selecting the holes of Lower Links

There are 2 holes in the lower links. For most operations the lifting rods should be attached to the (B) hole. The lifting rods may be attached to (A) for greater lifting force.

Install the thrust collar in the outside of the lower link. Tighten the nut by hand and fix the nut with the cotter pin.

NOTE:
- The lifting rods may be attached to (A) for greater lifting force.
- Install the thrust collar in the outside of the lower link.
- Tighten the nut by hand and fix the nut with the cotter pin.

Selecting the Top Link Mounting Holes

Select the proper set of holes by referring to the "Hydraulic Control Unit Use Reference Chart" in Hydraulic Unit section. If the hydraulic unit is set for draft control, draft response is more sensitive when an implement is connected to the lower set of top link mounting holes. If draft control is not required, it is recommended to use the top set (1).

Drawbar

Remove the drawbar if a close mounted implement is attached.
2. Attaching and detaching implements

WARNING
To avoid personal injury or death:
- Be sure to stop the engine.
- Do not stand between tractor and implement unless parking brake is applied.
- Before attaching or detaching implement, locate the tractor and implement on a firm level surface.
- Whenever an implement or other attachment is connected to the tractor 3-point hitch, check full range of operation for interference, binding or PTO separation.
- Do not exceed maximum allowable length of either lifting rod, or the lifting rod will come apart and the 3-point equipment may fall.

Lifting Rod (Left)
By turning the rod itself, the lifting rod varies its length. When extending the rod, do not exceed the groove on the rod thread.

Lifting Rod (Right)
To avoid personal injury or death:
- Do not exceed maximum allowable length of either lifting rod, or the lifting rod will come apart and the 3-point equipment may fall.

1. To adjust the length of the lifting rod, lift the adjusting handle and turn to desired length.
2. After adjusting, the lifting rod adjusting handle must be returned and stored in the fore and aft position.
3. When extending the rod using adjusting handle, do not exceed the groove on the rod thread.
**Top Link**

1. Adjust the angle of the implement to the desired position by shortening or lengthening the top link.
2. The proper length of the top link varies according to the type of implement being used.

**Stabilizer**

The stabilizer is used to adjust the lower link width. Rotate the turnbuckle to adjust the stabilizer length. When adjusting, make sure both the stabilizers are equal in overall length.

- **Turnbuckle locked position**
  After adjusting the stabilizer length, the turnbuckle must remain in the locked position.

**NOTE:**
- The length of the screw at both ends of the top link must be the same always.
**Turnbuckle unlocked position**
1. Lift the set-pin and slide the hex wrench handle forward.

2. Lower the set-pin and make sure the hex wrench handle cannot move past the set-pin tip.

**Rotating the turnbuckle**
1. Use the hexagonal part of the wrench and the hex wrench handle to rotate the turnbuckle once.
2. Slide the hex wrench handle forward to release it from the turnbuckle.
3. Rotate the hex wrench handle and slide it backward until the hexagonal part is locked on the turnbuckle.
4. Repeat steps 1 to 3 until the desired stabilizer length is achieved.

---

<table>
<thead>
<tr>
<th>Rotating</th>
<th>Stabilizer length</th>
<th>Lower link width</th>
</tr>
</thead>
<tbody>
<tr>
<td>clockwise</td>
<td>Shorten</td>
<td>Widen</td>
</tr>
<tr>
<td>Counterclockwise</td>
<td>Lengthen</td>
<td>Narrow</td>
</tr>
</tbody>
</table>

**Example: Turnbuckle (RH) counterclockwise**

---

**NOTE:**
- Adjusting the left hand side stabilizer is done the same way as for the right hand side stabilizer.
DRAWBAR

WARNING
To avoid personal injury or death:
- Never pull from the top link, the rear axle or any point above the drawbar. Doing so could cause the tractor to tip over rearward causing personal injury or death.

Adjusting Drawbar Length
When towing an implement, it is recommended that the (A) hole in drawbar be utilized.
The drawbar load is specified in the "IMPLEMENT LIMITATIONS" section.

(1) Drawbar
(2) Pivot pin
Holes: (A), (B)
The standard tractor has following hydraulic control systems as shown below. Therefore, use the most appropriate system for the implement you are using.

◆ 3-Point Hitch Control System
1. Position Control
2. Draft Control
3. Mixed Control
4. Float Control

◆ Remote Hydraulic Control System

**IMPORTANT:**
- Do not operate until the engine is warmed up. If operation is attempted when the engine is still cold, the hydraulic system may be damaged.
- If noises are heard when implement is lifting after the hydraulic control lever has been activated, the hydraulic mechanism is not adjusted properly. Unless corrected, the unit will be damaged. Contact your KUBOTA Dealer for adjustment.

### 3-POINT HITCH CONTROL SYSTEM

**WARNING**
To avoid personal injury or death:
- Before using the 3-point hitch controls, ensure that no person or object is in the area of the implement or 3-point hitch. Do not stand on or near the implement or between the implement and tractor when operating the 3-point hitch controls.

- **Position Control**
  This will control the working depth of 3-point hitch mounted implement regardless of the amount of pull required.

- **Draft Control**
  This will control the pull of the 3-point implement. As the load on the 3-point hitch changes due to various soil conditions, the draft control system automatically responds to these changes by either raising or lowering the implement slightly to maintain a constant pull. Place the position control lever in the lowest position and set the implement pull with the draft control lever.
Mixed Control

In draft control, when draft decreases, the implement automatically lowers to increase draft. However, the implement sometimes lowers too much. To limit the degree, the implement can be lowered, set the position control lever at the lowest working depth desired for the implement. Lower the draft control lever to the point where the implement is at the desired depth. This stops the implement from going too deep and causing loss of traction and ground speed.

Float Control

Place both the draft control lever and the position control lever in the float position to make the lower links move freely along with the ground conditions.

3-point Hitch Lowering Speed

**WARNING**

To avoid personal injury or death:
- Fast lowering speed may cause damage or injury. Lowering speed of implement should be adjusted to 2 or more seconds.

The lowering speed of the 3-point hitch can be controlled by adjusting the 3-point hitch lowering speed knob.
REMOTE HYDRAULIC CONTROL SYSTEM

The hydraulic auxiliary control valves can be installed up to 5 segments.

Remote Control Valve

There are 3 types of remote valves available for these models.

- Double acting valve with detents and self cancelling:
  This valve may be placed in the detent mode. The lever will stay in this position until the pressure reaches a predetermined level or a cylinder reaches the end of its stroke. Then it will automatically return to neutral.

- Double acting valve with float position:
  This valve may be placed in the float mode with the control lever all the way forward. The cylinder is free to extend or retract, letting an implement such as a loader bucket follow the ground.

- Single/double acting valve:
  This valve can be utilized as single or double acting valve by adjusting the auxiliary control valve selector knob located on the valve.

  1) Turn the auxiliary control valve selector knob clockwise all the way to utilize as single acting valve.

  2) Turn the auxiliary control valve selector knob anticlockwise all the way to utilize as double acting valve.

Remote Control Valve Lever

The remote control valve lever directs pressurized oil flow to the implement hydraulic system.

[Example: Installing fifth segment valves]

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Double acting valve with detents and self cancelling (standard)</td>
</tr>
<tr>
<td>2nd</td>
<td>Double acting valve with detents and self cancelling (standard)</td>
</tr>
<tr>
<td>3rd</td>
<td>Double acting valve with float position (option)</td>
</tr>
<tr>
<td>4th</td>
<td>Double acting valve with float position (option)</td>
</tr>
<tr>
<td>5th</td>
<td>Single / Double acting valve (option)</td>
</tr>
</tbody>
</table>

(1) Remote control valve lever 1
(2) Remote control valve lever 2
(3) Remote control valve lever 3
(4) Remote control valve lever 4
(5) Remote control valve lever 5
Remote Control Valve Coupler
Connecting and Disconnecting

WARNING
To avoid personal injury or death:
- Stop the engine and relieve pressure before connecting or disconnecting lines.
- Do not use your hand to check for leaks.

Connecting
1. Clean both couplers.
2. Remove dust plugs.
3. Insert the implement coupler to the tractor hydraulic coupler.
4. Pull the implement coupler slightly to make sure couplers are firmly connected.

Disconnecting
1. Lower the implement first to the ground to release hydraulic pressure in the hoses.
2. Clean the couplers.
3. Relieve pressure by moving hydraulic control levers with engine shut off. Pull the hose straight from the hydraulic coupler to release it.
4. Clean oil and dust from the coupler, then replace the dust plugs.

NOTE:
- Your local KUBOTA Dealer can supply parts to adapt couplers to hydraulic hoses.

Adjusting the flow rate

WARNING
To avoid the possibility of personal injury or death be aware of the following when making adjustments:
- The 3-point hitch operation is influenced by the combination of the adjustment of the flow control valve and the engine speed.
- The 3-point hitch may rise slowly or not at all at low engine rpm.
- The 3-point hitch may rise suddenly if engine rpm is increased, or, flow control adjustment is changed.

IMPORTANT:
- Do not hold the lever in the "pull" or "push" position once the remote cylinder has reached the end of the stroke, as this will cause oil to flow through the relief valve. Forcing oil through the relief valve for extended periods will overheat the oil.

NOTE:
- Connect the pressure of load side of implement cylinders to ports [B], [D], [F], [H] or [J] which have built in load check valve to prevent leak down.
- To use the single-acting cylinder with the float valve, connect this cylinder to the [B], [D], [F], [H] or [J] port. To extend a single-acting cylinder, pull the remote control valve lever rearward. To retract a cylinder, push it fully forward to the "FLOAT" position. Do not hold it in the down position, the transmission fluid may be overheat.

<table>
<thead>
<tr>
<th>Lever (1)</th>
<th>Lever position</th>
<th>Pressure → Returning ←</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z (detent)</td>
<td>Y</td>
<td>X</td>
</tr>
<tr>
<td>Port [A]</td>
<td>out →</td>
<td>in ←</td>
</tr>
<tr>
<td>[B]</td>
<td>in ←</td>
<td>out →</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lever (2)</th>
<th>Lever position</th>
<th>Port [C]</th>
<th>out →</th>
<th>in ←</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z (detent)</td>
<td>Y</td>
<td>X</td>
<td>Z (detent)</td>
<td></td>
</tr>
<tr>
<td>[D]</td>
<td>in ←</td>
<td>out →</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lever (3)</th>
<th>Lever position</th>
<th>Port [E]</th>
<th>in</th>
<th>Float</th>
<th>out →</th>
<th>in ←</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z (detent)</td>
<td></td>
<td>Y</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[F]</td>
<td>out</td>
<td>in ←</td>
<td>out →</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lever (4)</th>
<th>Lever position</th>
<th>Port [G]</th>
<th>out →</th>
<th>in ←</th>
<th>-</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z (detent)</td>
<td>Y</td>
<td>X</td>
<td>Y</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[H]</td>
<td>in ←</td>
<td>out →</td>
<td>in ←</td>
<td>out →</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lever (5)</th>
<th>Double-acting</th>
<th>Single-acting</th>
<th>Lever position</th>
<th>Port [G]</th>
<th>out →</th>
<th>in ←</th>
<th>-</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>X</td>
<td>Y</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[H]</td>
<td>in ←</td>
<td>out →</td>
<td>in ←</td>
<td>out →</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
◆ Flow control
The remote control valve with flow control may be added for the following purposes.
1. The attachments that are connected with the auxiliary control valve can be independently adjusted for flow rate.
2. To operate within limits, the remote control valves (1) and/or (2) and the 3-point hitch at the same time without one affecting the other.
3. To maintain within limits, the constant speed of an attachment (hydraulic motor RPM, for example) when connected to the remote control valves (1) and/or (2).

NOTE:
- At slower engine speeds the total hydraulic flow rate may be inadequate for simultaneous operation of the remote control valves (1) and/or (2) and the 3-point hitch, or operation of an attachment connected to the remote control valves (1)(2). Under these conditions, the engine speed must be increased to provide additional hydraulic flow.

◆ Adjusting the flow rate
1. The flow rate for the remote control valves (1) and (2) can be adjusted.
2. Turn the flow control knobs (3) and/or (4) counterclockwise (A), and the flow rate for the remote control valves (1) and/or (2) increases. A clockwise turn (B) of the knob causes the flow to decrease. If the knob is turned all the way (C), there will be no flow.
3. To adjust the flow rate, set the engine speed to the operating RPM, turn the flow control knob once all the way clockwise (C), and then turn it gradually counterclockwise until a required flow rate is reached.

NOTE:
- Oil from the pump flows by priority to the auxiliary control valve. Surplus oil is fed to the 3-point hitch. With the auxiliary control valve at neutral, the total flow from the pump is fed to the 3-point hitch.

IMPORTANT:
- When there is no need to adjust the flow rate, turn the flow control knob all the way counterclockwise and keep it in this position.
### Hydraulic Control Unit Use Reference Chart

In order to handle the hydraulics properly, the operator must be familiar with the following. Though this information may not be applicable to all types of implements and soil conditions, it is useful for general conditions.

<table>
<thead>
<tr>
<th>Implement</th>
<th>Soil condition</th>
<th>Top link mounting holes</th>
<th>Gauge wheel</th>
<th>Draft control lever</th>
<th>Position control lever</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moldboard plow</td>
<td>Light soil</td>
<td>3</td>
<td>---</td>
<td>1</td>
<td>(1)</td>
</tr>
<tr>
<td></td>
<td>Medium soil</td>
<td>2 or 3</td>
<td>---</td>
<td>2</td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td>Heavy soil</td>
<td>2</td>
<td>---</td>
<td>2</td>
<td>(Place the draft control lever to the suitable position and set the implement pull with the position control lever.)</td>
</tr>
<tr>
<td>Disc plow</td>
<td>---</td>
<td>2 or 3</td>
<td>---</td>
<td>2</td>
<td>YES/NO</td>
</tr>
<tr>
<td>Harrower (spike, springtooth, disc type)</td>
<td>---</td>
<td>2</td>
<td>---</td>
<td>2</td>
<td>YES/NO</td>
</tr>
<tr>
<td>Sub-soiler</td>
<td>---</td>
<td>2</td>
<td>---</td>
<td>2</td>
<td>YES/NO</td>
</tr>
<tr>
<td>Weeder, ridger</td>
<td>---</td>
<td>1</td>
<td>---</td>
<td>1</td>
<td>YES/NO</td>
</tr>
<tr>
<td>Earthmover, digger, scraper, manure fork, rear carrier</td>
<td>---</td>
<td>1</td>
<td>---</td>
<td>1</td>
<td>YES/NO</td>
</tr>
<tr>
<td>Mower (mid- and rear-mount type) Hayrake, tedder</td>
<td>---</td>
<td>1</td>
<td>---</td>
<td>1</td>
<td>NO</td>
</tr>
</tbody>
</table>

1AGAIAAZAP122A 1AGBDABAP084F 1AGBDABAP081J 1AGAIAAZAP070A
TIRES, WHEELS AND BALLAST

TIRES

WARNING
To avoid personal injury or death:
- Do not attempt to mount a tire on a rim. This should be done by a qualified person with the proper equipment.
- Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure shown in the operator's manual.

IMPORTANT:
- Do not use tires other than those approved by KUBOTA.

NOTE:
- When optional different-diameter tires are fitted on the machine, the travel speed display mode must be changed. Otherwise the travel speed will not get correctly displayed. Such mode switching is also needed when the original tires are back on the machine. (See "LCD MONITOR" in "OPERATING THE TRACTOR" section.)

Inflation Pressure
Though the tire pressure is factory-set to the prescribed level, it naturally drops slowly in the course of time. Thus, check it everyday and inflate as necessary.

<table>
<thead>
<tr>
<th>Tire sizes</th>
<th>Inflation Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front</td>
<td></td>
</tr>
<tr>
<td>8.0-16, 6PR</td>
<td>240 kPa (2.4 kgf/cm², 34 psi.)</td>
</tr>
<tr>
<td>9.5-16, 6PR</td>
<td>196 kPa (2.0 kgf/cm², 29 psi.)</td>
</tr>
<tr>
<td>27x8.5-15, 4PR</td>
<td>151 kPa (1.5 kgf/cm², 22 psi.)</td>
</tr>
<tr>
<td>280/70R18</td>
<td>241 kPa (2.5 kgf/cm², 35 psi.)</td>
</tr>
<tr>
<td>Rear</td>
<td></td>
</tr>
<tr>
<td>12.4-24, 6PR</td>
<td>160 kPa (1.6 kgf/cm², 23 psi.)</td>
</tr>
<tr>
<td>380/85R24, 6PR</td>
<td>138 kPa (1.4 kgf/cm², 20 psi.)</td>
</tr>
<tr>
<td>380/85R24</td>
<td>165 kPa (1.7 kgf/cm², 24 psi.)</td>
</tr>
<tr>
<td>320/85R20</td>
<td>160 kPa (1.6 kgf/cm², 23 psi.)</td>
</tr>
<tr>
<td>480/65R24</td>
<td>160 kPa (1.6 kgf/cm², 23 psi.)</td>
</tr>
</tbody>
</table>

Dual Tires
Dual tires are not approved.

WHEEL ADJUSTMENT

WARNING
To avoid personal injury or death:
- When working on slopes or when working with trailer, set the wheel tread as wide as practical for maximum stability.
- Support tractor securely on stands before removing a wheel.
- Do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered. If necessary to work under tractor or any machine elements for servicing or adjustment, securely support them with stands or suitable blocking beforehand.
- Never operate tractor with a loose rim, wheel, or axle.

Safe Replacement of the Wheel
The wheel is heavy. Take the following precautions when removing the wheel.
1. Park the tractor on a solid, level place.
2. Apply the parking brake and use chocks.
3. In detaching the rear wheels, apply a wedge in place to keep the front axle from oscillating.
4. Use a jack or the like that withstands the relevant weight.
5. Use an appropriate tire remover.
6. Tighten the bolts and nuts to their specified torques.

(1) Tire remover
Front Wheels (with 4-wheel drive)
Front tread width cannot be adjusted.

IMPORTANT:
- Always attach wheels as shown in the drawing.
- If not attached as illustrated, transmission parts may be damaged.
- When re-fitting or adjusting a wheel, tighten the bolts to the following torques then recheck after driving the tractor 200m (200 yards) and 10 times of shuttle movement by 5 m (5 yards), and thereafter according to service interval. (See "MAINTENANCE" section.)

WARNING
To avoid personal injury or death:
- Before jacking up the tractor, park it on a firm and level ground and chock the rear wheels.
- Fix the front axle to keep it from pivoting.
- Select jacks that withstand the machine weight and set them up as shown below.

NOTE:
- Wheels with beveled or tapered holes: Use the tapered side of lug nut.
#### Rear Wheels

Rear tread width can be adjusted as shown with the standard equipped tires.

To change the tread width:
1. Remove the wheel rim and / or disk mounting bolts.
2. Change the position of the rim and / or disk (right and left) to the desired position, and tighten the bolts.

**IMPORTANT:**
- Always attach wheels as shown in the drawing.
- If not attached as illustrated, transmission parts may be damaged.
- When re-fitting or adjusting a wheel, tighten the bolts to the following torques then recheck after driving the tractor 200m (200 yards) and 10 times of shuttle movement by 5 m (5 yards), and thereafter according to service interval. (See "MAINTENANCE" section.)

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-m (kgf-m) [ft-lbs]</td>
<td>Steel disk</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>260 to 304</td>
<td>244</td>
</tr>
<tr>
<td>(26.5 to 31.0)</td>
<td>(24.9)</td>
</tr>
<tr>
<td>[191.8 to 224.2]</td>
<td>[180]</td>
</tr>
<tr>
<td>260 to 304</td>
<td>260 to 304</td>
</tr>
<tr>
<td>(26.5 to 31.0)</td>
<td>(26.5 to 31.0)</td>
</tr>
<tr>
<td>[191.8 to 224.2]</td>
<td>[191.8 to 224.2]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rear wheel disc</th>
<th>Rear wheel rim</th>
<th>Tread</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.4-24</td>
<td>970 mm (38.2 in.)</td>
<td>1025 mm (40.4 in.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1205 mm (47.4 in.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1255 mm (49.4 in.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1330 mm (52.3 in.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1385 mm (54.5 in.)</td>
</tr>
</tbody>
</table>

| 380/85R24 | --- | 1115 mm (43.9 in.) |
| | | 1110 mm (43.7 in.) |
| | | 1350 mm (53.1 in.) |
| | | 1240 mm (48.8 in.) |
| | | --- |

| 380/85R24 Cast | --- | 1160 mm (45.7 in.) |
| | | 1085 mm (42.7 in.) |
| | | 1375 mm (54.1 in.) |
| | | 1160 mm (45.7 in.) |
| | | --- |

| 480/65R24 | --- | 1155 mm (45.5 in.) |
| | | 1090 mm (42.9 in.) |
| | | 1370 mm (53.9 in.) |
| | | 1165 mm (45.9 in.) |
| | | --- |

| 320/85R20 | 1055 mm (41.5 in.) | 1160 mm (45.7 in.) |
| | | 1270 mm (50.0 in.) |
**WARNING**
To avoid personal injury or death:
- Before jacking up the tractor, park it on a firm and level ground and chock the front wheels.
- Fix the front axle to keep it from swinging.
- Select a jack that withstands the machine weight and set it up as shown below.

![Jack point diagram](image1.png)

---

**BALLAST**

**WARNING**
To avoid personal injury or death:
- Additional ballast will be needed for transporting heavy implements. When the implement is raised, drive slowly over rough ground, regardless of how much ballast is used.
- Do not fill the front wheels with liquid to maintain steering control.

**Front Ballast**
Add weights if needed for stability and improve traction. Heavy pulling and heavy rear mounted implements tend to lift front wheels.
Add enough ballast to maintain steering control and prevent tip over. Remove weight when no longer needed.

**Front End Weights (option)**
The front end weights can be attached to the bumper.
See your implement operator’s manual for required number of weights or consult your local KUBOTA Dealer to use.

![Weight diagram](image2.png)

**IMPORTANT:**
- Do not overload tires.
- Add no more weight than indicated in chart.

| Maximum weight | 47 kg x 10 pieces (1036 lbs.) |
Rear Ballast
Add weight to rear wheels if needed to improve traction or for stability. The amount of rear ballast should be matched to job and the ballast should be removed when it is not needed. The weight should be added to the tractor in the form of liquid ballast, rear wheel weights or a combination of both.

Rear Wheel Weights (option)
The rear wheel weights can be attached to the rear wheel. See your implement operator’s manual for required number of weights or consult your local KUBOTA Dealer to use.

Liquid Ballast in Rear Tires
Water and calcium chloride solution provides safe economical ballast. Used properly, it will not damage tires, tubes or rims. The addition of calcium chloride is recommended to prevent the water from freezing. Use of this method of weighting the wheels has the full approval of the tire companies. See your tire dealer for this service.

Liquid weight per tire (75 Percent filled)

<table>
<thead>
<tr>
<th>Tire sizes</th>
<th>12.4-24</th>
<th>380/85R24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slush free at -24 °C (-11 °F)</td>
<td>139.7 kg (308 lbs.)</td>
<td>215.0 kg (474 lbs.)</td>
</tr>
<tr>
<td>Solid at -47 °C (-53 °F)</td>
<td>[Approx. 1.5 kg (3.5 lbs.) CaCl₂ per 4 L (1 gal.) of water]</td>
<td></td>
</tr>
<tr>
<td>Slush free at -47 °C (-53 °F)</td>
<td>151.0 kg (333 lbs.)</td>
<td>230.0 kg (507 lbs.)</td>
</tr>
<tr>
<td>Solid at -52 °C (-62 °F)</td>
<td>[Approx. 2.25 kg (5 lbs.) CaCl₂ per 4 L (1 gal.) of water]</td>
<td></td>
</tr>
</tbody>
</table>

IMPORTANT:
- Do not fill tires with water or solution more than 75% of full capacity (to the valve stem level).

<table>
<thead>
<tr>
<th>Tire sizes</th>
<th>12.4-24</th>
<th>380/85R24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>Correct-75% Air compresses like a cushion</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>Incorrect-100% Full Water can not be compressed</td>
<td></td>
</tr>
</tbody>
</table>

| Rear wheel weight | 47 kg x 2 pieces (206 lbs.) |
DOOR AND WINDOW

**Locking and Unlocking the Door**

From the outside ...... Insert the key into the door lock. Turn the key clockwise to unlock the door. To lock the door, turn the key in the opposite direction. The key can be removed when it is in the vertical direction.

From the inside ....... Push down the lock knob to lock the door. Pull up the lock knob to unlock the door.

**Opening the Door**

From the outside ...... Unlock the door, and pull the outer door handle.

From the inside ......... Unlock the door and pull the inner door handle.

![Diagram of outer door handle](image1)

(1) Outer door handle  
(2) Door lock  
(A) "PULL"

![Diagram of inner door handle](image2)

(1) Inner door handle  
(2) Lock knob  
(A) "PULL"  
(B) "PUSH" (Lock)  
(C) "PULL" (Unlock)
**Rear Window**

Turn the rear window handle clockwise to the vertical position and push the handle. The rear window is opened by the gas spring cylinder.

**Side Window**

Pull the side window handle and push the side window to open the window.

**DOME LIGHT**

**Dome Light**

Sliding the dome light switch will give the following light condition:

- OFF .............. The light does not turn on when the door is opened.
- DOOR ............ The light turns on when the door (LH) is opened. It turns off when the door (LH) is closed.
- ON ............... The light remains on regardless of the door position.

**IMPORTANT:**

- The battery will discharge if the dome light remains on. Be sure to check the dome light switch position and/or door closure.
WORK LIGHT

**WARNING**
To avoid personal injury or death:
- Do not operate on roads with work lights on. Work lights may blind or confuse operators of oncoming vehicles.

■ Work Light Switch
Turn on the key switch and press the top half of the work light switch. The work light and the switch’s indicator light up. Press the bottom half of the work light switch to turn off the light and indicator.

---

**Front Work Light**

(1) Front work light switch
(2) Rear work light switch
(A) Indicator for work lights

---

**Rear Work Light**

(1) Rear work light
WIPER

■ Front Wiper / Washer Switch
1. Turn on the key switch and press the top half of the wiper switch to the first step, and the wiper is activated. When the switch is pressed further to the second step, washer liquid jets out. The jetting continues while the switch is pressed and the wiper is activated continuously.
2. Press the bottom half of the wiper / washer switch, washer liquid only jets out.

■ Rear Wiper / Washer Switch (if equipped)
1. Turn on the key switch and press the top half of the wiper switch to the first step, and the wiper is activated. When the switch is pressed further to the second step, washer liquid jets out. The jetting continues while the switch is pressed and the wiper is activated continuously.
2. Press the bottom half of the wiper / washer switch, washer liquid only jets out.

■ Using the Wipers in Cold Season
1. While not used in cold season, keep the wiper blades off the windshield to prevent them from being stuck with ice.
2. If the windshield is covered with snow, scrape it off the windshield before using the wipers.
3. If the wiper blades are stuck on the windshield with ice and fail to move, be sure to turn the main key switch to "OFF" and remove the ice off the blades. Then place the main key switch back to "ON".
4. When commercially available cold-season wiper blades are used, make sure their size is the same as or smaller than that of the standard ones.

IMPORTANT:
The wiper blades and the wiper motor might get overloaded causing damage. To avoid this, be sure to take the above precautions.
AIR CONDITIONER

Airflow
Air in the CAB and fresh air introduced into the CAB flow as shown below. Adjust the 8 air ports to obtain the desired condition.

A
Do not pour water directly into the fresh air port while washing the vehicle.

B
Air Control Vent

Front air outlet
The front air outlets can be independently adjusted as required. To defrost the windshield, rotate the outlets toward the windshield.

C
Side air outlet and door air outlet
The side and door air outlets can be adjusted to direct air on to the operator, door window or the rear of the CAB.

IMPORTANT:
- Do not pour water directly into the fresh air port while washing the vehicle.

NOTE:
- If the airflow rate at the face is too low, close the door air outlet.
CAUTION
To avoid personal injury;
- Replace the water hoses every 4 years.
- Daily inspection
  Have the tractor repaired immediately if any of the following defects are discovered. (Such defects may cause burns or injury. They may also cause engine seizure or other serious failure.)
  - Scratches, cracks or swelling in water hoses.
  - Water leakage at water hose joints.
  - Missing or damaged water hose protective wrap or grommets.
  - Loose mounting bolts, damaged brackets.
- Do not touch the water hoses and the heater with your hand. You may get burned.
- If the window fails to defrost in extreme conditions or becomes cloudy when dehumidifying the CAB, wipe off moisture with a soft cloth.
- Do not block all the air outlets of the air conditioner. A problem could occur.

Recirculation / fresh air selection lever

FRESH AIR: Set the lever to the "FRESH AIR" position, and fresh air will flow into the CAB. This is helpful when you work in dusty conditions or if the glass windows get foggy.

RECIRCULATION: Set the lever to the "RECIRCULATION" position, and the in-CAB air will be recirculated. This is useful for cooling or heating the CAB quickly or keeping it extra cool or warm.

NOTE:
- When heating, do not keep the lever at the "RECIRCULATION" position for a long time. The windshield easily gets foggy.
- While working in a dusty conditions, keep the lever at the "FRESH AIR" position. This increases the pressure in the CAB, which helps prevent dust from coming into the CAB.
Control Panel

- **Mode Switch**
  - Set the mode switch to the desired position.
  - Air is blown from the front and side air outlets.
  - Air is blown from only the front air outlets.
  - With this switch at the middle position, air is blown weaker from the side air outlets (head) and stronger from the front air outlets.

- **Temperature Control Dial**
  - Set this dial at the desired position to obtain the optimum air temperature. Turn the dial in the "WARM" direction to obtain warmer air. Turn it in the "COOL" direction to obtain cooler air.

- **Blower Switch**
  - Air volume can be changed in 3 steps. At the "3" position, the largest air volume is obtained.

- **Air Conditioner Switch**
  - Push this switch to activate the air conditioner. An indicator light will light up when the switch is set to "ON". Push the switch again to turn the air conditioner off, in which case the indicator light will be off.

**NOTE:**
- With the blower switch at the "OFF" position, the indicator light will not light up even when the air conditioner switch is set to "ON".

**IMPORTANT:**
- To operate the air conditioner after the tractor has not been used for one week or longer, run the engine at idling speed first and then set the air conditioner switch to "ON". Keep this for one minute or so.
- If the air conditioner switch is set to "ON" with the engine running at high rpm, the compressor may get in trouble.

**Operation**

**Heating**
1. Set the mode switch to the "WARM", "COOL", or "FRESH AIR" position.
2. Set the recirculation / fresh air selection lever to the "FRESH AIR" position. To raise the temperature in the CAB quickly, set this lever to the "RECIRCULATION" position.
3. Adjust the blower (1/2/3) switch and the temperature control dial to achieve a comfortable temperature level.
**Cooling or dehumidifying-heating**
1. Set the mode switch to the **“WARM”** position.
2. Set the recirculation / fresh air selection lever to the "FRESH AIR" position. To lower the temperature in the CAB quickly, set this lever to the "RECIRCULATION" position.
3. Press and turn on the air-conditioner switch with indicator.
4. Turn on the blower (1/2/3) switch.
5. Adjust the temperature control dial to the "COOL" or an intermediate position to achieve a comfortable temperature level.

**Foot warming and head cooling**
1. Set the mode switch to the **“COOL”** position.
2. In the cooling or dehumidifying-heating mode, set the temperature control dial at the center position area.
3. Open the front air outlet and the door air outlet direct it to your feet.
4. You can feel your head cool and your feet warm.

**NOTE:**
- In summer when the heater is not used, keep the temperature control dial at the max "COOL" (end of counterclockwise) position. Otherwise, hot air will raise the temperature in the CAB.

---

**Diagram:**
- (1) Mode switch
- (2) Temperature control dial
- (3) Blower switch
- (4) Air conditioner switch with indicator light

**Diagram:**
- (1) Temperature control dial
- (A) Center position area
Defrosting or demisting
To defrost or demist the windshield, take the following steps.
1. Set the mode switch to the position.
2. Open the front air outlet and direct it to the windshield.
3. Set the recirculation / fresh air selection lever to the "FRESH AIR" position.
4. Set the blower switch and the temperature control dial to the "3" and max "WARM" (end of clockwise) positions, respectively.

REAR / SIDE DEFOGGER WITH TIMER (if equipped)
To activate the rear / side window defoggers, press the switch marked while the key switch is in the "ON" position. Then, the yellow light on the switch turns on. After about 15 minutes, the defoggers automatically turn off as well as the yellow light. To turn the defogger off, press the switch once more.

IMPORTANT:
- The battery will discharge if the defogger and the key switch remain in the "ON" or "ACC" positions with the engine stopped.
- Always use the defogger with the engine running.
INSTALLING THE IMPLEMENT CONTROL BOX

1. Make an opening in each of the corner plugs. Introduce the implement control cable and hydraulic hose through these openings into the CAB.

NOTE:
- Before removing the corner plug, cut the two spots of the weather strip above the corner plug with a knife.
- Do not remove the weather strip of the corner plug to prevent rainwater intrusion into the CAB.

ELECTRICAL OUTLET

- Electrical Outlet
  (1) Corner plug
  (2) Weather strip (rubber)
  (3) Knife

(1) Accessory electrical outlet (15A)
(A) Terminal: Through the ACC position of the key switch (5 A)
(B) Terminal: Through the battery direct (30A)
(C) Terminal: Ground
# MAINTENANCE

## SERVICE INTERVALS

<table>
<thead>
<tr>
<th>Interval</th>
<th>Items</th>
<th>Ref. page</th>
</tr>
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<tbody>
<tr>
<td>A initial 50 Hr</td>
<td>Engine oil Change</td>
<td>101</td>
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<td></td>
<td>Engine oil filter Replace</td>
<td>101</td>
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<tr>
<td>B every 50 Hr</td>
<td>Engine start system Check</td>
<td>101</td>
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<tr>
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<td>Wheel bolt torque Check</td>
<td>102</td>
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<td></td>
<td>Tie-rod dust cover Check</td>
<td>102 *2</td>
</tr>
<tr>
<td>C every 100 Hr</td>
<td>Greasing ---</td>
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<td>Air cleaner Primary element Clean</td>
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<td>Fan belt Adjust</td>
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<td></td>
<td>Brake pedal Adjust</td>
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<td></td>
<td>Parking brake Check</td>
<td>106 *2</td>
</tr>
<tr>
<td></td>
<td>Battery condition Check</td>
<td>106 *7</td>
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<tr>
<td></td>
<td>Air conditioner drive belt Adjust</td>
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</tr>
<tr>
<td>D every 200 Hr</td>
<td>Toe-in Adjust</td>
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<td></td>
<td>Fuel tank water Drain</td>
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<tr>
<td></td>
<td>Inner air filter Clean</td>
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<tr>
<td></td>
<td>Fresh air filter Clean</td>
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<tr>
<td>E every 400 Hr</td>
<td>Water separator Clean</td>
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<td>Fuel solenoid pump Clean</td>
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<tr>
<td>F every 500 Hr</td>
<td>Engine oil Change</td>
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<td>Engine oil filter Replace</td>
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<tr>
<td></td>
<td>Fuel filter Replace</td>
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<td>Hydraulic oil filter Replace</td>
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<td>Lift cylinder hose Check</td>
<td>119 *6</td>
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<tr>
<td></td>
<td>Power steering oil line Check</td>
<td>115 *6</td>
</tr>
<tr>
<td></td>
<td>Radiator hose and clamp Check</td>
<td>116 *6</td>
</tr>
<tr>
<td></td>
<td>Fuel line Check</td>
<td>117 *6</td>
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<tr>
<td></td>
<td>Intake air line Check</td>
<td>118 *6</td>
</tr>
<tr>
<td></td>
<td>Brake hose Check</td>
<td>119 *2</td>
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<tr>
<td></td>
<td>Air conditioner pipes and hoses Check</td>
<td>119 *6</td>
</tr>
<tr>
<td>G every 600 Hr</td>
<td>Front axle pivot Adjust</td>
<td>119</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Interval</th>
<th>Items</th>
<th>Ref. page</th>
</tr>
</thead>
<tbody>
<tr>
<td>H every 1000H</td>
<td>Transmission fluid Change</td>
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<td>Front differential case oil Change</td>
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<td>Front axle gear case oil Change</td>
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<tr>
<td></td>
<td>Engine valve clearance Adjust</td>
<td>121 *2</td>
</tr>
<tr>
<td>I every 1000Hr or 1 year *3</td>
<td>Air cleaner Primary element Replace</td>
<td>121</td>
</tr>
<tr>
<td></td>
<td>Air cleaner Secondary element Replace</td>
<td>121</td>
</tr>
<tr>
<td></td>
<td>Exhaust manifold Check</td>
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</tr>
<tr>
<td>J every 1500H</td>
<td>Fuel injector nozzle tip Clean</td>
<td>121 *2 @</td>
</tr>
<tr>
<td></td>
<td>DEF/AdBlue® injector tip Clean</td>
<td>121 *2 @</td>
</tr>
<tr>
<td></td>
<td>DEF/AdBlue® line Check</td>
<td>121 *2</td>
</tr>
<tr>
<td></td>
<td>Oil separator element Replace</td>
<td>121 *2 @</td>
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<tr>
<td></td>
<td>PCV (Positive crankcase ventilation) valve (oil separator) Check</td>
<td>122 *2 @</td>
</tr>
<tr>
<td></td>
<td>EGR cooler Check Clean</td>
<td>122 *2 @</td>
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<tr>
<td>K every 2000Hr or 2 years *4</td>
<td>Cooling system Flush</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>Coolant Change</td>
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<td>L every 3000Hr</td>
<td>Turbo charger Check</td>
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<td>Supply pump Check</td>
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<td>Intake air heater Check</td>
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<tr>
<td></td>
<td>EGR system Check Clean</td>
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<tr>
<td></td>
<td>DPF muffler Clean</td>
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<tr>
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<td>DEF/AdBlue® injector Check</td>
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<tr>
<td></td>
<td>DEF/AdBlue® pump filter Replace</td>
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</table>
The items listed above (@ marked) are registered as emission related critical parts by KUBOTA in the U.S.EPA nonroad emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instruction.

Please see the Warranty Statement in detail.

<table>
<thead>
<tr>
<th>Interval</th>
<th>Items</th>
<th>Ref. page</th>
</tr>
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<tbody>
<tr>
<td>M every 1 year</td>
<td>Antifrost Heater for Oil Separator (if equipped)</td>
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<tr>
<td></td>
<td>CAB isolation cushion</td>
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<td></td>
<td>DPF differential pressure sensor pipe</td>
<td>Check 125 *2</td>
</tr>
<tr>
<td></td>
<td>EGR pipe</td>
<td>Check 125 *2</td>
</tr>
<tr>
<td>N every 2 years</td>
<td>Oil separator hose</td>
<td>Replace *2</td>
</tr>
<tr>
<td></td>
<td>Boost sensor hose</td>
<td>Replace 125 *2</td>
</tr>
<tr>
<td></td>
<td>DPF differential pressure sensor hose</td>
<td>Replace 125 *2</td>
</tr>
<tr>
<td></td>
<td>EGR cooler hose</td>
<td>Replace 125 *2</td>
</tr>
<tr>
<td></td>
<td>Master cylinder filter</td>
<td>Clean 125 *2 @</td>
</tr>
<tr>
<td>O every 3 years</td>
<td>Parking brake cable</td>
<td>Replace 125 *2</td>
</tr>
<tr>
<td>P every 4 years</td>
<td>Radiator hose and clamp</td>
<td>Replace 126</td>
</tr>
<tr>
<td></td>
<td>Fuel line</td>
<td>Replace 126 *2</td>
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<tr>
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<td>Intake air line</td>
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<td></td>
<td>Power steering oil line</td>
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<tr>
<td></td>
<td>Lift cylinder hose</td>
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</tr>
<tr>
<td></td>
<td>Master cylinder kit</td>
<td>Replace 126 *2</td>
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<tr>
<td></td>
<td>Brake seal 1 and 2</td>
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<td></td>
<td>Brake hose</td>
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<tr>
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<td>Equalizer kit</td>
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<td>Air conditioner pipes and hoses</td>
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<td>Brake system</td>
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<td>Clutch housing water</td>
<td>Drain 127</td>
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<td>Fuse</td>
<td>Replace 128</td>
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<td></td>
<td>Light bulb</td>
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<tr>
<td></td>
<td>Lubricating point</td>
<td>--- 132</td>
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<tr>
<td></td>
<td>Washer liquid</td>
<td>Add 132</td>
</tr>
<tr>
<td></td>
<td>Refrigerant (gas)</td>
<td>Check 132</td>
</tr>
</tbody>
</table>

*1 Air cleaner should be cleaned more often in dusty conditions than in normal conditions.

*2 Consult your local KUBOTA Dealer for this service.

*3 Every 1000 hours or every 1 year, whichever comes first.

*4 Every 2000 hours or every 2 years, whichever comes first.

*5 The initial 50 hours should not be a replacement cycle.

*6 Replace if any deterioration (crack, hardening, scar, or deformation) or damage occurred.

*7 When the battery is used for less than 100 hours per year, check the battery condition by reading the indicator annually.

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Please see the Warranty Statement in detail.
## Maintenance Items Chart

**How to use the chart**

1. The circles in this at-a-glance chart indicate the relevant points between the tractor’s hour meter readings and the service intervals. Following these circles and the maintenance items (A thru P), keep up your tractor.

2. For details of the maintenance items, refer back to the "SERVICE INTERVALS" on the previous pages.

## Chart at a glance

<table>
<thead>
<tr>
<th>Hour meter</th>
<th>Maintenance items</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>O O</td>
</tr>
<tr>
<td>100</td>
<td>O O</td>
</tr>
<tr>
<td>150</td>
<td>O</td>
</tr>
<tr>
<td>200</td>
<td>O O O</td>
</tr>
<tr>
<td>250</td>
<td>O</td>
</tr>
<tr>
<td>300</td>
<td>O O</td>
</tr>
<tr>
<td>350</td>
<td>O</td>
</tr>
<tr>
<td>400</td>
<td>O O O O</td>
</tr>
<tr>
<td>450</td>
<td>O</td>
</tr>
<tr>
<td>500</td>
<td>O O O</td>
</tr>
<tr>
<td>550</td>
<td>O</td>
</tr>
<tr>
<td>600</td>
<td>O O O O</td>
</tr>
<tr>
<td>650</td>
<td>O</td>
</tr>
<tr>
<td>700</td>
<td>O O</td>
</tr>
<tr>
<td>750</td>
<td>O</td>
</tr>
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<td>800</td>
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</tr>
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<td>O</td>
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<td>O O</td>
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<tr>
<td>1750</td>
<td>O</td>
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<table>
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<tr>
<th>Hour meter</th>
<th>Maintenance items</th>
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<tr>
<td>1800</td>
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<tr>
<td>1850</td>
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<tr>
<td>1900</td>
<td>O O</td>
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<td>2900</td>
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<tr>
<td>2950</td>
<td>O</td>
</tr>
<tr>
<td>3000</td>
<td>O O O O O O</td>
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</table>

*Every 1000Hr or 1 year*  
*Every 2000Hr or 2 years*  
*Every 1 year*  
*Every 2 years*  
*Every 3 years*  
*Every 4 years*
**LUBRICANTS, FUEL AND COOLANT**

<table>
<thead>
<tr>
<th>No.</th>
<th>Locations</th>
<th>Capacities</th>
<th>Lubricants</th>
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<td><strong>M4N-071</strong></td>
<td><strong>M5N-091</strong></td>
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<tr>
<td>1</td>
<td>Fuel</td>
<td>76 L (20.1 U.S.gals.)</td>
<td>No.2-D S15 diesel fuel</td>
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<tr>
<td>2</td>
<td>DEF/AdBlue®</td>
<td>---</td>
<td>12.3 L (3.2 U.S.gals.)</td>
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<tr>
<td>3</td>
<td>Coolant</td>
<td>10 L (11 U.S.qts.) (Recovery tank: 1.0L (1.1 U.S.qts.))</td>
<td>Fresh clean soft water with anti-freeze</td>
</tr>
<tr>
<td>4</td>
<td>Washer liquid</td>
<td>2 L (2.1 U.S.qts.)</td>
<td>Automobile washer liquid</td>
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<tr>
<td>5</td>
<td>Engine crankcase (with filter)</td>
<td>10.7 L (11.3 U.S.qts.)</td>
<td>● Engine oil: API Service Classification</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>CJ-4 [DPF type engine]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Above 25 °C (77 °F) SAE30, SAE10W-30 or 15W-40</td>
</tr>
<tr>
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<td>-10 to 25 °C (14 to 77 °F) SAE10W-30 or 15W-40</td>
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<tr>
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<td></td>
<td></td>
<td>Below -10 °C (14 °F) SAE10W-30</td>
</tr>
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<td>6</td>
<td>Transmission case</td>
<td>52 L (54.9 U.S.qts.)</td>
<td>● KUBOTA SUPER UDT2 fluid*</td>
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<tr>
<td>7</td>
<td>Front differential case oil [4WD]</td>
<td>5 L (5.3 U.S.qts.)</td>
<td>● KUBOTA SUPER UDT2 fluid* or SAE 80 - SAE 90 gear oil</td>
</tr>
<tr>
<td>8</td>
<td>Front axle gear case oil [4WD]</td>
<td>3 L (3.2 U.S.qts.)</td>
<td></td>
</tr>
</tbody>
</table>

**Greasing**

<table>
<thead>
<tr>
<th>Greasing</th>
<th>No. of greasing points</th>
<th>Capacity</th>
<th>Type of grease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top link</td>
<td>2</td>
<td>Until grease overflows.</td>
<td>Multipurpose Grease NLGI-2 OR NLGI-1(GC-LB)</td>
</tr>
<tr>
<td>Top link bracket</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lift rod</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulic lift cylinder pin</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front axle gear case support</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front axle support</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steering joint shaft</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery terminal</td>
<td>2</td>
<td>A small amount</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:**
The product name of KUBOTA genuine UDT fluid may be different from that in the Operator’s Manual depending on countries or territories. Consult your local KUBOTA Dealer for further details.
NOTE:

◆ Engine Oil:
  - Oil used in the engine should have an American Petroleum Institute (API) service classification and Proper SAE Engine Oil according to the ambient temperatures as shown above:
  - Refer to the following table for the suitable API classification engine oil according to the engine type (with DPF (Diesel Particulate Filter) type engines) and the fuel.

<table>
<thead>
<tr>
<th>Fuel used</th>
<th>Engine oil classification (API classification)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultra Low Sulfur Fuel [&lt;0.0015% (15 ppm)]</td>
<td>CJ-4</td>
</tr>
</tbody>
</table>

◆ Fuel:
  - Use the ultra low sulfur diesel fuel only [below 0.0015% (15 ppm)] for these engines.
  - Cetane number of 45 minimum. Cetane number greater than 50 is preferred, especially for temperatures below -20°C (-4°F) or elevations above 1500 m (5000 ft).
  - Diesel fuels specified to EN 590 or ASTM D975 are recommended.
  - No.2-D is a distillate fuel of lower volatility for engines in industrial and heavy mobile service. (SAE J313 JUN87)

◆ DEF/AdBlue®:
  - The DEF/AdBlue®, used as reducing agent of SCR, is a 32.5% urea aqueous solution.
  - The product is available at gas stations, truck stops and specialty shops. Be sure to use the genuine product only.
  - Use exclusively DEF/AdBlue® that complies with the requirements of ISO 22241-1.

◆ Transmission Oil:
  - *KUBOTA Super UDT-2: For an enhanced ownership experience, we highly recommend Super UDT-2 to be used instead of standard hydraulic/transmission fluid.
    Super UDT-2 is a proprietary KUBOTA formulation that delivers superior performance and protection in all operating conditions.
    Regular UDT is also permitted for use in this machine.
  - Indicated capacities of water and oil are manufacturer's estimate.
PERIODIC SERVICE

⚠️ WARNING
To avoid personal injury or death:
- Do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered. If necessary to work under tractor or any machine elements for servicing or adjustment, securely support them with stands or suitable blocking beforehand.

HOW TO OPEN THE HOOD

⚠️ WARNING
To avoid personal injury or death from contact with moving parts;
- Never open the hood while the engine is running.
- Do not touch muffler or exhaust pipes while they are hot; Severe burns could result.
- Hold the hood with other hand while unlocking release lever.

Hood
To open the hood, hold the hood and pull the release lever and open the hood.

(1) Release lever
(2) Hood

(A) "PULL"

NOTE:
- To close the hood, push the hood into position using both hands.
- **Side Cover**
  [M5N-091, M5N-111]
  1. Remove the bolts (2).
     Move the side cover 1 forward, and pull out the cover from pins.
  2. Loosen the bolt (5), and remove the side cover 2.

---

- **DAILY CHECK**

  For your own safety and maximum service life of the machine, make a thorough daily inspection before operating the machine to start the engine.

  **WARNING**
  To avoid personal injury or death:
  Take the following precautions when checking the tractor.
  - Park the machine on firm and level ground.
  - Set the parking brake.
  - Lower the implement to the ground.
  - All residual pressure of the hydraulic system released.
  - Stop the engine and remove the key.

- **Walk Around Inspection**

  Look around and under the tractor for such items as loose bolts, trash build-up, oil or coolant leaks, broken or worn parts.

- **Checking and Refueling**

  **WARNING**
  To avoid personal injury or death:
  - Do not smoke while refueling.
  - Be sure to stop the engine before refueling.

  1. Check the amount of fuel by fuel gauge.
  2. When the fuel warning indicator lights up, it is time to add fuel.

---

**Fuel tank capacity**

| 76 L (20.1 U.S.gals.) |
IMPORTANT:
- Be sure to use Ultra Low Sulfur Fuel (S15).
- Do not permit dirt or trash to get into the fuel system.
- Be careful not to let the fuel tank become empty, otherwise air will enter the fuel system, necessitating bleeding before next engine start.
- If the engine runs out of fuel and stalls, the engine components may be damaged.
- Be careful not to spill during refueling. If a spill should occur, wipe it off at once, or it may cause a fire.
- To prevent condensation (water) accumulation in the fuel tank, fill the tank before parking overnight.

Checking the DEF/AdBlue® level and adding the fluid
[M5N-091, M5N-111]

WARNING
To avoid personal injury or death:
- Before adding DEF/AdBlue®, stop the engine. When adding the fluid, preferably wear protective goggles and rubber gloves.

Look at the DEF/AdBlue® gauge on the instrument panel to see how much fluid remains. If the level is too low, add DEF/AdBlue® as required.
Before removing the DEF/AdBlue® cap, clean dirt away from the caps and the tank openings.
If the fluid runs short or poor-quality fluid is added, a warning sign appears on the instrument panel. If this warning is ignored and the operation continues, the engine output will be limited.
(For details, refer to "Warning Indication and its Countermeasure" in "SELECTIVE CATALYTIC REDUCTION (SCR) MUFFLER" in "OPERATING THE ENGINE" section.)
The DEF/AdBlue® tank cap is blue. Be careful not to confuse it with the fuel tank cap.

INTERNATIONAL:
- Use exclusively DEF/AdBlue® that complies with the requirements of ISO 22241-1.
- Do not allow fuel, oil or the like to enter the DEF/AdBlue® tank.
If any other substance (gasoline/diesel/oil) is mistakenly introduced into the DEF/AdBlue® tank, do not attempt to start the engine and contact your local KUBOTA dealer as soon as possible.
- Check the DEF/AdBlue® gauge regularly to avoid emptying its tank.
- If the DEF/AdBlue® spills, wipe it with water. If spills are not wiped, metal areas will rust and the aluminum areas will corrode.
- Be careful not to overfill the DEF/AdBlue® tank because otherwise a small amount of DEF/AdBlue® might flow out of the breather. Pour DEF/AdBlue® until its level rises up to the filler port. And the air will be let out of the tank and the liquid level will drop below the filler port. But do not attempt to pour any more.
Checking Water Separator

1. When the water has collected upper limit in the water separator, the water separator indicator on the instrument panel lights up and warning buzzer sounding.

2. In such case, close the fuel shutoff-valve and loosen the air plug and drain plug by several turns.

3. Allow water to drain. When no more water comes out and fuel starts to flow out, retighten the air plug and drain plug.

4. Bleed the fuel system.

   (See "SERVICE AS REQUIRED" in "PERIODIC SERVICE" section.)

Checking Engine Oil Level

WARNING
To avoid personal injury or death:
- Be sure to stop the engine before checking the oil level.

1. Park the machine on a flat surface.

2. Check engine oil before starting the engine or 5 minutes or more after the engine has stopped.

3. To check the oil level, draw out the dipstick, wipe it clean, replace it, and draw it out again. Check to see that the oil level lies between the 2 notches.
   If the level is too low, add new oil to the prescribed level at the oil inlet.
   (See "LUBRICANTS, FUEL AND COOLANT" in "MAINTENANCE" section.)

NOTE:
- When the red float reaches near the upper limit level, start from step 2 in the above procedure to drain water in the water separator.

IMPORTANT:
- If water is drawn through to the fuel pump, extensive damage will occur.

When using an oil of different maker or viscosity from the previous one, remove all of the old oil.
Never mix two different types of oil.
- If oil level is low, do not run engine.
NOTE:
• At times a small amount of fuel, which is used to regenerate the DPF, may get mixed with the engine oil and the engine oil may increase in volume.

Checking Transmission Fluid Level
1. Park the machine on a flat surface, lower the implement and shut off engine.
2. To check the oil level, draw out the dipstick, wipe it clean, replace it, and draw it out again. Check to see that the oil level lies between the 2 notches. If the level is too low, add new oil to the prescribed level at the oil inlet.

(See "LUBRICANTS, FUEL AND COOLANT" in "MAINTENANCE" section.)

Checking Coolant Level

WARNING
To avoid personal injury or death:
• Do not remove radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely.

1. Check to see that the coolant level is between the "FULL" and "LOW" marks of recovery tank.
2. When the coolant level drops due to evaporation, add soft water only up to the full level. In case of leakage, add anti-freeze and soft water in the specified mixing ratio up to the full level.

(See "Flushing Cooling System and Changing Coolant" in "EVERY 2000 HOURS or 2 YEARS" in "PERIODIC SERVICE" section.)
3. When the coolant level is lower than "LOW" mark of recovery tank, remove the radiator cap and check to see that the coolant level is just below the port. If level is low, add coolant.

IMPORTANT:
• If oil level is low, do not run engine.
**Cleaning Evacuator Valve**
Open the evacuator valve to get rid of large particles of dust and dirt.

**Cleaning Grill, Radiator and Cooler**

**WARNING**
To avoid personal injury or death:
- Be sure to stop the engine before removing the screen.
- The condenser and receiver become hot while the air conditioner is running. Before checking or cleaning them, wait long enough until they cool down.

◆ Detaching the panel
1. Pull the upper part of the panel outward.
2. Raise the panel until pin (A) clears the hole, and take out the panel.
3. Attaching the panel is performed vice versa.

**Checking Dust Indicator**
There is a dust indicator on the air cleaner body. If the red signal on the dust indicator is visible, clean the element immediately. (See "Cleaning Air Cleaner Primary Element" in "EVERY 100 HOURS" in "PERIODIC SERVICE" section.) Reset the red signal by pushing a "RESET" button after cleaning.
◆ Sliding the air conditioner condenser
1. Loosen the wing nut.
2. Hold the handle, slide the air conditioner condenser assembly toward yourself.

<table>
<thead>
<tr>
<th>(1) Condenser</th>
<th>(A) &quot;PULL&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Receiver</td>
<td></td>
</tr>
<tr>
<td>(3) Handle</td>
<td></td>
</tr>
<tr>
<td>(4) Wing nut</td>
<td></td>
</tr>
<tr>
<td>(5) Air conditioner hose</td>
<td></td>
</tr>
</tbody>
</table>

**IMPORTANT:**
- Do not hold the air conditioner receiver or the air conditioner pipes when sliding out the condenser for cleaning.

◆ Cleaning
1. Check front grill to be sure it is clean from debris.
2. Detach the radiator and air conditioner screens and remove all foreign materials.
3. Check radiator, intercooler, oil cooler, fuel cooler, air conditioner condenser and battery mount to be sure they are clean from debris.

<table>
<thead>
<tr>
<th>(1) Air conditioner condenser screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Air conditioner condenser</td>
</tr>
</tbody>
</table>
Checking DPF/SCR Muffler

**WARNING**
To avoid personal injury or death:
- Before checking or cleaning the DPF/SCR muffler, stop the engine and wait long enough until it is cooled down.

Check the DPF/SCR muffler and its surroundings for accumulation of anything flammable. Otherwise a fire may result.

Checking Brake Pedal

**WARNING**
To avoid personal injury or death:
- Be sure brake pedals have equal adjustment when using locked together. Incorrect or unequal brake pedal adjustment can cause the tractor to swerve or roll-over.

1. Inspect the brake pedals for free travel, and smooth operation.
2. Adjust if incorrect measurement is found:
   (See "Adjusting Brake Pedal" in "EVERY 100 HOURS" in "PERIODIC SERVICE" section.)

Checking Gauges, Meter and Easy Checker(TM)

1. Inspect the instrument panel for broken gauge(s), meter(s) and Easy Checker(TM) lamps.
2. Replace if broken.

Checking Head Light, Turn Signal / Hazard Light etc.

1. Inspect the lights for broken bulbs and lenses.
2. Replace if broken.

Checking Seat Belt

1. Always check condition of seat belt attaching hardware before operating tractor.
2. Replace if damaged.

Checking Movable Parts

If any of the movable parts, such as levers and pedals, is not smoothly moved because of rust or sticky material, do not attempt to force it into motion.

In the above case, remove the rust or the sticky material, and apply oil or grease on the relevant spot.
Otherwise, the machine may get damaged.
INITIAL 50 HOURS

With a new machine, be sure to do the servicing, as discussed below, after the first 50 operating hours.

Changing Engine Oil
(See "Changing Engine Oil" in "EVERY 500 HOURS" in "PERIODIC SERVICE" section for this service.)

Replacing Engine Filter
(See "Replacing Engine Oil Filter" in "EVERY 500 HOURS" in "PERIODIC SERVICE" section for this service.)

EVERY 50 HOURS

Checking Engine Start System

WARNING
To avoid personal injury or death:
- Do not allow anyone near the tractor while testing.
- If the tractor does not pass the test, do not operate the tractor.

Preparation before testing.
1. Place all control levers in the "NEUTRAL" position.
2. Set the parking brake and stop the engine.

Test: Switch for the shuttle shift lever.
1. Follow the instruction of "PARKING THE TRACTOR".
   (See "PARKING THE TRACTOR" in "SAFE OPERATION" section.)
2. Sit on the operator's seat.
3. Shift the shuttle shift lever to the forward or reverse position.
4. Depress the clutch pedal fully.
5. Disengage the PTO clutch control switch or lever.
6. Turn the key to "START" position.
7. The engine must not crank.
8. If it cranks, consult your local KUBOTA Dealer for this service.

Test: Switch for the PTO clutch control switch or lever.
1. Follow the instruction of "PARKING THE TRACTOR".
   (See "PARKING THE TRACTOR" in "SAFE OPERATION" section.)
2. Sit on the operator's seat.
3. Engage the PTO clutch control switch or lever.
4. Depress the clutch pedal fully.
5. Shift the shuttle shift lever to the neutral position.
6. Turn the key to "START" position.
7. The engine must not crank.
8. If it cranks, consult your local KUBOTA Dealer for this service.

Test: Checking Operator Presence Control (O.P.C.) System.
1. Follow the instruction of "PARKING THE TRACTOR".
   (See "PARKING THE TRACTOR" in "SAFE OPERATION" section.)
2. Make sure the PTO drive shaft is disconnected from the tractor.
3. Sit on the operator's seat.
4. Start the engine.
5. Engage the PTO gear shift lever. (if equipped)
6. Engage the PTO clutch control switch or lever. The PTO should begin to rotate. Disengage the PTO clutch control switch or lever.
7. While lifting yourself from the seat, engage the PTO clutch control switch or lever.
   (1) The PTO should begin to rotate and a buzzer should sound.
   (2) Disengage the PTO clutch control switch or lever.
   (3) If the buzzer does not sound, shut off the engine and consult your local KUBOTA Dealer for immediate servicing of the PTO OPC.
8. If the PTO OPC is operating properly, shut off the engine, and reconnect the implement drive shaft to the PTO. Restart the engine per the available instructions.

WARNING
To avoid personal injury or death:
- Before checking the PTO OPC, make sure that the PTO drive shaft should be disconnected from the tractor.
- If the buzzer does not sound during the PTO OPC check procedure, shut off engine and consult your local KUBOTA Dealer for immediate servicing of the PTO OPC.
- The unit should not be operated until servicing is completed.
Checking Wheel Bolt Torque

**WARNING**
To avoid personal injury or death:
- Never operate tractor with a loose rim, wheel, or axle.
- Any time bolts and nuts are loosened, retighten to specified torque.
- Check all bolts and nuts frequently and keep them tight.

Check wheel bolts and nuts regularly especially when new. If they are loose, tighten them.

(See "WHEEL ADJUSTMENT" in "TIRES, WHEELS AND BALLAST" section.)

**Checking Tie-rod Dust Cover**

1. Check to see that dust covers are not damaged.
2. If dust covers are damaged, consult local KUBOTA Dealer for this service.

**EVERY 100 HOURS**

**Lubricating Grease Fittings**

Apply a small amount of multipurpose grease to the following points every 100 hours:
If you operated the machine in extremely wet and muddy conditions, lubricate grease fittings more often.

---

![Diagram of wheel bolts](1AGBDABAP090B)

1. Wheel bolts

![Diagram of grease fitting on front axle support](1AGBDABAP092A)

1. Grease fitting (Front axle support)

![Diagram of dust cover](1AGAIEJAP026T)

1. Dust cover

**IMPORTANT:**
- If dust covers are cracked, water and dust invade into tie-rod and it will be early wear.
Cleaning Air Cleaner Primary Element

**NOTE:**
- If the air conditioner condenser is pulled out when cleaning the air cleaner, the air cleaner cover can be detached and attached easily. (See "Cleaning Radiator Screen" in "DAILY CHECK" in "PERIODIC SERVICE" section.)

1. Remove the air cleaner cover and primary element.
2. Clean the primary element:
   1. When dry dust adheres to the element, blow compressed air from the inside, turning the element. Pressure of compressed air must be under 205 kPa (2.1 kgf/cm², 30 psi).
   2. When carbon or oil adheres to the element, soak the element in detergent for 15 minutes then wash it several times in water, rinse with clean water and dry it naturally. After element is fully dried, inspect inside of the element with a light and check if it is damaged or not.
3. Replace air cleaner primary element:
   Once every 1000 hours or yearly, whichever comes first.
**NOTE:**
- Check to see if the evacuator valve is blocked with dust.

**IMPORTANT:**
- The air cleaner uses a dry element, never apply oil.
- Do not run the engine with filter element removed.
- Be sure to refit the cover with the arrow (on the rear of cover) upright. If the cover is improperly fitted, evacuator valve will not function and dust will adhere to the element.
- Do not touch the secondary element except in cases where replacing is required.
  (See "Replacing Air Cleaner Secondary Element" in "EVERY 1000 HOURS or 1 YEAR" in "PERIODIC SERVICE" section.)

**Evacuator Valve**
Open the evacuator valve once a week under ordinary conditions - or daily when used in a dusty place - to get rid of large particles of dust and dirt.

---

**Adjusting Fan Belt Tension**

**WARNING**

To avoid personal injury or death:
- Be sure to stop the engine before checking belt tension.

**[M5N-091, M5N-111]**

<table>
<thead>
<tr>
<th>Proper fan belt tension</th>
<th>A deflection of between 13 to 15 mm (0.51 to 0.59 in.) when the belt is pressed in the middle of the span.</th>
</tr>
</thead>
</table>

1. Stop the engine and remove the key.
2. Apply moderate thumb pressure to belt between pulleys.
3. If tension is incorrect, loosen the alternator mounting bolts and turn the adjusting bolt to adjust the belt tension within acceptable limits.
4. Replace fan belt if it is damaged.

---

**Diagram 1**

(1) Secondary (safety) element
(2) Primary element
(3) Evacuator valve
(4) Cover

**Diagram 2**

(1) Adjusting bolt
(2) Alternator mounting bolt

(A) Check the belt tension

(B) To tighten
1. Stop the engine and remove the key.
2. Apply moderate thumb pressure to belt between pulleys.
3. If tension is incorrect, loosen the tension pulley mounting nut and turn the adjusting bolt to adjust the belt tension within acceptable limits.
4. Replace fan belt if it is damaged.

**IMPORTANT:**
- Make sure that the V-belt tension is as specified as shown in the table above after tightening the tension pulley mounting nut.

---

### Adjusting Brake Pedal

**WARNING**

To avoid personal injury or death:
- Stop the engine and chock the wheels before checking brake pedal.
- To prevent uneven braking, the specification must be within the recommended limit. If found out of the specifications, contact your local KUBOTA Dealer for adjusting the brakes.

**Checking the brake pedal free travel**

<table>
<thead>
<tr>
<th>Proper brake pedal free travel</th>
<th>7 to 14 mm (0.3 to 0.6 in.) on the pedal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keep the free travel in the right and left brake pedals equal.</td>
<td></td>
</tr>
</tbody>
</table>

1. Set the parking brake.
2. Slightly depress the brake pedals and measure free travel at the top of pedal stroke.

**NOTE:**
- Brake pedals should be equal when depressed.
◆ Checking the brake pedal stroke

| Pedal stroke | Less than 100 mm (3.9 in.) at each pedal |

1. Disengage the brake pedal lock.
2. Depress the brake pedal several times.
3. Step on the right-hand pedal and measure the level difference (pedal stroke) between this pedal and the left-hand pedal.
4. Do the same for the left-hand pedal.

◆ Checking the equalizer working level (anti-imbalance device)

1. Gently step on both brake pedals at once.
2. Further step on the right-hand pedal (the left-hand pedal slightly raises itself) and measure the level difference between the pedals.
3. Do the same for the left-hand pedal.

Specifically, the equalizer working level is:

- Level difference of over 5 mm (0.2 in.) between both pedals

◆ Checking Gear Locked Parking Brake

⚠️ WARNING

To avoid personal injury or death:
- Do not dismount the tractor while checking the parking brake.

Confirm the tractor (tractor unit only) can surely be parked on the slope of about 15 degrees (Slope that rises by 2.7 meters every 10 meters).
If the tractor moves, consult your local KUBOTA Dealer. Always engage the parking brake before dismounting the tractor.

■ Checking Battery Condition

⚠️ DANGER

To avoid the possibility of battery explosion:
For the refillable type battery, follow the instructions below.
- Do not use or charge the refillable type battery if the fluid level is below the LOWER (lower limit level) mark. Otherwise, the battery component parts may prematurely deteriorate, which may shorten the battery's service life or cause an explosion. Check the fluid level regularly and add distilled water as required so that the fluid level is between the UPPER and LOWER levels.

⚠️ WARNING

To avoid personal injury or death:
- Never remove the battery cap while the engine is running.
- Keep electrolyte away from eyes, hands and clothes. If you are spattered with it, wash it away completely with water immediately and get medical attention.
- Keep open sparks and flames away from the battery at all times. Hydrogen gas mixed with oxygen becomes very explosive.
- Wear eye protection and rubber gloves when working around battery.

The factory-installed battery is of non-refillable type. If the indicator turns white, do not charge the battery but replace it with new one.

Mishandling the battery shortens the service life and adds to maintenance costs.
The original battery is maintenance free, but needs some servicing.
If the battery is weak, the engine will be difficult to start and the lights will be dim. It is important to check the battery periodically.
How to read the indicator
Check the battery condition by reading the indicator.

<table>
<thead>
<tr>
<th>State of indicator display</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Specific gravity of electrolyte and quality of electrolyte are both in good condition.</td>
</tr>
<tr>
<td>Black</td>
<td>Needs charging battery.</td>
</tr>
<tr>
<td>White</td>
<td>Needs replacing battery.</td>
</tr>
</tbody>
</table>

NOTE:
- When see the indicator, check from directly above by removing the air cleaner cover or using a mirror.

Battery Charging

WARNING
To avoid personal injury or death:
- When the battery is being activated, hydrogen and oxygen gases in the battery are extremely explosive. Keep open sparks and flames away from the battery at all times, especially when charging the battery.
- When charging the battery, ensure the vent caps are securely in place. (if equipped)
- When disconnecting the cable from the battery, start with the negative terminal first. When connecting the cable to the battery, start with the positive terminal first.
- Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

1. To slow charge the battery, connect the battery positive terminal to the charger positive terminal and the negative to the negative, then recharge in the standard fashion.
2. A boost charge is only for emergencies. It will partially charge the battery at a high rate and in a short time. When using a boost-charged battery, it is necessary to recharge the battery as early as possible. Failure to do this will shorten the battery’s service life.
3. The battery is charged if the indicator display turns green from black.
4. When exchanging an old battery for a new one, use battery of equal specification shown in table 1.

<table>
<thead>
<tr>
<th>Battery Type</th>
<th>Volts (V)</th>
<th>Capacity at 5H.R(A.H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP31(105E41R)</td>
<td>12</td>
<td>80</td>
</tr>
</tbody>
</table>

Table 1

<table>
<thead>
<tr>
<th>Reserve Capacity (min)</th>
<th>Cold Cranking Amps</th>
<th>Normal Charging Rate (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>900</td>
<td>11</td>
</tr>
</tbody>
</table>

◆ Direction for Storage
1. When storing the tractor for long periods of time, remove the battery from tractor, adjust the electrolyte to the proper level and store in a dry place out of direct sunlight.
2. The battery self-discharges while it is stored. Recharge it once every 3 months in hot seasons and once every 6 months in cold seasons.

## Adjusting Air-Conditioner Belt Tension

**WARNING**
To avoid personal injury or death:
- Be sure to stop the engine before checking belt tension.

| Proper air-conditioner belt tension | A deflection of between 10 to 12 mm (0.4 to 0.48 in.) when the belt is pressed (98 N [10 kgf, 22.1 lbs.]) in the middle of the span. |

1. Stop the engine and remove the key.
2. Apply moderate thumb pressure to belt between pulleys.
3. **[M4N-071]**
   If tension is incorrect, loosen the double nuts and turn the adjusting bolt to adjust the belt tension within acceptable limits.
   **[M5N-091, M5N-111]**
   If tension is incorrect, loosen the tension pulley mounting nut and turn the adjusting bolt to adjust the belt tension within acceptable limits.
4. Replace air-conditioner belt if it is damaged.

**IMPORTANT:**
- Make sure that the V-belt tension is as specified as shown in the table above after tightening the tension pulley mounting nut.
EVERY 200 HOURS

- Adjusting Toe-in

| Proper toe-in | 2 to 8 mm (0.08 to 0.31 in.) |

1. Park tractor on a flat place.
2. Turn steering wheel so front wheels are in the straight ahead position.
3. Lower the implement, lock the park brake and stop the engine.
4. Measure distance between tire beads at front of tire, at hub height.
5. Measure distance between tire beads at rear of tire, at hub height.
6. Front distance should be shorter than rear distance. If not, adjust tie rod length.

◆ Adjusting procedure [4WD]
1. Detach the snap ring.
2. Loosen the tie-rod nut.
3. Turn the tie-rod joint to adjust the rod length until the proper toe-in measurement is obtained.
4. Retighten the tie-rod nut.
5. Attach the snap ring of the tie-rod joint.

(A) Wheel - to - wheel distance at rear
(B) Wheel - to - wheel distance at front
(C) "FRONT"

1. Snap ring
2. Tie-rod nut
   (167 to 196 N-m, 17 to 20 kgf-m, 123.2 to 144.6 ft-lbs)
3. Tie-rod joint
Draining Fuel Tank Water

Loosen the drain plugs at the bottom of the fuel tanks to let sediments, impurities and water out of the tanks. Finally tighten up the plugs.

Cleaning Inner Air Filter

Press the inner air filter in the arrow-marked directions to unlock it and remove the inner filter, and blow air from the direction opposite to the filter's normal air flow. Pressure of compressed air must be under 205 kPa (2.1 kgf/cm², 30 psi).

Cleaning Fresh Air Filter

Remove the knob bolts and pull out filter.

IMPORTANT:
- If the fuel contains impurities, such as water, drain the fuel tank at shorter intervals.
- Drain the fuel tank before operating the tractor after a long period of storage.

NOTE:
- Attach the filter and cover as the illustration above.
**IMPORTANT:**
- Do not hit the filter. If the filter becomes deformed, dust may enter into the air-conditioner, which may cause damage and malfunction.

**NOTE:**
- If the filter is very dirty:
  1. Dip the filter in lukewarm water with mild dish washing detergent.
  2. Move it up and down as well as left and right to loosen dirt. Rinse the filter with clean water and let it air-dry.

**IMPORTANT:**
- Do not use gasoline, thinner or similar chemicals to clean the filter as damage to the filter may occur.
- It may also cause an unpleasant odor in the CAB when the system is used next.

**EVERY 400 HOURS**

**Cleaning Water Separator**
This job should not be done in the field, but in a clean place.
1. Disconnect the connector of water sensor.
2. Close the fuel shutoff-valve.
3. Unscrew the cup and remove it, then rinse the inside with kerosene.
4. Take out the element and dip it in the kerosene to rinse.
5. After cleaning, reassemble the water separator, keeping out dust and dirt.
6. Connect the connector of water sensor.
7. Bleed the fuel system.
   (See "SERVICE AS REQUIRED" in "PERIODIC SERVICE" section.)
Cleaning Fuel Solenoid Pump Element
[M5N-091, M5N-111]

1. Close the fuel shutoff-valve.
2. Unscrew the cover’s nut and remove the cover from the fuel solenoid pump.
3. Remove the cover, magnet, and element and clean with kerosene.
4. Refer to the diagram below and reassemble the parts as they were before.
5. Open the fuel shutoff-valve.

**IMPORTANT:**
- When assembling the parts, be careful that no dirt or dust contacts them.
- Be sure to install the cover securely.
- After assembly, be sure to bleed the air from the fuel system. (See "Bleeding Fuel System" in "SERVICE AS REQUIRED" in "PERIODIC SERVICE").

![Diagram of Fuel Solenoid Pump Element](image)

(1) Element
(2) Magnet
(3) Gasket
(4) Cover
(5) Nut

(A) "TIGHTEN"
(B) "LOOSEN"
(C) Pin

"Tighten the cover until the end of the slot contacts the pin."

---

**EVERY 500 HOURS**

Changing Engine Oil

**WARNING**

To avoid personal injury or death:
- Be sure to stop the engine before changing the oil.
- Allow engine to cool down sufficiently, oil can be hot and can burn.

1. To drain the used oil, remove the drain plug at the bottom of the engine and drain the oil completely into the oil pan.
2. After draining reinstall the drain plug.
3. Fill with the new oil up to the upper notch on the dipstick.
   (See "LUBRICANTS" in "MAINTENANCE" section.)

| Oil capacity with filter | 10.7 L (11.3 U.S.qts.) |

**IMPORTANT:**
- Use DPF-compatible oil (CJ-4) for the engine.

![Diagram of Engine Oil Level](image)

(1) Oil inlet
(2) Dipstick

(A) Oil level is acceptable within this range
**Replacing Engine Oil Filter**

**WARNING**

To avoid personal injury or death:
- Be sure to stop the engine before replacing the oil filter cartridge.
- Allow engine to cool down sufficiently, oil can be hot and can burn.

1. Remove the oil filter.
2. Put a film of clean engine oil on the rubber seal of the new filter.
3. Tighten the filter quickly until it contacts the mounting surface.
   Tighten filter by hand an additional 1/2 turn only.
4. After the new filter has been replaced, the engine oil normally decreases a little. Make sure that the engine oil does not leak through the seal and be sure to check the oil level on the dipstick. Then, replenish the engine oil up to the prescribed level.

**IMPORTANT:**
- To prevent serious damage to the engine, use only a KUBOTA genuine filter.
**Replacing Fuel Filter**

1. Remove the fuel filter.
3. Tighten the filter quickly until it contacts the mounting surface.
   
   Tighten filter by hand an additional 1/2 turn only.
4. Bleed the fuel system.
   
   (See "Bleeding Fuel System" in "SERVICE AS REQUIRED" in "PERIODIC SERVICE" section.)

**Replacing Hydraulic Oil Filter**

**Cleaning Magnetic Filter**

! WARNING

To avoid personal injury or death:

- Be sure to stop the engine before changing the oil filter cartridge.
- Allow engine to cool down sufficiently, oil can be hot and can burn.

1. Remove the drain plug at the bottom of the transmission case and drain the oil completely into an oil pan.
2. After draining reinstall the drain plug.
3. Remove the oil filter.
4. Wipe off metal filings from the magnetic filter with a clean rag.
5. Put a film of clean transmission oil on the rubber seal of the new filter.
6. Tighten the filter quickly until it contacts the mounting surface. Tighten filter by hand an additional 1/2 turn only.
7. After the new filter has been replaced, fill the transmission oil up to the upper notch on the dipstick.

8. After running the engine for a few minutes, stop the engine and check the oil level again, add oil to the prescribed level.
9. Make sure that the transmission fluid doesn't leak past the seal on the filter.

**IMPORTANT:**
- To prevent serious damage to the hydraulic system, use only a KUBOTA genuine filter.

**Checking Power Steering Line**

1. Check to see that all lines and hose clamps are tight and not damaged.
2. If hoses and clamps are found worn or damaged, replace or repair them at once.
Checking Radiator Hose and Clamp
Check to see if radiator hoses are properly fixed every 500 hours of operation.
1. If hose clamps are loose or water leaks, tighten bands securely.
2. Replace hoses and tighten hose clamps securely, if radiator hoses are swollen, hardened or cracked.
Replace hoses and hose clamps every 4 years or earlier if checked and found that hoses are swollen, hardened or cracked.
Precaution at Overheating
Take the following actions in the event the coolant temperature is nearly or more than the boiling point, what is called "Overheating"

1. Park the tractor in a safe place and keep the engine unloaded idling.
2. Don't stop the engine suddenly, but stop it after about 5 minutes of unloaded idling.
3. Keep yourself well away from the machine for further 10 minutes or while the steam blows out.
4. Check that there are no dangers such as burns. Get rid of the causes of overheating according to the manual, see "TROUBLESHOOTING" section, and then, start again the engine.

Checking Fuel Line
1. Check to see that all lines and hose clamps are tight and not damaged.
2. If hoses and clamps are found worn or damaged, replace or repair them at once.

(1) Radiator hoses
(2) Hose clamps

(1) Fuel lines
(2) Clamp bands
A If the fuel line is removed, be sure to properly bleed the fuel system. (See "Bleeding Fuel System" in "SERVICE AS REQUIRED" in "PERIODIC SERVICE" section.)

B Checking Intake Air Line

1. Check to see that hoses and hose clamps are tight and not damaged.
2. If hoses and clamps are found worn or damaged, replace or repair them at once.

NOTE:
- If the fuel line is removed, be sure to properly bleed the fuel system.
  (See "Bleeding Fuel System" in "SERVICE AS REQUIRED" in "PERIODIC SERVICE" section.)
Checking Lift Cylinder Hose
1. Check to see that hoses and hose clamps are tight and not damaged.
2. If hoses and clamps are found worn or damaged, replace or repair them at once.

Checking Brake Hose
1. Check to see that hoses and hose clamps are tight and not damaged.
2. If hoses and clamps are found worn or damaged, consult your local KUBOTA Dealer for this service.

EVERY 600 HOURS
Adjusting Front Axle Pivot
If the front axle pivot pin adjustment is not correct, front wheel vibration can occur causing vibration in the steering wheel.

Adjusting procedure
Loosen the lock nut, screw-in the adjusting screw until seated, then tighten the screw with an additional 1/6 turn. Re-tighten the lock nut.

Checking Air Conditioner Pipe and Hose
1. Check to see that all lines and hose clamps are tight and not damaged.
2. If hoses and clamps are found worn or damaged, consult your local KUBOTA Dealer for this service.
EVERY 1000 HOURS

■ Changing Transmission Fluid

WARNING
To avoid personal injury or death:
• Allow engine to cool down sufficiently, oil can be hot and can burn.

1. To drain the used oil, remove the drain plug at the bottom of the transmission case and drain the oil completely into the oil pan.
2. After draining reinstall the drain plug.
3. Fill with the new KUBOTA SUPER UDT fluid up to the upper notch on the dipstick.
   (See "LUBRICANTS" in "MAINTENANCE" section.)
4. After running the engine for a few minutes, stop it and check the oil level again; add oil to prescribed level.

| Oil capacity | 52 L (54.9 U.S.qts) |

---

| (1) Drain plug |

---

| (1) Dipstick | (2) Oil inlet |

---

(A) Oil level is acceptable within this range.

IMPORTANT:
• Do not operate the tractor immediately after changing the transmission fluid.
   Run the engine at medium speed for a few minutes to prevent damage to the transmission.

■ Changing Front Axle Gear Case Oil & Front Differential Case Oil

1. To drain the used oil, remove the drain plugs at the both front axle gear cases and filling plugs, and drain the oil completely into the oil pan.
2. After draining reinstall the drain plugs.
3. Remove the oil level check plug at the front differential case.
4. Fill with the new oil of the specified amount from both filling ports on the front axle gear case.
5. Finally fill with the new oil up to the lower rim of check plug port on the front differential case.
   (See "LUBRICANTS" in "MAINTENANCE" section.)
6. After checking oil is visible through the opening of check plug, reinstall filling plugs and check plug.

| Oil capacity |
| Front Axle Gear Case | 3.0 L (3.2 U.S.qts.) for each side |
| Front Differential Case | 5.0 L (5.3 U.S.qts.) |

NOTE:
• Fill up specified amount certainly although it takes time to pour the oil.

---

[Front Axle Gear Case]
EVERY 1000 HOURS or 1 YEAR

Be sure to do the following servicing once every 1000 hours or yearly, whichever comes first.

■ Adjusting Engine Valve Clearance
Consult your local KUBOTA Dealer for this service.

■ Replacing Air Cleaner Primary Element and Secondary Element
(See "Cleaning Air Cleaner Primary Element" in "EVERY 100 HOURS" in "PERIODIC SERVICE" section.)

■ Checking Exhaust Manifold
Consult your local KUBOTA Dealer for this service.

EVERY 1500 HOURS

■ Cleaning Fuel Injector Nozzle Tip
Consult your local KUBOTA Dealer for this service.

■ Checking DEF/AdBlue® Injector Tip
[M5N-091, M5N-111]
Consult your local KUBOTA Dealer for this service.

■ Checking DEF/AdBlue® Line
[M5N-091, M5N-111]
1. Check to see that all lines from the DEF/AdBlue® injector to the tank are securely connected and not damaged.
2. If hoses and clamps are found worn or damaged, replace or repair them at once.

■ Replacing Oil Separator Element

**WARNING**
To avoid personal injury or death:
- Be sure to stop the engine before replacing the oil separator element.

1. Remove the cover and take out the element. Wipe off oil and the carbon in the case with a clean rag.
2. Fit a new oil separator element.
3. Tighten the cover.
**Checking PCV (Positive Crankcase Ventilation) Valve**
Consult your local KUBOTA Dealer for this service.

**EVERY 2000 HOURS or 2 YEARS**

Be sure to do the following servicing once every 2000 hours or biennially, whichever comes first.

**Checking and Cleaning EGR Cooler**
Consult your local KUBOTA Dealer for this service.

**Flushing Cooling System and Changing Coolant**

**WARNING**

To avoid personal injury or death:
- Do not remove radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely.

1. Stop the engine, remove the key and let it cool down.
2. To drain the coolant, open the radiator drain plug, remove the drain plug and remove radiator cap. The radiator cap must be removed to completely drain the coolant.
3. After all coolant is drained, reinstall the drain plug.
4. Fill with clean soft water and cooling system cleaner.
5. Follow directions of the cleaner instruction.
6. After flushing, fill with clean soft water and anti-freeze until the coolant level is just below the radiator cap. Install the radiator cap securely.
7. Fill with coolant up to the "FULL" mark of recovery tank.
8. Start and operate the engine for few minutes.
9. Stop the engine, remove the key and let cool.
10. Check coolant level of recovery tank and add coolant if necessary.
11. Properly dispose of used coolant.

<table>
<thead>
<tr>
<th>Coolant capacity</th>
<th>10 L (11 U.S.qts.)</th>
</tr>
</thead>
</table>

**Coolant capacity**

- **Drain plug**

![Diagram of Oil separator with labels:](image)

- **Body**
- **Oil separator element**
- **Gasket**
- **Cover**

![Diagram of Oil separator with labels:](image)

![Diagram of Oil separator with labels:](image)
PERIODIC SERVICE

Do not start engine without coolant.

Use clean, fresh soft water and anti-freeze to fill the radiator and recovery tank.

When mixing the anti-freeze with water, the anti-freeze mixing ratio is 50%.

Securely tighten radiator cap. If the cap is loose or improperly fitted, water may leak out and the engine could overheat.

On cab type machines, coolant circulates through the heater. This means that one more liter or so of coolant is required.

In changing coolant, pour coolant up to the filler port of the recovery tank. Turn ON the heater (shift the temperature control lever toward WARM), and run the engine for a while in order to warm coolant. Then stop the engine.

When coolant has cooled down, some of the coolant in the recovery tank is sucked. Now the recovery tank is appropriately filled with coolant.

---

**Anti-Freeze**

**WARNING**

To avoid personal injury or death:

- When using antifreeze, put on some protection such as rubber gloves. (Antifreeze contains poison.)
- If it is swallowed, seek immediate medical help. Do NOT make a person throw up unless told to do so by poison control or a health care professional. Use standard first aid and CPR for signs of shock or cardiac arrest. Call your local Poison Control Center or your local emergency number for further assistance.
- When antifreeze comes in contact with the skin or clothing, wash it off immediately.
- Do not mix different types of Antifreeze.
The mixture can produce chemical reaction causing harmful substances.

- Antifreeze is extremely flammable and explosive under certain conditions. Keep fire and children away from antifreeze.
- When draining fluids from the engine, place some container underneath the engine body.
- Do not pour waste onto the ground, down a drain, or into any water source.
- Also, observe the relevant environmental protection regulations when disposing of antifreeze.

Always use a 50/50 mix of long-life coolant and clean soft water in KUBOTA engines. Consult your local KUBOTA Dealer concerning coolant for extreme conditions.

1. Long-life coolant (hereafter LLC) comes in several types. Use ethylene glycol (EG) type for this engine.
2. Before employing LLC-mixed cooling water, fill the radiator with fresh water and empty it again. Repeat this procedure 2 or 3 times to clean up the inside.
3. Mixing the LLC
   Premix 50% LLC with 50% clean soft water. When mixing, stir it up well, and then fill into the radiator.
4. The procedure for the mixing of water and antifreeze differs according to the make of the antifreeze and the ambient temperature. Refer to SAE J1034 standard, more specifically also to SAE J814c.

<table>
<thead>
<tr>
<th>Vol % Anti-freeze</th>
<th>Freezing Point</th>
<th>Boiling Point*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>°C</td>
<td>°F</td>
</tr>
<tr>
<td>50</td>
<td>-37</td>
<td>108</td>
</tr>
</tbody>
</table>

* At 1.013 x 10^5 Pa (760mmHg) pressure (atmospheric). A higher boiling point is obtained by using a radiator pressure cap which permits the development of pressure within the cooling system.

5. Adding the LLC
   (1) Add only water if the mixture reduces in amount by evaporation.
   (2) If there is a mixture leak, add the LLC of the same manufacturer and type in the same mixture percentage.
   * Never add any long-life coolant of different manufacturer. (Different brands may have different additive components, and the engine may fail to perform as specified.)
6. When the LLC is mixed, do not employ any radiator cleaning agent. The LLC contains anticorrosive agent. If mixed with the cleaning agent, sludge may build up, adversely affecting the engine parts.
7. Kubota’s genuine long-life coolant has a service life of 2 years. Be sure to change the coolant every 2000 hours or every 2 years whichever comes faster.

NOTE:
- The above data represent industry standards that necessitate a minimum glycol content in the concentrated antifreeze.

EVERY 3000 HOURS

[Checking Turbocharger]
Consult your local KUBOTA Dealer for this service.

[Checking Supply Pump]
Consult your local KUBOTA Dealer for this service.

[Checking Intake Air Heater]
Consult your local KUBOTA Dealer for this service.

[Checking and Cleaning EGR System]
Consult your local KUBOTA Dealer for this service.

[Cleaning DPF Muffler]

◆ Removal of ash
The longer the DPF operates, the more ash (burnt residue) is collected in the filter. Too much ash build-up adversely affects the DPF performance. Consult your local KUBOTA Dealer to clean the filter.

IMPORTANT:
- The DPF needs cleaning with a specific cleaning device. Do not clean the DPF by disassembling, and attempt by yourself, consult your local KUBOTA Dealer.

[Checking DEF/AdBlue® injector [M5N-091, M5N-111]]
Consult your local KUBOTA Dealer for this service.
1. Loosen the bolts and remove the tool box and the tank cover.

2. Clean up around the plug and remove the plug.

3. Loosen the top of filter assembly and remove it from pump.

4. Replace the filter assembly with new one.

**NOTE:**
- Even after stopping the engine, the injector cooling DEF/AdBlue® fluid continues to circulate through the circuit for a couple of minutes. When this circulation has ended, do the replacement job. (During cooling, the fluid’s circulating noise is heard.)
- Do not apply oil to the O-ring of the filter.
EVERY 4 YEARS

- **Replacing Radiator Hose (Water pipes)**
  Replace the hoses and clamps.
  (See "Checking Radiator Hose and Clamp" in "EVERY 500 HOURS" in "PERIODIC SERVICE" section.)

- **Replacing Fuel Hose**
  Consult your local KUBOTA Dealer for this service.

- **Replacing Intake Air Line**
  Consult your local KUBOTA Dealer for this service.

- **Replacing Oil Cooler Line**
  Consult your local KUBOTA Dealer for this service.

- **Replacing Power Steering Hose**
  Consult your local KUBOTA Dealer for this service.

- **Replacing Lift Cylinder Hose**
  Consult your local KUBOTA Dealer for this service.

- **Replacing Brake Hose**
  Consult your local KUBOTA Dealer for this service.

- **Replacing Master Cylinder Kit**
  Consult your local KUBOTA Dealer for this service.

- **Replacing Equalizer Kit**
  Consult your local KUBOTA Dealer for this service.

- **Replacing Brake Seal 1 and 2**
  Consult your local KUBOTA Dealer for this service.

- **Replacing Air Conditioner Hose**
  Consult your local KUBOTA Dealer for this service.

SERVICE AS REQUIRED

- **Bleeding Fuel System**
  Air must be removed:
  1. When the fuel filter or lines are removed.
  2. When water is drained from water separator.
  3. When tank is completely empty.
  4. After the tractor has not been used for a long period of time.

  - **Bleeding procedure is as follows:**
    1. Fill the fuel tank with fuel, and open the fuel shutoff-valve.

  ![Fuel shutoff-valve diagram]
  
  (1) Fuel shutoff-valve
  (A) "CLOSE"
  (B) "OPEN"
2. Disconnect the heater connector.

3. Turn ON and OFF the key switch repeatedly 10 times or so at the following intervals. This lets the air out of the fuel line.
   - Key switch ON time: 30 seconds
   - Key switch OFF time: 15 seconds

4. Connect the heater connector.

5. Set the hand throttle lever at the maximum speed position, turn the key switch to start the engine and then reset the throttle lever at the mid speed (around 1500 rpm) position. If engine doesn't start, try it several times at 30 second intervals.

**IMPORTANT:**
- Do not hold key switch at engine start position for more than 10 seconds continuously. If more engine cranking is needed, try again after 30 seconds.

6. Accelerate the engine to remove the small portion of air left in the fuel system.

7. If air still remains and the engine stops, repeat the above steps.

**Bleeding Brake System**
Consult your local KUBOTA Dealer for this service.

**Draining Clutch Housing Water**
The tractor is equipped with a drain plug under the clutch housing.
After operating in rain, snow or if the tractor has been washed, water may get into the clutch housing.
Remove the drain plug and drain the water, then install the plug again.
Replacing Fuse

The tractor electrical system is protected from potential damage by fuses. A blown fuse indicates that there is an overload or short somewhere in the electrical system. If any of the fuses should blow, replace with a new one of the same capacity.

IMPORTANT:

- Before replacing a blown fuse, determine why the fuse blew and make any necessary repairs. Failure to follow this procedure may result in serious damage to the tractor electrical system. Refer to the "TROUBLESHOOTING" section of this manual or your local KUBOTA Dealer for specific information dealing with electrical problems.
### Fuse Locations

<table>
<thead>
<tr>
<th>Fuse No.</th>
<th>Capacity (A)</th>
<th>Protected circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>5</td>
<td>Spare Fuse</td>
</tr>
<tr>
<td>(2)</td>
<td>10</td>
<td>Spare Fuse</td>
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<tr>
<td>(3)</td>
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<td>(4)</td>
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<td>(5)</td>
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<td>Work Light (Rear)</td>
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<td>(6)</td>
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<td>Work Light (Front)</td>
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<td>(7)</td>
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<td>Cigarette Lighter</td>
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<td>(8)</td>
<td>30</td>
<td>Air Conditioner (Fan Motor)</td>
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<td>(9)</td>
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<td>Work Light (Option)</td>
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### Fuse Locations

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<th>Protected circuit</th>
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</thead>
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<td>SCR heater system</td>
</tr>
<tr>
<td>(4)</td>
<td>10</td>
<td>Nox sensor, SCR tank sensor</td>
</tr>
<tr>
<td>(5)</td>
<td>10</td>
<td>EGR valve air flow sensor</td>
</tr>
<tr>
<td>(6)</td>
<td>10</td>
<td>Spare fuse</td>
</tr>
<tr>
<td>(7)</td>
<td>30</td>
<td>Spare fuse</td>
</tr>
</tbody>
</table>

### Oil Separator Fuse

<table>
<thead>
<tr>
<th>Fuse No.</th>
<th>Capacity (A)</th>
<th>Protected circuit</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>15</td>
<td>Heater (Oil separator, OUT 1)</td>
</tr>
<tr>
<td>(2)</td>
<td>15</td>
<td>Heater (Oil separator, IN)</td>
</tr>
<tr>
<td>(3)</td>
<td>15</td>
<td>Heater (Oil separator, OUT 2)</td>
</tr>
</tbody>
</table>
Replacing Slow-Blow Fuses

The slow-blow fuses are intended to protect the electrical cabling. If any of them has blown out, be sure to pinpoint the cause. Never use any substitute, use only a KUBOTA genuine part.

<table>
<thead>
<tr>
<th>No.</th>
<th>Capacity</th>
<th>Protected circuit</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30A</td>
<td>Main key switch</td>
<td>Bolt fixed</td>
</tr>
<tr>
<td>2</td>
<td>100A</td>
<td>Charge</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>50A</td>
<td>SCR system</td>
<td>Non Bolt fixed</td>
</tr>
<tr>
<td>4</td>
<td>60A</td>
<td>Defogger, Hazard</td>
<td>Bolt fixed</td>
</tr>
<tr>
<td>5</td>
<td>120A</td>
<td>Engine preheat</td>
<td>Bolt fixed</td>
</tr>
<tr>
<td>6</td>
<td>30A</td>
<td>Work light</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>30A</td>
<td>Electrical outlet</td>
<td>Non Bolt fixed</td>
</tr>
<tr>
<td>8</td>
<td>60A</td>
<td>Starter, Air conditioner</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>150A</td>
<td>Charge [B type only]</td>
<td></td>
</tr>
</tbody>
</table>
**Replacement procedure**

**[Non bolt fixed slow-blow fuse:]**
1. Disconnect the negative cord of the battery.
2. Pull out the fuse from the fuse box.
3. Replace with a new one of the same capacity.

**[Bolt fixed slow-blow fuse:]**
Consult your local KUBOTA Dealer for this service.

**Replacing Light Bulb**

**CAUTION**
To avoid personal injury:
- Be careful not to drop the bulb, hit anything against the lamp, apply excess force, and get the lamp scratched. If broken, glass may cause injury. Pay more attention to halogen lamps in particular, which have high pressure inside.
- Before replacing the lamp, be sure to turn off the light and wait until the bulb cools down, otherwise, you may get burned.

1. While pushing the right and left lock buttons, pull and remove the electrical connector.
2. Turn the cover counterclockwise to remove it.
3. Turn the bulb base counterclockwise to take out the bulb.
4. Replace with a new bulb and reinstall the head lamp assembly in the reverse order.

**Replacing Head Lamp**

**CAUTION**
To avoid personal injury:
- Be careful not to drop the bulb, hit anything against the lamp, apply excess force, and get the lamp scratched. If broken, glass may cause injury. Pay more attention to halogen lamps in particular, which have high pressure inside.
- Before replacing the lamp, be sure to turn off the light and wait until the bulb cools down, otherwise, you may get burned.

1. While pushing the right and left lock buttons, pull and remove the electrical connector.
2. Turn the cover counterclockwise to remove it.
3. Turn the bulb base counterclockwise to take out the bulb.
4. Replace with a new bulb and reinstall the head lamp assembly in the reverse order.

**Table: Light Capacity**

<table>
<thead>
<tr>
<th>Light</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head light</td>
<td>12 V, 55 / 60 W (H4)</td>
</tr>
<tr>
<td>Hazard light</td>
<td>12 V, 21 W</td>
</tr>
<tr>
<td>Turn signal</td>
<td>12 V, 21 W</td>
</tr>
<tr>
<td>Tail light</td>
<td>12 V, 5 W</td>
</tr>
<tr>
<td>Work light (for outer roof)</td>
<td>12 V, 55 W</td>
</tr>
<tr>
<td>Front work light</td>
<td>12 V, 35 W</td>
</tr>
<tr>
<td>Dome light (Room lamp)</td>
<td>12 V, 5 W</td>
</tr>
</tbody>
</table>

**Diagram:**

- (1) Fuse box
- (2) Bolt
- (3) Bolt fixed slow-blow fuse
- (4) Non bolt fixed slow-blow fuse

**Diagram:**

- (1) Electrical connector
- (2) Lock buttons
- (3) Cover
- (4) Bulb base
- (5) Bulb

(A) "Base’s wider projection to face upward"

**IMPORTANT:**
- Be sure to use a new bulb of the specified wattage.
- Never touch the bulb surface (glass) with bare hands. Fingerprints, for example, may break the bulb.
**Lubricating Points**

(1) Door hinge  
(2) Rear window hinge

**Adding Washer Liquid**

Add a proper amount of automobile washer liquid.

(1) Washer liquid tank

| Washer tank capacity | 2.0 L (2.1 U.S.qts.) |

**Checking the Amount of Refrigerant (gas)**

**WARNING**

To avoid personal injury or death:
- Liquid contact with eyes or skin may cause frostbite.
- In the event of a leakage, wear safety goggles. Escaping refrigerant can cause severe injuries to eyes.
- In contact with a flame, R134a refrigerant gives a toxic gas.
- Do not disconnect any part of the refrigeration circuit of the air conditioning system. Consult your local KUBOTA Dealer for assistance and service.

A shortage of refrigerant impairs the air-conditioner performance. Check the following points. If it is indicated that the amount of refrigerant is extremely low, ask your dealer to inspect and charge.

**Checking procedure**

1. Run the air-conditioner in the following conditions.
   - Engine speed: About 1500 rpm
   - Temperature control dial: Maximum cooling position
   - Fan switch: Highest blow (HI)
   - Air-conditioner switch: ON

2. Look into the sight glass to see if the refrigerant is flowing through its circuit.

(1) Sight glass
**IMPORTANT:**

- Charge only with R134a not R12 refrigerant (gas).
STORAGE

WARNING
To avoid personal injury or death:
- Do not clean the machine while the engine is running.
- To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.
- When storing, remove the key from the key switch to avoid unauthorized persons from operating the tractor and getting injured.

TRACTOR STORAGE
If you intend to store your tractor for an extended period of time, follow the procedures outlined below.
These procedures will insure that the tractor is ready to operate with minimum preparation when it is removed from storage.
1. Check the bolts and nuts for looseness, and tighten if necessary.
2. Apply grease to tractor areas where bare metal will rust also to pivot areas.
3. Detach the weights from the tractor body.
4. Inflate the tires to a pressure a little higher than usual.
5. Change the engine oil and run the engine to circulate oil throughout the engine block and internal moving parts for about 5 minutes.
6. Keep the PTO clutch control switch or lever at "DISENGAGE" position while tractor is stored for a long period of time.
7. With all implements lowered to the ground, coat any exposed hydraulic cylinder piston rods with grease.
8. Remove the battery from the tractor. Store the battery following the battery storage procedures.
   (See "Checking Battery Condition" in "EVERY 100 HOURS" in "PERIODIC SERVICE" section.)
9. Preferably let the DEF/AdBlue® out of its tank and store the fluid in another specific tank.
   For a long-term storage of DEF/AdBlue®, refer to "Storing and Handling the DEF/AdBlue®" in "SELECTIVE CATALYTIC REDUCTION (SCR) MUFFLER" in "OPERATING THE ENGINE" section.
10. Keep the tractor in a dry place where the tractor is sheltered from the elements. Cover the tractor.
11. Store the tractor indoors in a dry area that is protected from sunlight and excessive heat. If the tractor must be stored outdoors, cover it with a waterproof tarpaulin. Jack the tractor up and place blocks under the front and rear axles so that all 4 tires are off the ground. Keep the tires out of direct sunlight and extreme heat.

IMPORTANT:
- When washing the tractor, be sure to stop the engine. Allow sufficient time for the engine to cool before washing.
- Cover the tractor after the muffler and the engine have cooled down.

REMOVING THE TRACTOR FROM STORAGE
1. Check the tire air pressure and inflate the tires if they are low.
2. Jack the tractor up and remove the support blocks from under the front and rear axles.
3. Install the battery. Before installing the battery, be sure it is fully charged.
4. Check the fan belt tension.
5. Check all fluid levels (engine oil, transmission/hydraulic oil, engine coolant, DEF/AdBlue® and any attached implements).
6. Start the engine. Observe all gauges. If all gauges are functioning properly and reading normal, move the tractor outside. Once outside, park the tractor and let the engine idle for at least 5 minutes. Shut the engine off and walk around tractor and make a visual inspection looking for evidence of oil or water leaks.
7. With the engine fully warmed up, release the parking brake and test the brakes for proper adjustment as you move forward. Adjust the brakes as necessary.

NOTE:
- The information regarding DEF/AdBlue® corresponds only to the M5N-091 and M5N-111 tractor models.
ENGINE TROUBLESHOOTING

If something is wrong with the engine, refer to the table below for the cause and its corrective measure.

<table>
<thead>
<tr>
<th>Trouble</th>
<th>Cause</th>
<th>Countermeasure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine is difficult to start or won't start</td>
<td>● No fuel flow.</td>
<td>● Check the fuel tank and the fuel filter. Replace filter if necessary.</td>
</tr>
<tr>
<td></td>
<td>● Air or water is in the fuel system.</td>
<td>● Check to see if the fuel line coupler bolt and nut are tight.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Bleed the fuel system (See &quot;Bleeding Fuel System&quot; in &quot;SERVICE AS REQUIRED&quot; in &quot;PERIODIC SERVICE&quot; section.)</td>
</tr>
<tr>
<td></td>
<td>● In winter, oil viscosity increases, and engine revolution is slow.</td>
<td>● Use oils of different viscosities, depending on ambient temperatures.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Use engine block heater (Optional)</td>
</tr>
<tr>
<td></td>
<td>● Battery becomes weak and the engine does not turn over quick enough.</td>
<td>● Clean battery cables &amp; terminals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Charge the battery.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● In cold weather, always remove the battery from the engine, charge and store it indoors. Install it on the tractor only when the tractor is going to be used.</td>
</tr>
<tr>
<td>[M4N-071]</td>
<td>● Preheat (glow plug) system trouble.</td>
<td>● Check to see if the slow blow fuse of the preheat (glow plug) blows.</td>
</tr>
<tr>
<td>[M5N-091, M5N-111]</td>
<td>● Intake air heater system trouble.</td>
<td>● Check to see if the slow blow fuse of the intake air heater blows.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Check to see if the intake air heater functions in cold weather.</td>
</tr>
<tr>
<td>Insufficient engine power.</td>
<td>● Insufficient or dirty fuel.</td>
<td>● Check the fuel system.</td>
</tr>
<tr>
<td></td>
<td>● The air cleaner is clogged.</td>
<td>● Clean or replace the element.</td>
</tr>
<tr>
<td>[M5N-091, M5N-111]</td>
<td>● DEF/AdBlue® runs short</td>
<td>● Add DEF/AdBlue®.</td>
</tr>
<tr>
<td>Exhaust fumes are colored.</td>
<td>Black</td>
<td>● Bleed the fuel system if necessary.</td>
</tr>
<tr>
<td></td>
<td>● Fuel quality is poor.</td>
<td>● Change the fuel and fuel filter.</td>
</tr>
<tr>
<td></td>
<td>● Too much oil.</td>
<td>● Check the proper amount of oil.</td>
</tr>
<tr>
<td></td>
<td>● The air cleaner is clogged.</td>
<td>● Clean or replace the element.</td>
</tr>
<tr>
<td></td>
<td>Blue white</td>
<td>● Check to see if the intake air heater functions in cold weather.</td>
</tr>
<tr>
<td></td>
<td>● The inside of exhaust muffler is damp with fuel.</td>
<td>● Heat the muffler by applying load to the engine.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Check the injection nozzle.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Change the injection nozzle.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Change the fuel and fuel filter.</td>
</tr>
</tbody>
</table>
If you have any questions, contact your local KUBOTA Dealer.

<table>
<thead>
<tr>
<th>Trouble</th>
<th>Cause</th>
<th>Countermeasure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine overheats</td>
<td>Engine overloaded</td>
<td>Shift to lower gear or reduce load.</td>
</tr>
<tr>
<td></td>
<td>Low coolant level</td>
<td>Fill cooling system to the correct level; check radiator and hoses for loose connections or leaks.</td>
</tr>
<tr>
<td></td>
<td>Loose or defective fan belt</td>
<td>Adjust or replace fan belt.</td>
</tr>
<tr>
<td></td>
<td>Dirty radiator core or grille screens</td>
<td>Remove all trash.</td>
</tr>
<tr>
<td></td>
<td>Coolant flow route corroded</td>
<td>Flush cooling system.</td>
</tr>
</tbody>
</table>

If you have any questions, contact your local KUBOTA Dealer.

<table>
<thead>
<tr>
<th>Trouble</th>
<th>Operator’s action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine not overheated, but engine warning indicator on.</td>
<td>Stop the engine and get it restarted. If the engine fails to restart or the indicator stays on, immediately contact your local KUBOTA dealer. If the warning indicator lights up, the following phenomena may appear depending on the engine’s trouble spot.</td>
</tr>
</tbody>
</table>
**POWER TRAIN TROUBLE SHOOTING**

If something is wrong with the power train, the master system warning indicator starts blinking and the error code shown below is displayed on the liquid crystal display, indicating the location of the trouble. If an error code appears, immediately contact your local KUBOTA Dealer for repairs.

<table>
<thead>
<tr>
<th>Displayed error code</th>
<th>Trouble</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERROR-1</td>
<td>Acceleration sensor (main) trouble</td>
</tr>
<tr>
<td>ERROR-2</td>
<td>Acceleration sensor (sub) trouble</td>
</tr>
<tr>
<td>ERROR-3</td>
<td>Acceleration sensor main/sub phase shifting trouble</td>
</tr>
<tr>
<td>ERROR-4</td>
<td>Shuttle sensor (main) trouble</td>
</tr>
<tr>
<td>ERROR-5</td>
<td>Shuttle sensor (sub) trouble</td>
</tr>
<tr>
<td>ERROR-6</td>
<td>Shuttle sensor main/sub phase shifting trouble</td>
</tr>
<tr>
<td>ERROR-7</td>
<td>Shuttle sensor signal trouble</td>
</tr>
<tr>
<td>ERROR-8</td>
<td>Gear lock signal trouble</td>
</tr>
<tr>
<td>ERROR-11</td>
<td>PTO relay trouble</td>
</tr>
<tr>
<td>ERROR-12</td>
<td>4-wheel-drive solenoid trouble</td>
</tr>
<tr>
<td>ERROR-13</td>
<td>Bi-speed turn solenoid trouble</td>
</tr>
<tr>
<td>ERROR-14</td>
<td>Shuttle forward solenoid trouble</td>
</tr>
<tr>
<td>ERROR-15</td>
<td>Shuttle reverse solenoid trouble</td>
</tr>
<tr>
<td>ERROR-21</td>
<td>Range gear shift (Hi) switch trouble</td>
</tr>
<tr>
<td>ERROR-22</td>
<td>Main gear shift (6th) switch trouble</td>
</tr>
<tr>
<td>ERROR-23</td>
<td>Shuttle rotating sensor trouble</td>
</tr>
<tr>
<td>ERROR-24</td>
<td>Machine speed sensor trouble</td>
</tr>
<tr>
<td>ERROR-ENG (ERROR-41)</td>
<td>Engine communication trouble</td>
</tr>
<tr>
<td>ERROR-ACU (ERROR-42)</td>
<td>ACU communication trouble</td>
</tr>
<tr>
<td>ERROR-ECU (ERROR-43)</td>
<td>ECU communication trouble or meter communication trouble</td>
</tr>
<tr>
<td>ERROR-60</td>
<td>Analog reference supply voltage +5V trouble</td>
</tr>
<tr>
<td>ERROR-63</td>
<td>Acceleration &amp; engine adjustment trouble</td>
</tr>
<tr>
<td>ERROR-NET</td>
<td>Communication trouble</td>
</tr>
</tbody>
</table>
Consult your local KUBOTA Dealer for further details.

- Engine Block Heater
  For extremely cold weather starting
- Front end weights
  For front ballast
- Front end weights and bracket
  For front ballast
- Rear Wheel Weights
  For rear ballast
- Rear Cast Iron Disk
- Creep Speed Kit
- Double Acting Remote Hydraulic Control Valve with Detente, Self-Cancelling and Flow Control Functions
- Double Acting Remote Hydraulic Control Valve with Flow Position and Flow Control Functions
- Single/Double Acting Valve
- Single/Double Acting Remote Hydraulic Control Valve with Flow Control Functions
- Remote valve lever kit
- Clevis for Drawbar
- Defogger Kit
- 130A Alternator Kit
- Rear Window Wiper Kit with Washer
- Radio with CD player

### MOUNTING THE SUPPORT PLATE

#### Installation Procedures

1. Insert the support plate through the CD player mounting opening of the inner roof.

   ![Diagram](1AGBDABAP038C)

   - (1) Support plate
   - (2) Inner roof
   - (3) CD player mounting opening

2. Insert the mounting collar into the inner roof and support plate.

   ![Diagram](1AGAICHP105A)

   - (1) Support plate
   - (2) Inner roof
   - (3) Mounting collar
3. Bend the mounting tabs of the mounting collar out with a screwdriver.

4. Connect the antenna lead to the CD player.
5. Connect the power connector to the CAB wire harness.

6. Insert the CD player into the mounting collar and push it in until "click" is heard. (The CD player is secured to the mounting collar by the side tabs.)
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Careful operation is your best insurance against an accident. **Read and understand this manual carefully before operating the tractor.**

All operators, no matter how much experience they may have, should read this and other related manuals before operating the tractor or any implement attached to it. It is the owner's obligation to instruct all operators in safe operation.

1. **BEFORE OPERATING THE TRACTOR**

1. Know your equipment and its limitations. Read this entire manual before attempting to start and operate the tractor.
2. Pay special attention to the danger, warning and caution labels on the tractor.
3. Do not operate the tractor or any implement attached to it while under the influence of alcohol, medication, controlled substances or while fatigued.
4. Before allowing other people to use your tractor, explain how to operate and have them read this manual before operation.
5. Never wear loose, torn, or bulky clothing around tractor. It may catch on moving parts or controls, leading to the risk of an accident. Use additional safety items, e.g. hard hat, safety boots or shoes, eye and hearing protection, gloves, etc., as appropriate or required.
6. Do not allow passengers to ride on any part of the tractor at anytime. The operator must remain in the tractor seat during operation.
7. Check brakes, clutch, linkage pins and other mechanical parts for improper adjustment and wear. Replace worn or damaged parts promptly. Check the tightness of all nuts and bolts regularly. (For further details, see "MAINTENANCE" section.)
8. Keep your tractor clean. Dirt, grease, and trash build up may contribute to fires and lead to personal injury.
9. Use only implements meeting the specifications listed under "IMPLEMENT LIMITATIONS" in this manual or implements approved by KUBOTA.
10. Use proper weights on the front or rear of the tractor to reduce the risk of upsets. Follow the safe operating procedures specified in the implement or attachment manual.
11. Do not modify the tractor. Unauthorized modification may affect the function of the tractor, which may result in personal injury.

◆ **CAB, ROPS**

1. KUBOTA recommends the use of a CAB or Roll Over Protective Structures (ROPS) and seat belt in almost all applications. This combination will reduce the risk of serious injury or death, should the tractor be upset. Check for overhead clearance which may interfere with a CAB or ROPS.
2. If the CAB or ROPS is loosened or removed for any reason, make sure that all parts are reinstalled correctly before operating the tractor.
3. Never modify or repair any structural member of a CAB or ROPS because welding, bending, drilling, grinding, or cutting may weaken the structure.
4. A damaged CAB or ROPS structure must be replaced, not repaired or revised.
5. If any structural member of the CAB or ROPS is damaged, replace the entire structure at your local KUBOTA Dealer.
6. Always use the seat belt if the tractor has a CAB or ROPS. Do not use the seat belt if there is no CAB or ROPS. Check the seat belt regularly and replace if frayed or damaged.
7. The CAB is not tested for FOPS (Falling Object Protection Structure).
2. OPERATING THE TRACTOR

Operator safety is a priority. Safe operation, specifically with respect to overturning hazards, entails understanding the equipment and environmental conditions at the time of use. Some prohibited uses which can affect overturning hazards include traveling and turning with implements and loads carried too high etc. This manual sets forth some of the obvious risks, but the list is not, and cannot be, exhaustive. It is the operator's responsibility to be alert for any equipment or environmental condition that could compromise safe operation.

◆ Starting

1. Always sit in the operator's seat when starting engine or operating levers or controls. Adjust seat per instructions in the operating the tractor section. Never start engine while standing on the ground.
2. KUBOTA recommends that you get on and off the tractor from the left side only; however, in the event of an EMERGENCY, you may exit using the right side door. Use caution in using the EMERGENCY right side door, as there are no steps from the CAB to the ground on the right side.
3. Before starting the engine, make sure that all levers (including auxiliary control levers) are in their neutral positions, that the parking brake is engaged, and that both the clutch and the Power Take-Off (PTO) are disengaged or "OFF". Fasten the seat belt if the tractor has a CAB, a fixed ROPS or a foldable ROPS in the upright and locked position.
4. Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed.
5. Do not operate or idle engine in a non-ventilated area. Carbon monoxide gas is colorless, odorless, and deadly.
6. Check before each use that operator presence controls are functioning correctly. Test safety systems. (See "Checking Engine Start System" in "EVERY 50 HOURS" in "PERIODIC SERVICE" section.) Do not operate unless they are functioning correctly.

◆ Working

1. Pull only from the drawbar. Never hitch to axle housing or any other point except drawbar; such arrangements will increase the risk of serious personal injury or death due to a tractor upset.

2. For trailing PTO-driven implements, set the drawbar to the towing position.
3. Attach pulled or towed loads to the drawbar only.
4. Keep all shields and guards in place. Replace any that are missing or damaged.
5. Avoid sudden starts. To avoid upsets, slow down when turning, on uneven ground, and before stopping.
6. The tractor cannot turn with the differential locked and attempting to do so could be dangerous.
7. Do not operate near ditches, holes, embankments, or other ground surface features which may collapse under the tractor's weight. The risk of tractor upset is even higher when the ground is loose or wet. Tall grass can hide obstacles, walk the area first to be sure.
8. Watch where you are going at all times. Watch for and avoid obstacles. Be alert at row ends, near trees, and other obstructions.
9. When working in groups, always let the others know what you are going to do before you do it.
10. Never try to get on or off a moving tractor.
11. Always sit in the operator's seat when operating levers or controls.
12. Do not use "Bi-speed Turn" at high speed.
13. "Bi-Speed Turn" enables short and fast turns, therefore, become familiar with its performance before operating in close or confined areas.
14. Do not stand between tractor and implement or trailed vehicle unless parking brake is applied.
◆ Safety for children

Tragedy can occur if the operator is not alert to the presence of children. Children generally are attracted to machines and the work they do.

1. Never assume that children will remain where you last saw them.
2. Keep children out of the work area and under the watchful eye of another responsible adult.
3. Be alert and shut your machine down if children enter the work area.
4. Never carry children on your machine. There is no safe place for them to ride. They may fall off and be run over or interfere with your control of the machine.
5. Never allow children to operate the machine even under adult supervision.
6. Never allow children to play on the machine or on the implement.
7. Use extra caution when backing up. Look behind and down to make sure area is clear before moving.

◆ Operating on slopes

Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. All slopes require extra caution.

1. To avoid upsets, always back up steep slopes. If you cannot back up the slope or if you feel uneasy on it, do not operate on it. Stay off slopes too steep for safe operation.
2. Driving forward out of a ditch, mired condition or up a steep slope increases the risk of a tractor to be upset backward. Always back out of these situations. Extra caution is required with 4-wheel drive models because their increased traction can give the operator false confidence in the tractor’s ability to climb slopes.
3. Keep all movement on slopes slow and gradual. Do not make sudden changes in speed, direction or apply brake and make sudden motions of the steering wheel.
4. Avoid disengaging the clutch or changing gears speed when climbing or going down a slope. If on a slope disengaging the clutch or changing gears to neutral could cause loss of control.
5. Special attention should be made to the weight and location of implements and loads as such will affect the stability of the tractor.
6. To avoid free wheeling:
   - Do not shift the shuttle lever while on a slope.
   - Stop completely by using the brake and by depressing the clutch pedal, then shift the shuttle lever.
   - Start off after selecting shuttle direction, by releasing the clutch pedal.
7. When driving down a slope, ensure that 4-wheel drive is engaged to increase traction (if equipped).

◆ Driving the tractor on the road

1. Lock the 2 brake pedals together to help assure straight-line stops. Uneven braking at road speeds could cause the tractor to tip over.
2. Do not operate the tractor at high speed on rough terrain. High Speed operation on rough terrain can cause lose of control and potentially damage the tractor.
3. Use caution when driving over obstacles with the crawler. Obstacles can cause the tractor to shift position abruptly.
4. Check the front wheel engagement. The braking characteristics are different between 2 and 4-wheel drive. Be aware of the difference and use carefully.
5. Always slow the tractor down before turning. Turning at high speed may tip the tractor over.
6. Make sure that the Slow Moving Vehicle (SMV) sign is clean and visible. Use hazard lights and turn signals as required.

7. On public roads use the SMV emblem and hazard lights, if required by local traffic and safety regulations.
8. Observe all local traffic and safety regulations.
9. Turn the headlights on. Dim them when meeting another vehicle.
10. Drive at speeds that allow you to maintain control at all times.
11. Do not apply the differential lock while traveling at road speeds. The tractor may run out of control.
12. Avoid sudden motions of the steering wheel as they can lead to a dangerous loss of stability. The risk is especially great when the tractor is traveling at road speeds.
13. Do not operate an implement while the tractor is on the road. Lock the 3-point hitch in the raised position.
14. When towing other equipment, use a safety chain and place an SMV emblem on it as well.

15. Set the implement lowering speed knob in the "LOCK" position to hold the implement in the raised position.

3. PARKING THE TRACTOR

1. Disengage the PTO, lower all implements to the ground, place all control levers in their neutral positions, set the parking brake, stop the engine, remove the key from the ignition and lock the cab door (if equipped). Leaving transmission in gear with the engine stopped will not prevent tractor from rolling.
2. Make sure that the tractor has come to a complete stop before dismounting.
3. Avoid parking on steep slopes, if at all possible park on a firm and level surface; if not, park across a slope with the crawlers chocked.
Failure to comply with this warning may allow the tractor to move and could cause injury or death.

4. OPERATING THE PTO

1. Wait until all moving components have completely stopped before getting off the tractor, connecting, disconnecting, adjusting, cleaning, or servicing any PTO driven equipment.
2. Keep the PTO shaft cover in place at all times. Replace the PTO shaft cap when the shaft is not in use.

3. Before installing or using PTO driven equipment, read the manufacturer's manual and review the safety labels attached to the equipment. To prevent PTO driven equipment from improper or unsafe use, select the lower speed (540rpm) unless the higher one is specifically recommended as safe by the equipment manufacturer.

4. When operating stationary PTO driven equipment, always apply the tractor parking brake and place chocks behind and in front of the crawler. Stay clear of all rotating parts. Never step over rotating parts.

5. USING 3-POINT HITCH

1. Use the 3-point hitch only with equipment designed for 3-point hitch usage.

2. When using a 3-point hitch mounted implement, be sure to install the proper counterbalance weight on the front of the tractor.

3. To avoid injury from separation:
   Do not extend lift rod beyond the groove on the threaded rod.

6. SERVICING THE TRACTOR

Before servicing the tractor, park it on a firm, flat and level surface, set the parking brake, lower all implements to the ground, place the gear shift lever in neutral, stop the engine and remove the key.

1. Allow the tractor time to cool off before working on or near the engine, muffler, radiator, etc.

2. Do not remove radiator cap while coolant is hot. When cool, slowly rotate cap to the first stop and allow sufficient time for excess pressure to escape before removing the cap completely. If the tractor has a coolant recovery tank, add coolant or water to the tank, not the radiator. (See "Checking Coolant Level" in "DAILY CHECK" in "PERIODIC SERVICE" section.)

3. Always stop the engine before refueling. Avoid spills and overfilling.

4. Do not smoke when working around battery or when refueling. Keep all sparks and flames away from battery and fuel tank. The battery presents an explosive hazard, because it gives off hydrogen and oxygen especially when recharging.

5. Before "jump starting" a dead battery, read and follow all of the instructions. (See "JUMP STARTING" in "OPERATING THE ENGINE" section.)

6. Keep first aid kit and fire extinguisher handy at all times.

7. Disconnect the battery's ground cable before working on or near electric components.

8. To avoid the possibility of battery explosion, do not use or charge the refillable type battery if the fluid level is below the LOWER (lower limit level) mark. Check the fluid level regularly and add distilled water as required so that the fluid level is between the UPPER and LOWER levels.

9. To avoid sparks from an accidental short circuit, always disconnect the battery's ground cable (-) first and reconnect it last.

10. Do not attempt to mount a tire on a rim. This should be done by a qualified person with the proper equipment.
11. Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure shown in the operator's manual.

12. Securely support the tractor when removing wheels or crawler tracks.

13. Make sure that wheel and sprockets bolts have been tightened to the specified torque.

14. Disconnect the battery's ground cable and stop the engine to avoid the possibility of the machine runaway due to 4WD braking system during testing, service or repair with only rear crawlers off the ground.

15. Do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered. If it is necessary to work under tractor or any machine elements for servicing or adjustment, securely support them with stands or suitable blocking beforehand.

16. Escaping hydraulic fluid under pressure has sufficient force to penetrate skin, causing serious personal injury. Before disconnecting hydraulic lines, be sure to release all residual pressure. Before applying pressure to the hydraulic system, make sure that all connections are tight and that all lines, pipes, and hoses are free of damage.

17. Fluid escaping from pinholes may be invisible. Do not use hands to search for suspected leaks; use a piece of cardboard or wood. Use of safety goggles or other eye protection is also highly recommended. If injured by escaping fluid, see a medical doctor at once. This fluid will produce gangrene or severe allergic reaction.

18. Do not open high-pressure fuel system. High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect nor attempt to repair fuel lines, sensors, or any other components between the high-pressure fuel pump and injectors on engines with high pressure common rail fuel system.

19. To avoid hazardous high voltage, turn the key switch to the OFF position if it is necessary to check to repair the computer, harness or connectors.

20. During Diesel Particulate Filter (hereinafter called DPF) regenerating operations, exhaust gases and exhaust filter components reach temperatures hot enough to burn people, or ignite or melt common materials.

21. Keep the tractor away from people, animals or structures which may be susceptible to harm or damage from hot exhaust gases.

22. To prevent fires, keep the DPF/SCR muffler and its surroundings clear of anything flammable and keep clean at all times. [Selective Catalytic Reduction (hereinafter called SCR)]

23. During regeneration, white exhaust gas may be visible. Do not allow regeneration in a non-ventilated space.

24. During regeneration, do not leave the tractor.
7. DANGER, WARNING AND CAUTION LABELS

(1) Part No. K3512-4719-1
Do not touch hot surface like muffler, etc.

(2) Part No. 6C090-4958-2
Do not get your hands close to engine fan and fan belt.

(3) Part No. 3Y205-9892-1

PROPOSITION 65 WARNING
BATTERY POSTS, TERMINALS, AND RELATED ACCESSORIES
CONTAIN LEAD AND LEAD COMPOUNDS.
CHEMICALS KNOWN TO THE STATE OF CALIFORNIA
TO CAUSE CANCER AND REPRODUCTIVE HARM.
WASH HANDS AFTER HANDLING.
(1) Part No. 6C090-4958-2
Do not get your hands close to engine fan and fan belt.

(2) Part No. TC660-9861-1

**WARNING**

TO AVOID PERSONAL INJURY OR DEATH:
When the Diesel Particulate Filter (DPF) is in the regenerating mode, the exhaust gas and the DPF muffler become hot. During regeneration, take into account that the muffler will be very hot and keep the machine away from other people, animals, plants, and flammable material. Also keep the area near the DPF muffler clean and away from flammable material.

(3) Part No. TA040-4958-1
Do not touch hot surface like muffler, etc.

(4) Part No. K3512-4719-1
Do not touch hot surface like supply pump, etc.
(1) Part No. 3C581-9858-1

⚠️ DANGER

TO AVOID POSSIBLE INJURY OR DEATH FROM A MACHINE RUNAWAY.
1. Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed.
2. Start engine only from operator’s seat with transmission and PTO OFF. Never start engine while standing on the ground.

(2) Part No. 3F240-9857-1

⚠️ WARNING

To avoid free wheeling when shifting the shuttle lever while on a slope: Stop completely by using the brake and by depressing the clutch pedal. Start off after selecting shuttle direction by releasing the clutch pedal.

(3) Part No. 6C150-4743-1

⚠️ WARNING

BEFORE DISMOUNTING TRACTOR:
1. ALWAYS SET PARKING BRAKE.
   Leaving transmission in gear with the engine stopped will not prevent tractor from rolling.
2. PARK ON LEVEL GROUND WHENEVER POSSIBLE.
   If parking on a slope, position tractor across the slope.
3. LOWER ALL IMPLEMENTS TO THE GROUND.
4. STOP THE ENGINE.

(4) Part No. 3F240-9821-1

⚠️ WARNING

TO AVOID MACHINE RUNAWAY DUE TO 4WD BRAKING SYSTEM:
Do not run engine with only rear wheels off ground.
**WARNING**

TO AVOID PERSONAL INJURY OR DEATH:
1. Read and understand the operator's manual before operation.
2. Before starting the engine, make sure that everyone is at a safe distance from the tractor and the PTO is off.
3. Do not allow passengers on the tractor at any time.
4. Before allowing other people to use the tractor, have them read the operator's manual.
5. Check the tightness of nuts and bolts regularly.
6. Keep all shields in place and stay away from all moving parts.
7. Lock the two brake pedals together before driving on the road.
8. Slow down for turns, or rough roads, or when applying individual brakes.
9. On public roads use SMV emblem and hazard lights, if required by local traffic and safety regulations.
10. Pull only from the drawbar.
11. Before dismounting, lower the implement to the ground, set the parking brake, stop the engine and remove the key.
12. Securely support tractor and implements before working underneath.

---

**WARNING**

TO AVOID INJURY OR DEATH FROM ROLL-OVER:
Always use seat belt when driving.

---

**WARNING**

To avoid personal injury:
Use "Bi-speed Turn" only in low gears and slow speed. Do not use "Bi-speed Turn" in high gears or road speed.

---

Emergency exit
8. CARE OF DANGER, WARNING AND CAUTION LABELS

1. Keep danger, warning and caution labels clean and free from obstructing material.
2. Clean danger, warning and caution labels with soap and water, dry with a soft cloth.
3. Replace damaged or missing danger, warning and caution labels with new labels from your local KUBOTA Dealer.
4. If a component with danger, warning and caution label(s) affixed is replaced with new part, make sure new label(s) is (are) attached in the same location(s) as the replaced component.
5. Mount new danger, warning and caution labels by applying on a clean dry surface and pressing any bubbles to outside edge.
# SPECIFICATIONS

## SPECIFICATION TABLE

<table>
<thead>
<tr>
<th>Model</th>
<th>M5N-091-PC</th>
<th>4WD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Engine</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model</td>
<td>V3800-TIEF4</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Direct Injection, Water-cooled 4 Cycle Diesel, Common Rail System, Turbocharger, Intercooler</td>
<td></td>
</tr>
<tr>
<td>Number of cylinders</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total displacement</td>
<td>cm³ (cu.in.)</td>
<td>3769 (230)</td>
</tr>
<tr>
<td>Bore and stroke</td>
<td>mm (in.)</td>
<td>100 x 120 (3.9 x 4.7)</td>
</tr>
<tr>
<td>Rated revolution</td>
<td>rpm</td>
<td>2600</td>
</tr>
<tr>
<td>Low idling revolution</td>
<td>rpm</td>
<td>800 to 850</td>
</tr>
<tr>
<td>Rated Engine HP (97/68/EC)</td>
<td>kW (HP)</td>
<td>70.8 (95.0)</td>
</tr>
<tr>
<td>Net power <strong>1</strong></td>
<td>kW (HP)</td>
<td>65.2 (87.5)</td>
</tr>
<tr>
<td>PTO power <strong>1</strong> (factory observed)</td>
<td>kW (HP)</td>
<td>58.1 (78)</td>
</tr>
<tr>
<td>Maximum torque</td>
<td>N-m (ft-lbs) / rpm</td>
<td>307 (226) / 1500</td>
</tr>
<tr>
<td>Battery capacity</td>
<td>12V, RC:160min, CCA 900A</td>
<td></td>
</tr>
<tr>
<td>Fuel tank capacity</td>
<td>L (U.S.gals.)</td>
<td>76 (20.1)</td>
</tr>
<tr>
<td>Engine oil capacity</td>
<td>L (U.S.qts.)</td>
<td>10.7 (11.3)</td>
</tr>
<tr>
<td>Coolant capacity</td>
<td>L (U.S.qts.)</td>
<td>10.0 (11)</td>
</tr>
<tr>
<td>DEF/AdBlue® capacity</td>
<td>L (U.S.gals.)</td>
<td>12.3 (3.2)</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall length</td>
<td>mm (in.)</td>
<td>3950 (155.5)</td>
</tr>
<tr>
<td>Overall width</td>
<td>mm (in.)</td>
<td>1370 (54.8)</td>
</tr>
<tr>
<td>Overall height</td>
<td>mm (in.)</td>
<td>2370 (93.3)</td>
</tr>
<tr>
<td>Tread</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front</td>
<td>mm (in.)</td>
<td>1060 (42.4)</td>
</tr>
<tr>
<td>Rear</td>
<td>mm (in.)</td>
<td>1070 (42.1)</td>
</tr>
<tr>
<td>Minimum ground clearance</td>
<td>mm (in.)</td>
<td>370 (14.8) (Drawbar bracket)</td>
</tr>
<tr>
<td>Weight</td>
<td>kg (lbs.)</td>
<td>3300 (7275)</td>
</tr>
<tr>
<td>Model</td>
<td>M5N-091-PC</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>4WD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Traveling system
- **Front tires**: 9.5-16
- **Crawler tracks width**: 300 mm (in.)
- **Clutch**: Multiple wet disc, Electronic Hydraulically operated
- **Steering**: Hydraulic Power Steering
- **Braking system**: Hydraulically operated wet disc
- **Differential**: Bevel gears with differential lock (Rear)

### Hydraulic unit
- **Hydraulic control system**: Position, draft (top link sensing) & mix control
- **Pump capacity**: L (U.S.gals.) / min 68.6 (18.1)
- **3-point hitch**: Category 2
- **Max. lifting force**
  - At lifting points kg (lbs.): 2300 (5071)
  - 24 in. behind lifting point kg (lbs.): 1500 (3307)
- **Remote hydraulic control**: 2 standard valves
- **System pressure**: MPa (kgf/cm²) 19.1 (195)
- **Traction system**: Swinging drawbar, adjustable in direction

### PTO
- **Live PTO (Independent)**
  - **Direction of turning**: Clockwise, viewed from tractor rear
  - **PTO/Engine speed**
    - 6 spline: 540 / 2385
    - 6 spline: 540E / 1764

The company reserves the right to change the specifications without notice.  
**NOTE:** *1 Manufacturer's estimate*
# TRAVELING SPEEDS

(At rated engine rpm)

<table>
<thead>
<tr>
<th>Model</th>
<th>M5N-091-PC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tire size (Rear)</td>
<td>12.4-24</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Shuttle shift lever</th>
<th>Range gear shift lever</th>
<th>Main gear shift lever</th>
<th>km/h</th>
<th>mph</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forward CREEP (option)</td>
<td>1</td>
<td>0.32</td>
<td>0.20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0.44</td>
<td>0.28</td>
<td></td>
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<tr>
<td></td>
<td>3</td>
<td>0.57</td>
<td>0.36</td>
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<td></td>
<td>4</td>
<td>0.74</td>
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<td></td>
<td>5</td>
<td>0.91</td>
<td>0.57</td>
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</tr>
<tr>
<td></td>
<td>6</td>
<td>1.31</td>
<td>0.82</td>
<td></td>
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<tr>
<td>Reverse CREEP (option)</td>
<td>1</td>
<td>2.2</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3.0</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3.9</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5.0</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>6.2</td>
<td>3.9</td>
<td></td>
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<td></td>
<td>6</td>
<td>8.9</td>
<td>5.6</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reverse CREEP (option)</td>
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<td>9.8</td>
<td>6.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>13.4</td>
<td>8.3</td>
<td></td>
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<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>4</td>
<td>22.2</td>
<td>13.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>27.4</td>
<td>17.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>28.7</td>
<td>17.9</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reverse CREEP (option)</td>
<td>1</td>
<td>19.1</td>
<td>11.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>22.3</td>
<td>13.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>25.5</td>
<td>16.4</td>
<td></td>
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<tr>
<td></td>
<td>4</td>
<td>28.6</td>
<td>17.8</td>
<td></td>
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<tr>
<td></td>
<td>5</td>
<td>31.8</td>
<td>18.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>34.9</td>
<td>20.0</td>
<td></td>
</tr>
</tbody>
</table>

The company reserves the right to change the specifications without notice.
PRE-OPERATION CHECK

DAILY CHECK
To prevent trouble from occurring, it is important to know the condition of the tractor well. Check it before starting.

WARNING
To avoid personal injury or death:
- Be sure to check and service the tractor on a level surface with the engine shut off and the parking brake "ON" and implement lowered to the ground.

Check item
- Walk around inspection
- Check engine oil level
- Check transmission oil level
- Check coolant level
- Check washer liquid level
- Check water separator
- Clean grill and radiator screen
- Clean air conditioner condenser screen
- Clean intercooler
- Clean fuel cooler
- Clean oil cooler
- Check DPF/SCR muffler
- Check air cleaner evacuator valve
  (When used in a dusty place)
- Check air cleaner dust indicator
  (When used in a dusty place)
- Check brake pedal
- Check parking brake lever
- Check indicators, gauges and meter
- Check lights
- Check seat belt
- Check movable parts
- Supply DEF/AdBlue®
- Refuel
  (See "DAILY CHECK" in "PERIODIC SERVICE" section.)
- Crawler inspection
- Care of danger, warning and caution labels
  (See "DANGER, WARNING AND CAUTION LABELS" in "SAFE OPERATION" section.)
OPERATING THE TRACTOR

OPERATING TECHNIQUES

■ Differential Lock

⚠️ WARNING
To avoid personal injury or death due to loss of steering control:
- Do not operate the tractor at high speed with differential lock engaged.
- Do not attempt to turn with the differential lock engaged.
- Be sure to release the differential lock before making a turn in field conditions.

If one of the crawler should slip, step on the differential lock pedal. Both crawler will then turn together, reducing slippage.

Differential lock is maintained only while the pedal is stepped on.

Operating the Tractor on a Road

⚠️ WARNING
To avoid personal injury or death:
- To help assure straight line stops when driving at transport speeds, lock the brake pedals together. Uneven braking at road speeds could cause the tractor to roll-over.
- When traveling on road with 3-point hitch mounted implement attached, be sure to have sufficient front weight on the tractor to maintain steering ability.
- Never travel on a curved, bumpy or uneven road at high speed. There is a danger that you will not be able to control the tractor effectively.

Be sure SMV emblem and warning lamps are clean and visible. If towed or rear-mounted equipment obstructs these safety devices, install SMV emblem and warning lamps on equipment.

Consult your local KUBOTA Dealer for further details.

IMPORTANT:
- When using the differential lock, always slow the engine down.
- To prevent damage to power train, do not engage differential lock when one crawler is spinning and the other is completely stopped.
- If the differential lock cannot be released, step lightly on the brake pedals alternately.

![Image](1AGBDABAP082A)

(1) Differential lock pedal
(A) Press to "ENGAGE"
(B) Release to "DISENGAGE"

![Image](1AGBDABAP074A)

(1) SMV emblem
(2) Bracket

IMPORTANT:
- To prevent the front wheels and the crawler tracks from becoming worn prematurely, it is recommended that the tractor should be moved by a truck or a trailer for a long distance.
■ Turning
Before turning the tractor in a field, reduce the speed and use the steering wheel and the brake on one side in combination to make the turn. To turn the tractor smoothly, it is recommended to use the Bi-speed turn function.

◆ Turning in a hard field
1. Set the Bi-speed turn function ON.
2. Turn the steering wheel all the way in the direction you want to turn.
3. Apply partial-brake pressure or use intermittent braking (ON-OFF-ON-OFF...) for the crawler on the side toward which you are turning, to turn the tractor.
4. Evaluate the roughness of the field, and adjust the strength of the brake to match it.

◆ Turning in a soft field
1. Set the Bi-speed turn function ON.
2. Turn the steering wheel in the direction toward which you want to turn.
3. Apply partial-brake pressure or use intermittent braking (ON-OFF-ON-OFF...) for the crawler on the side toward which you are turning, to turn the tractor.
4. When the crawler on one side is locked in place and the tractor is turned, the field will be dug up and made rough. Move the tractor forward and backward repeatedly to turn.

NOTE:
- When intermittent braking and the ratchet steering technique are used together, the traction is enhanced so that the tractor can be turned efficiently without roughing up the ground.

■ Loading the Tractor on a Truck or a Trailer

WARNING
To avoid personal injury or death:
- When loading or unloading the tractor on a truck, be sure to interlock the right and left brake pedals.
- Drive forward when loading the tractor onto a truck. Drive backward when unloading the tractor.

If the tractor is driven down the loading ramps forward, there is a danger that the front wheels may float and run off the edges of the loading ramps when the crawler tracks move onto the loading ramps.

(A) Do not drive down the loading ramps forward.
Operating on Slopes and Rough Terrain

**WARNING**
To avoid personal injury or death:
- Always back up when going up a steep slope. Driving forward could cause the tractor to tip over backward. Stay off hills and slopes too steep for safe operation.
- Avoid changing gears when climbing or descending a slope.
- If operating on a slope, never disengage the clutch or shift levers to neutral. Doing so could cause loss of control.
- Do not drive the tractor close to the edges of ditches or banks which may collapse under the weight of the tractor. Especially when the ground is loose or wet.

1. Slow down for slopes, rough ground and sharp turns, especially when transporting heavy load or traveling with 3-point hitch mounted implements.
2. Before descending a slope, shift to a gear low enough to control speed without using brakes.

**IMPORTANT:**
- Because of the crawler's design, if the tractor is driven on a surface with large bumps, the crawler track may come off the tractor.
- Do not operate the crawler with one side in a ditch while plowing.

Transport the Tractor Safely
1. The tractor, if damaged, must be carried on a truck. Secure the tractor tightly with ropes.
2. Follow the instruction below when towing the tractor: Otherwise, the tractor's powertrain may get damaged.
   - Set the all shift levers to "NEUTRAL" position.
   - If possible, start engine and select 2WD, if creep speed is fitted ensure that it is disengaged.
   - Tow the tractor using its front hitch or drawbar.
   - Never tow faster than "10 km/h (6.2 mph)".

Directions for Use of Power Steering
1. Power steering is activated only while the engine is running. Slow engine speeds make the steering a little heavier. While the engine is stopped, the tractor functions in the same manner as tractors without power steering.
2. When the steering wheel is turned all the way to the stop, the relief valve is activated. Do not hold the steering wheel in this position for a long period of time.
3. Avoid turning the steering wheel while the tractor is stopped, or tires may wear out sooner.
4. The power steering mechanism makes the steering easier. Be careful when driving on a road at high speeds.

**Trailer Electrical Outlet**
A trailer electrical outlet is supplied for use with trailer or implement.

**Function of each terminals in trailer electrical outlet**

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Ground</td>
</tr>
<tr>
<td>(2)</td>
<td>Tail light</td>
</tr>
<tr>
<td></td>
<td>Sidemarker light</td>
</tr>
<tr>
<td></td>
<td>Parking light</td>
</tr>
<tr>
<td>(3)</td>
<td>Turn signal light (LH)</td>
</tr>
<tr>
<td>(4)</td>
<td>Brake stop light</td>
</tr>
<tr>
<td>(5)</td>
<td>Turn signal light (RH)</td>
</tr>
<tr>
<td>(6)</td>
<td>Registration plate light</td>
</tr>
<tr>
<td>(7)</td>
<td>--</td>
</tr>
</tbody>
</table>
TIREs

WARNING
To avoid personal injury or death:
- Do not attempt to mount a tire on a rim. This should be done by a qualified person with the proper equipment.
- Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure shown in the operator's manual.

IMPORTANT:
- Do not use tires other than those approved by KUBOTA.

Inflation Pressure
Though the tire pressure is factory-set to the prescribed level, it naturally drops slowly in the course of time. Thus, check it everyday and inflate as necessary.

<table>
<thead>
<tr>
<th>Tire sizes</th>
<th>Inflation Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>280 / 70 R18</td>
<td>196 kPa (2.0 kgf/cm²)</td>
</tr>
<tr>
<td>9.5-16, 6PR</td>
<td>196 kPa (2.0 kgf/cm²)</td>
</tr>
</tbody>
</table>

Dual Tires
Dual tires are not approved.

CRAWLERS

WARNING
To avoid personal injury or death:
- Support the tractor securely on stands before removing a crawler track.
- Do not work under any hydraulically supported devices. They can settle, suddenly leak down, or be accidentally lowered. If necessary to work under tractor or any machine elements for servicing or adjustment, securely support them with stands or suitable blocking beforehand.
- Never operate the tractor with a loose sprocket, crawler track, or axle.

Handling the Crawler
The crawler has lots of advantages: low vibration, strong pulling traction and easy handling. Make sure you note the following prohibited operations, which will also help extend the service life of the crawler.

Prohibited Operations
1. Do not use the crawler on crushed stone, ground with stumps or many sharp objects such as iron scrap. The crawler track may be damaged.
2. Do not use the crawler on a stony surface such as a dry riverbed. Stones may get caught in the machine and it may be damaged. The crawler track may come off.
3. Do not use the crawler on a surface contaminated with oil, fuel, or chemical solvents. The crawler may be damaged.
4. Do not travel across a very hot surface, such as burning coals.
5. Do not use the crawler at high speed roading for long distances with heavy loads. The crawler track may be over heat and severe damaged.
6. Do not use the crawler on hard surface road transporting with heavy loads. The crawler track may be damaged.
7. Do not start the tractor abruptly if the crawler track is stuck and it is very cold. There is a danger that the crawler track may break.

Cold Weather Operation
It is important to warm up the crawler tracks by traveling at slow speed with no load for a few minutes under extremely cold to freezing temperatures, as the crawler tracks will initially be stiff and inflexible, due to their material characteristics.
BALLAST

**WARNING**
To avoid personal injury or death:
- Additional ballast will be needed for transporting heavy implements. When the implement is raised, drive slowly over rough ground, regardless of how much ballast is used.
- Do not fill the front wheels with liquid to maintain steering control.

**Front Ballast**
Add weights if needed for stability and improve traction. Heavy pulling and heavy rear mounted implements tend to lift front wheels. Add enough ballast to maintain steering control and prevent tip over. Remove weight when no longer needed.

**Front End Weights (option)**
The front end weights can be attached to the bumper. See your implement operator's manual for required number of weights or consult your local KUBOTA Dealer to use.

**IMPORTANT**:
- Do not overload tires and crawlers.
- Add no more weight than indicated in chart.

| Maximum weight     | 45 kg x 10 pieces |
## MAINTENANCE

### SERVICE INTERVALS

<table>
<thead>
<tr>
<th>Interval</th>
<th>Items</th>
<th>Ref. page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A initial 50 Hr</strong></td>
<td>Engine oil Change</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Engine oil filter Replace</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Crawler track tension Adjust</td>
<td>17</td>
</tr>
<tr>
<td><strong>B every 50 Hr</strong></td>
<td>Engine start system Check</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Wheel bolt torque Check</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Tie-rod dust cover Check ✶</td>
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</tr>
<tr>
<td></td>
<td>Greasing (crawler) ---</td>
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<tr>
<td><strong>C every 100 Hr</strong></td>
<td>Greasing ---</td>
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<tr>
<td></td>
<td>Air cleaner Primary element Clean</td>
<td>✶</td>
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<tr>
<td></td>
<td>Fan belt Adjust</td>
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<td>Brake pedal Adjust</td>
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<tr>
<td></td>
<td>Parking brake Check ✶</td>
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<tr>
<td></td>
<td>Battery condition Check ✶</td>
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<tr>
<td></td>
<td>Air conditioner drive belt Adjust</td>
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<tr>
<td></td>
<td>Crawler track tension Adjust</td>
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<tr>
<td><strong>D every 200 Hr</strong></td>
<td>Toe-in Adjust</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Fuel tank water Drain</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Inner air filter Clean</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Fresh air filter Clean</td>
<td>☆</td>
</tr>
<tr>
<td><strong>E every 400 Hr</strong></td>
<td>Water separator Clean</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Fuel solenoid pump Clean</td>
<td>☆</td>
</tr>
<tr>
<td><strong>F every 500 Hr</strong></td>
<td>Engine oil Change</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Engine oil filter Replace</td>
<td>☆</td>
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<tr>
<td></td>
<td>Fuel filter Replace</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Hydraulic oil filter Replace</td>
<td>☆</td>
</tr>
<tr>
<td><strong>F every 500 Hr</strong></td>
<td>Lift cylinder hose Check</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Power steering oil line Check</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Radiator hose and clamp Check</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Fuel line Check</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Intake air line Check</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Brake hose Check</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Air conditioner pipes and hoses Check</td>
<td>☆</td>
</tr>
<tr>
<td><strong>F every 500 Hr</strong></td>
<td>Greasing ---</td>
<td>☆</td>
</tr>
<tr>
<td><strong>G every 600 Hr</strong></td>
<td>Greasing ---</td>
<td>☆</td>
</tr>
<tr>
<td><strong>H every 1000 Hr</strong></td>
<td>Transmission fluid Change</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Front differential case oil Change</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Front axle gear case oil Change</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Engine valve clearance Adjust</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Final gear case oil Change</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Front idler case oil Change</td>
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</tr>
<tr>
<td></td>
<td>Rear idler case oil Change</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Track roller case oil Change</td>
<td>☆</td>
</tr>
<tr>
<td>*<em>I every 1000 Hr or 1 year <em>3</em></em></td>
<td>Air cleaner Primary element Replace</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Air cleaner Secondary element Replace</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Exhaust manifold Check</td>
<td>☆</td>
</tr>
<tr>
<td><strong>J every 1500 Hr</strong></td>
<td>Fuel injector nozzle tip Clean</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>DEF/AdBlue® injector tip</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>DEF/AdBlue® line Check</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>Oil separator element Replace</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>PCV (Positive crankcase ventilation) valve (oil separator) Check</td>
<td>☆</td>
</tr>
<tr>
<td></td>
<td>EGR cooler Check Clean</td>
<td>☆</td>
</tr>
</tbody>
</table>

*☆*: Indicates an item that requires attention during maintenance.
*1*: Indicates an item that requires attention every 50 Hr.
*2*: Indicates an item that requires attention every 100 Hr.
*3*: Indicates an item that requires attention every 1000 Hr or 1 year.
*4*: Indicates an item that requires attention every 2000 Hr.
*5*: Indicates an item that requires attention every 3000 Hr.
### MAINTENANCE

<table>
<thead>
<tr>
<th>Interval</th>
<th>Items</th>
<th>Ref. page</th>
</tr>
</thead>
<tbody>
<tr>
<td>every 2000Hr or 2 years *4</td>
<td>Cooling system Flush</td>
<td>⋆</td>
</tr>
<tr>
<td></td>
<td>Coolant Change</td>
<td>⋆</td>
</tr>
<tr>
<td>every 3000Hr</td>
<td>Turbo charger Check</td>
<td>⋆ *2 @</td>
</tr>
<tr>
<td></td>
<td>Supply pump Check</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>Intake air heater Check</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>EGR system Check</td>
<td>⋆ *2 @</td>
</tr>
<tr>
<td></td>
<td>DPF muffler Clean</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>DEF/AdBlue® injector Check</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>DEF/AdBlue® pump filter Replace</td>
<td>⋆</td>
</tr>
<tr>
<td>every 1 year</td>
<td>Antifrost Heater for Oil Separator (if equipped)</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>CAB isolation cushion</td>
<td>⋆</td>
</tr>
<tr>
<td></td>
<td>DPF differential pressure sensor pipe</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>EGR pipe Check</td>
<td>⋆ *2</td>
</tr>
<tr>
<td>every 2 years</td>
<td>Oil separator hose Replace</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>Boost sensor hose Replace</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>DPF differential pressure sensor hose</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>EGR cooler hose Replace</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>Master cylinder filter Clean</td>
<td>⋆ *2 @</td>
</tr>
<tr>
<td>every 3 years</td>
<td>Parking brake cable Replace</td>
<td>⋆ *2</td>
</tr>
<tr>
<td>every 4 years</td>
<td>Radiator hose and clamp</td>
<td>⋆</td>
</tr>
<tr>
<td></td>
<td>Fuel line Replace</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>Intake air line Replace</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>Power steering oil line</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>Lift cylinder hose Replace</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>Master cylinder kit Replace</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>Brake seal 1 and 2 Replace</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>Brake hose Replace</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>Equalizer kit Replace</td>
<td>⋆ *2</td>
</tr>
<tr>
<td></td>
<td>Air conditioner pipes and hoses Replace</td>
<td>⋆ *2</td>
</tr>
</tbody>
</table>

*1 Air cleaner should be cleaned more often in dusty conditions than in normal conditions.

*2 Consult your local KUBOTA Dealer for this service.

*3 Every 1000 hours or every 1 year, whichever comes first.

*4 Every 2000 hours or every 2 years, whichever comes first.

*5 The initial 50 hours should not be a replacement cycle.

*6 Replace if any deterioration (crack, hardening, scar, or deformation) or damage occurred.

*7 When the battery is used for less than 100 hours per year, check the battery condition by reading the indicator annually.

- The items listed above (@ marked) are registered as emission related critical parts by KUBOTA in the U.S.EPA nonroad emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instruction.

Please see the Warranty Statement in detail.

*: Please refer to the first part of this manual.
**Maintenance Items Chart**

**How to use the chart**

1. The circles in this at-a-glance chart indicate the relevant points between the tractor's hour meter readings and the service intervals. Following these circles and the maintenance items (A thru P), keep up your tractor.

2. For details of the maintenance items, refer back to the "SERVICE INTERVALS" on the previous pages.

**Chart at a glance**

<table>
<thead>
<tr>
<th>Hour meter</th>
<th>Maintenance items</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>50</td>
<td></td>
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<tr>
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<td>1750</td>
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<table>
<thead>
<tr>
<th>Hour meter</th>
<th>Maintenance items</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
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<td>1800</td>
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<tr>
<td>2950</td>
<td></td>
</tr>
<tr>
<td>3000</td>
<td></td>
</tr>
<tr>
<td>Every 1000Hr or 1 year</td>
<td></td>
</tr>
<tr>
<td>Every 2000Hr or 2 years</td>
<td></td>
</tr>
<tr>
<td>Every 1 year</td>
<td></td>
</tr>
<tr>
<td>Every 2 years</td>
<td></td>
</tr>
<tr>
<td>Every 3 years</td>
<td></td>
</tr>
<tr>
<td>Every 4 years</td>
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</table>
## LUBRICANTS, FUEL AND COOLANT

<table>
<thead>
<tr>
<th>No.</th>
<th>Locations</th>
<th>Capacities</th>
<th>Lubricants</th>
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</thead>
<tbody>
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<td></td>
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<td><strong>M5N-091-PC</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Fuel</td>
<td>76 L (20.1 U.S.gals.)</td>
<td>No.2-D S15 diesel fuel&lt;br&gt;No.1-D S15 diesel fuel if temperature is below -10 °C (14 °F)</td>
</tr>
<tr>
<td>2</td>
<td>DEF/AdBlue®</td>
<td>12.3 L (3.2 U.S.gals.)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Coolant</td>
<td>10 L (11 U.S.qts.) (Recovery tank: 1.0L (1.1 U.S.qts.))</td>
<td>Fresh clean soft water with anti-freeze</td>
</tr>
<tr>
<td>4</td>
<td>Washer liquid</td>
<td>2 L (2.1 U.S.qts.)</td>
<td>Automobile washer liquid</td>
</tr>
<tr>
<td>5</td>
<td>Engine crankcase (with filter)</td>
<td>10.7 L (11.3 U.S.qts.)</td>
<td>Engine oil:&lt;br&gt;API Service Classification&lt;br&gt;CJ-4 [DPF type engine]&lt;br&gt;Above 25 °C (77 °F) SAE30, SAE10W-30 or 15W-40&lt;br&gt;-10 to 25 °C (14 to 77 °F) SAE10W-30 or 15W-40&lt;br&gt;Below -10 °C (14 °F) SAE10W-30</td>
</tr>
<tr>
<td>6</td>
<td>Transmission case</td>
<td>52 L (54.9 U.S.qts.)</td>
<td>KUBOTA SUPER UDT2 fluid*</td>
</tr>
<tr>
<td>7</td>
<td>Final gear case oil</td>
<td>3.0 L (3.2 U.S.qts.)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Front idler case oil</td>
<td>0.5 L (0.5 U.S.qts.)</td>
<td>KUBOTA SUPER UDT2 fluid* or SAE 80 - SAE 90 gear oil</td>
</tr>
<tr>
<td>9</td>
<td>Rear idler case oil</td>
<td>0.5 L (0.5 U.S.qts.)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Track roller case oil</td>
<td>0.2 L (0.2 U.S.qts.)</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Front differential case oil [4WD]</td>
<td>5 L (5.3 U.S.qts.)</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Front axle gear case oil [4WD]</td>
<td>3 L (3.2 U.S.qts.)</td>
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</table>

### Greasing

<table>
<thead>
<tr>
<th>No. of greasing points</th>
<th>Capacity</th>
<th>Type of grease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top link</td>
<td>2</td>
<td>Multipurpose Grease&lt;br&gt;NLGI-2 OR&lt;br&gt;NLGI-1(GC-LB)</td>
</tr>
<tr>
<td>Top link bracket</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Lift</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Hydraulic lift cylinder pin</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Front axle gear case support [4WD]</td>
<td>2</td>
<td>Until grease overflows.</td>
</tr>
<tr>
<td>Front axle support</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Steering joint shaft</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sprocket</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>Swing shaft</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Battery terminal</td>
<td>2</td>
<td>A small amount</td>
</tr>
</tbody>
</table>

---

* KUBOTA SUPER UDT2 fluid* or SAE 80 - SAE 90 gear oil
NOTE:
The product name of KUBOTA genuine UDT fluid may be different from that in the Operator’s Manual depending on countries or territories. Consult your local KUBOTA Dealer for further details.

NOTE:

◆ Engine Oil:
   - Oil used in the engine should have an American Petroleum Institute (API) service classification and Proper SAE Engine Oil according to the ambient temperatures as shown above:
   - Refer to the following table for the suitable API classification engine oil according to the engine type (with DPF (Diesel Particulate Filter) type engines) and the fuel.

<table>
<thead>
<tr>
<th>Fuel used</th>
<th>Engine oil classification (API classification)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultra Low Sulfur Fuel</td>
<td>Engine oil classification (API classification)</td>
</tr>
<tr>
<td>[&lt;0.0015% (15 ppm)]</td>
<td>CJ-4</td>
</tr>
</tbody>
</table>

◆ Fuel:
   - Use the ultra low sulfur diesel fuel only [below 0.0015% (15 ppm)] for these engines.
   - Cetane number of 45 minimum. Cetane number greater than 50 is preferred, especially for temperatures below -20°C (-4°F) or elevations above 1500 m (5000 ft).
   - Diesel fuels specified to EN 590 or ASTM D975 are recommended.
   - No.2-D is a distillate fuel of lower volatility for engines in industrial and heavy mobile service. (SAE J313 JUN87)

◆ DEF/AdBlue®:
The DEF/AdBlue®, used as reducing agent of SCR, is a 32.5% urea aqueous solution. The product is available at gas stations, truck stops and specialty shops. Be sure to use the genuine product only.

◆ Transmission Oil:
   - *KUBOTA Super UDT-2: For an enhanced ownership experience, we highly recommend Super UDT-2 to be used instead of standard hydraulic/transmission fluid.
   - Super UDT-2 is a proprietary KUBOTA formulation that delivers superior performance and protection in all operating conditions.
   - Regular UDT is also permitted for use in this machine.
   - Indicated capacities of water and oil are manufacturer’s estimate.
PERIODIC SERVICE

DAILY CHECK
For your own safety and maximum service life of the machine, make a thorough daily inspection before operating the machine to start the engine.

⚠️ WARNING
To avoid personal injury or death:
Take the following precautions when checking the tractor.
- Park the machine on firm and level ground.
- Set the parking brake.
- Lower the implement to the ground.
- All residual pressure of the hydraulic system released.
- Stop the engine and remove the key.

■ Crawler Inspection
- Check the tread lugs and drive lugs for any missing or worn drive lugs.
If the drive lug is found missing or unusually worn, replace the crawler track with new one.
Check whether any stones, mud or debris are caught in the sprocket, front and rear idlers or track rollers.

Check the idlers and track rollers for oil leaks.

Avoid grease, oil, or other petroleum chemicals on crawler track. Constant exposure to petroleum based chemicals may damage rubber surfaces.

Checking for clearance of the scrapers on the idlers and track rollers. If the clearance is not as specified, loosen the bolts and move the scraper horizontally to readjust the clearance.

Steel cord  “PEEL OFF”

Front idler  Rear idler  Track rollers

Sprocket

Front idler  Rear idler  Track rollers

Scrape  Bolt

General Clearance: 2 to 3 mm
INITIAL 50 HOURS

■ Adjusting Tension of Crawler Track
(See “Adjusting Tension of Crawler Track” in “EVERY 100 HOURS” in “PERIODIC SERVICE” section for this service.)

EVERY 50 HOURS

■ Lubricating Grease Fittings
Apply a small amount of multipurpose grease to the following points every 50 hours:
If you operated the machine in extremely wet and muddy conditions, lubricate grease fittings more often.

N-m (kgf-m)

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>260 to 304</td>
<td>77.5 to 90.2</td>
<td>260 to 304</td>
</tr>
<tr>
<td></td>
<td>(26.5 to 31.0)</td>
<td>(7.9 to 9.2)</td>
<td>(26.5 to 31.0)</td>
</tr>
</tbody>
</table>

■ Checking Wheel Bolt Torque

WARNING
To avoid personal injury or death:
- Never operate tractor with a loose rim, wheel, or axle.
- Any time bolts and nuts are loosened, retighten to specified torque.
- Check all bolts and nuts frequently and keep them tight.

Check wheel bolts and nuts regularly especially when new. If they are loose, tighten them as follows.
EVERY 100 HOURS

Adjusting Tension of Crawler Track

WARNING
To avoid personal injury:
- Traveling with a loose crawler track might cause the crawler track to come off during traveling. Check the tension of the crawler tracks before operation.

1. Stop the tractor slowly on a flat surface and set the parking brake.
2. Remove the check port cover.
3. Check if the contact line (A) between the spring retainer and the first spring loop can be seen inside the width of the check port.
4. If the contact line (A) cannot be seen, loosen the lock nut and turn the adjusting bolt until the contact line (A) reaches the middle of the check port.
5. After adjusting the tension, retighten the lock nut.

EVERY 1000 HOURS

Changing Final Gear Case Oil

1. To drain the used oil, remove the drain and filling plugs at the final gear case and drain the oil completely into the oil pan.
2. After draining reinstall the drain plug.
3. Remove the oil level check plug.
4. Fill with the new oil up to the lower rim of check plug port.
5. After filling, reinstall filling plug and check plug.

| Final gear case oil capacity | 3.0 L  
| (3.2 U.S.qts.) |
### Changing Front Idler, Rear Idler, Track Roller Case Oil

1. Stop the tractor so that the 2 bolts of an idler become vertical.
2. Lift the tractor at the side other than that for letting out the oil.
3. Remove both bolts, and drain the oil.
   Take proper measures beforehand to keep the oil from splashing onto the crawler track.
4. After installing the lower bolt, add new oil of the specified amount.
   (See "LUBRICANTS" in "MAINTENANCE" section.)
5. After adding oil, install the upper bolt and tighten it.
6. Take steps 1 through 5 for other idlers and rollers.

<table>
<thead>
<tr>
<th></th>
<th>Oil capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front idler case</td>
<td>0.5 L (0.5 U.S. qts) for each side</td>
</tr>
<tr>
<td>Rear idler case</td>
<td>0.2 L (0.2 U.S. qts)</td>
</tr>
<tr>
<td>Track roller case</td>
<td></td>
</tr>
</tbody>
</table>

### Replacing Sprocket

The sprocket assembly consists of two sprockets.

1. Loosen the crawler track tension a little by loosening the adjusting bolt.
2. Move the tractor backward until the mating face between two sprockets becomes horizontal.
3. Stop the engine and replace the sprocket (indicated by hatching) at the bottom position with a new one as shown in the figure.
IMPORTANT:

- Reinstall the spring plate so that the front and back of the spring plate are facing as shown in the figure.

4. Move the tractor backward slowly until the new sprocket is in the upper position.
   Stop the engine and replace the sprocket at the bottom with a new one.
5. After replacing the two sprockets with new ones, adjust the tension of the crawler track.

Replacing Crawler Track

1. Loosen the crawler track tension a little by loosening the adjusting bolt.
2. Move the tractor backward until the mating face between two sprockets becomes horizontal.
3. Stop the engine and remove the bottom sprocket (indicated by hatching).
4. Move the tractor backward slowly until the remaining sprocket is in the lower position.
5. Stop the engine and remove the bottom sprocket.
6. Loosen the adjusting bolt fully to loosen the crawler track further.
7. Using a hook, secure the front idler so that the front idler does not come off when removing the crawler track.
8. Jack up the tractor. Then replace the crawler track with a new one.
9. Lower the tractor and stretch the crawler track a little by tightening the adjusting bolt.
10. Reinstall the sprocket that was removed in the above step to the bottom position.
11. After making sure that the drive lug of the crawler track is on the axle, move the tractor backward slowly until the sprocket is in the upper position.

12. Stop the engine and reinstall the sprocket.
13. Adjust the tension of the crawler track properly.

**IMPORTANT:**
- Reinstall the spring plate so that the front and back of the spring plate are facing as shown in the figure.

**Rotation of the Crawler Tracks**
If the machine is used frequently on hillside slopes, the inner face of the drive lug gets worn out earlier than expected. If the inner face is usually worn, interchange the left and right crawler tracks.
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