# WSM

## WORKSHOP MANUAL

# GR2100EC

Kubota

KiSC issued 04, 2006 A

MidWestTech | Kubota GR2100EC Lawn and Garden Tractor Service Manual | Publication 9Y011-15412

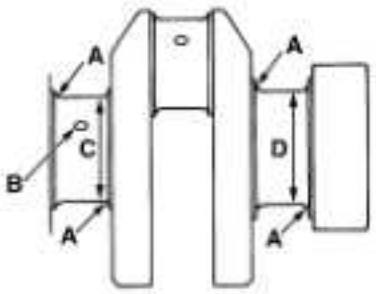
Order the manual at mid-west-tech.com >

# CONTENTS


1. IDENTIFICATION ..... G-1
2. GENERAL PRECAUTIONS ..... G-2
3. HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING ..... G-3
[1] WIRING ..... G-3
[2] BATTERY ..... G-5
[3] FUSE ..... G-5
[4] CONNECTOR ..... G-5
[5] HANDLING OF CIRCUIT TESTER ..... G-7
4. LUBRICANTS, FUEL AND COOLANT ..... G-8
5. TIGHTENING TORQUES ..... G-9
[1] GENERAL USE SCREWS, BOLT AND NUTS ..... G-9
[2] METRIC SCREWS, BOLTS AND NUTS ..... G-9
[3] AMERICAN STANDARD SCREWS, BOLTS AND NUTS WITH UNC OR UNF THREADS ..... G-10
[4] PLUGS ..... G-10
6. MAINTENANCE CHECK LIST ..... G-11
7. CHECK AND MAINTENANCE ..... G-13
[1] DAILY CHECK ..... G-13
[2] CHECK POINTS OF EVERY 50 HOURS ..... G-19
[3] CHECK POINTS OF EVERY 100 HOURS ..... G-26
[4] CHECK POINTS OF EVERY 150 HOURS ..... G-28
[5] CHECK POINTS OF EVERY 200 HOURS ..... G-29
[6] CHECK POINT OF EVERY 400 HOURS ..... G-34
[7] CHECK POINTS OF EVERY 1 YEAR ..... G-35
[8] CHECK POINTS OF EVERY 2 YEARS ..... G-38
[9] OTHERS ..... G-38
8. SPECIAL TOOLS ..... G-42
[1] SPECIAL TOOLS FOR ENGINE ..... G-42
[2] SPECIAL TOOLS FOR TRACTOR ..... G-49
9. TIRES ..... G-50
[1] TIRE PRESSURE ..... G-50
[2] TREAD ..... G-50
10. IMPLEMENT LIMITATIONS ..... G-51


KiSC issued 04, 2006 A

MidWestTech | Kubota GR2100EC Lawn and Garden Tractor Service Manual | Publication... Order the manual at mid-west-tech.com >



3EEABAB1P152B

Oil Clearance between Crankshaft Journal and Crankshaft Bearing 2 (Crankshaft Bearing 3) (Continued)

**(Reference)**

- Undersize crankshaft bearing 2 and 3

| Undersize | Bearing | Code Number | Marking |
|---|---|---|---|
| 0.2 mm 0.008 in. | Crankshaft bearing 2 02 | 15694-23930 | 020 US |
| | Crankshaft bearing 3 02 | 15861-23860 | 020 US |
| 0.4 mm 0.016 in. | Crankshaft bearing 2 04 | 15694-23940 | 040 US |
| | Crankshaft bearing 3 04 | 15861-23871 | 040 US |

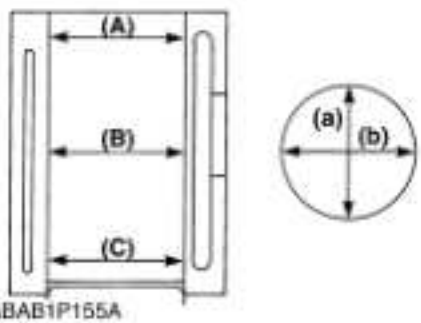
- Undersize dimensions of crankshaft journal

| Undersize | 0.2 mm 0.008 in. | 0.4 mm 0.016 in. |
|---|---|---|
| Dimension **A** | 1.8 to 2.2 mm radius 0.071 to 0.087 in. radius | 1.8 to 2.2 mm radius 0.071 to 0.087 in. radius |
| Dimension **B** | 3 mm dia. 0.12 in. dia. | 3 mm dia. 0.12 in. dia. |
| Dimension **C** | 39.734 to 39.750 mm dia. 1.56433 to 1.56496 in. dia. | 39.534 to 39.550 mm dia. 1.55646 to 1.55709 in. dia. |
| Dimension **D** | 43.734 to 43.750 mm dia. 1.72181 to 1.72244 in. dia. | 43.534 to 43.550 mm dia. 1.71394 to 1.7147 in. dia. |
| The crankpin must be fine-finished to higher than ▽▽▽▽ (0.8-S) | | |

0000009526E

## (5) Cylinder


3XVAAAB1P066A



3EEABAB1P155A

Cylinder Wear

1. Measure the I.D. of the cylinder at the six positions (see figure) with a cylinder gauge to find the maximum and minimum I.D.'s.
2. Get the difference (Maximum wear) between the maximum and the minimum I.D.'s.
3. If the wear exceeds the allowable limit, bore and hone to the oversize dimension. (Refer to "Correcting Cylinder".)
4. Visually check the cylinder wall for scratches. If deep scratches are found, the cylinder should be bored. (Refer to "Correcting Cylinder".)

| | | |
|---|---|---|
| Cylinder I.D. | Factory spec. | 67.000 to 67.019 mm 2.63779 to 2.63854 in. |
| | Allowable limit | 67.169 mm 2.6445 in. |

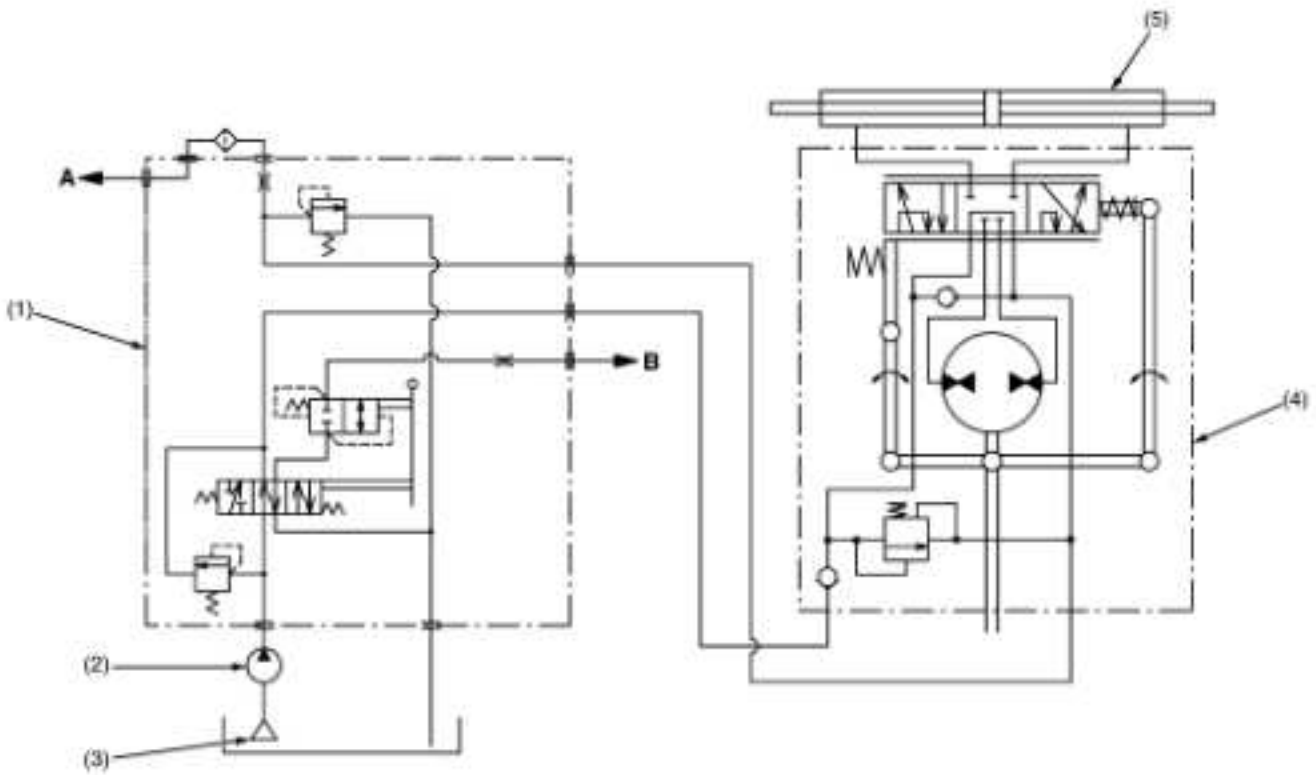
**(A) Top**
**(B) Middle**
**(C) Bottom (Skirt)**
**(a) Right-angled to Piston Pin**
**(b) Piston Pin Direction**

0000009527E



MidWestTech | Kubota GR2100EC Lawn and Garden Tractor Service Manual | Publication... Order the manual at mid-west-tech.com >

# 1. HYDRAULIC CIRCUIT




3GLAAAE7P001A

(1) Hydraulic Control Valve Assembly
(2) Hydraulic Pump
(3) Oil Strainer
(4) Steering Controller
(5) Steering Cylinder
**A : To HST**
**B : To Mower Lift Cylinder**

This machine is provided with a full hydrostatic power steering.

In the full hydrostatic power steering, the steering controller (4) is connected to the steering cylinder (5) with only the hydraulic piping. Accordingly, it does not have mechanical transmitting parts such as steering gear, pitman arm, drag link, etc. Therefore, it is simple in construction. This steering system consists of the oil strainer (3), hydraulic pump (2), hydraulic control valve assembly (1), steering controller (4), steering cylinder (5), etc..

The oil is supplied to the steering controller (4) through the hydraulic control valve assembly (1) by the hydraulic pump (2). With the steering wheel at neutral, the oil returns through the steering controller (4) to the hydraulic control valve assembly (1). Turn the steering wheel, and just a required amount of oil is sent to the steering cylinder (5). The oil at the side opposite to the cylinder flows back to the hydraulic control valve assembly (1).

0000010210E



MidWestTech | Kubota GR2100EC Lawn and Garden Tractor Service Manual | Publication... Order the manual at mid-west-tech.com >

# 1. TROUBLESHOOTING

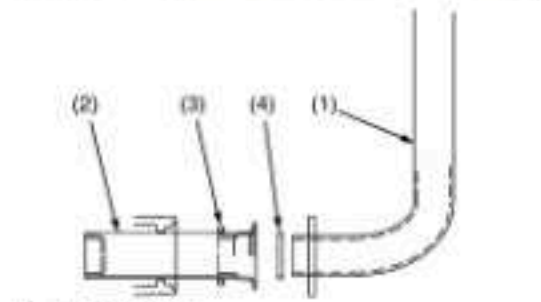
| Symptom | Probable Cause | Solution | Reference Page |
|---|---|---|---|
| **Blade Does Not Turn** | ● PTO system malfuntioning | Check transmission | — |
| | ● Mower belt broken | Replace mower belt | 8-S9 |
| **Blade Speed is Slow** | ● Mower belt loosen | Replace mower belt of tension spring | 8-S9 |
| | ● Grass clogged | Remove grass | — |
| | ● Cup washer flattened or worn | Replace cup washer | 8-S8 |
| | ● Engine rpm too low | Mow at full throttle, check and reset engine rpm | — |
| **Cutting is Poor** | ● Mower blade worn or bent | Sharpen or replace mower blade | G-40, 8-S8 |
| | ● Mower blade screw loosen | Retighten mower blade screw | 8-S8 |
| | ● Cutting height improper | Adjust cutting height | 8-S5 |
| | ● Ground speed too fast | Slow-down | — |
| | ● Tire pressure uneven | Adjust | G-49 |
| | ● Anti-scalp rollers not adjusted correctly | Adjust anti-scalp rollers | 8-S4 |
| **Mower is Not Lifted** | ● Linkage system broken | Replace linkage system | 6-S12 |
| | ● Trouble of hydraulic system | Check hydraulic system | — |

0000010224E



MidWestTech | Kubota GR2100EC Lawn and Garden Tractor Service Manual | Publication... Order the manual at mid-west-tech.com >













Draining Transmission Fluid

1. Place an oil pan under the transaxle.
2. Remove the suction pipe (1) at the bottom of the transaxle.
3. Remove the strainer (2) to completely drain the transmission fluid.
4. After draining, clean the strainer (2) and reinstall the strainer (2) and suction pipe (1).

**(When refilling)**

- Remove the filling plug with the dipstick (5).
- Fill new oil from the filling port up to the upper notch on dipstick.
- After running the engine for few minutes, stop the engine and check the oil level again, if low, add oil to prescribed level.

**■ IMPORTANT**

- **Use only the KUBOTA UDT or SUPER UDT fluid. Use of other oils may damage the transmission or hydraulic system.**
  **Refer to "LUBRICANTS, FUEL AND COOLANT" (See page G-8).**
- **Never work the machine immediately after changing the transmission oil. Keeping the engine at medium speed for a few minutes to prevents damage to the transmission.**
- **Do not mix different blands oil together.**

| | | |
|---|---|---|
| Transmission fluid | Capacity | 3.3 L<br>0.87 U.S.gals<br>0.73 Imp.gals |

(1) Suction Pipe
(2) Strainer
(3) O-ring
(4) O-ring
(5) Filling Plug with Dipstick

0000010127E

Seat

1. Remove the snap pin (2).
2. Remove the seat (1) .

(1) Seat
(2) Snap Pin

0000010128E

Fender

1. Remove the speed change pedal (5).
2. Peel the step sheet (4) halfway.
3. Remove the fuel cap (1).
4. Remove the fender (2).

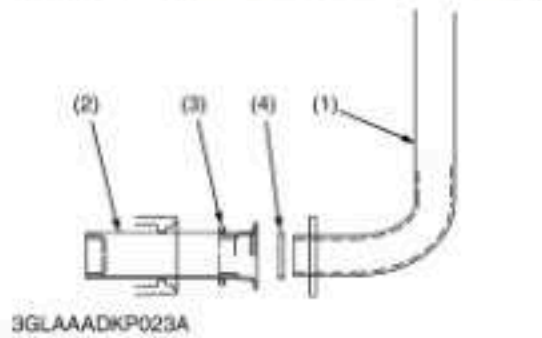
(1) Fuel Cap
(2) Fender
(3) Fender Mounting Screw
(4) Step Sheet
(5) Speed Change Pedal

0000009320E



MidWestTech | Kubota GR2100EC Lawn and Garden Tractor Service Manual | Publication... Order the manual at mid-west-tech.com >










Draining Transmission Fluid

1. Place an oil pan under the transaxle.
2. Remove the suction pipe (1) at the bottom of the transaxle.
3. Remove the strainer (2) to completely drain the transmission fluid.
4. After draining, clean the strainer (2) and reinstall the strainer (2) and suction pipe (1).

**(When refilling)**

- Remove the filling plug with the dipstick (5).
- Fill new oil from the filling port up to the upper notch on dipstick.
- After running the engine for few minutes, stop the engine and check the oil level again, if low, add oil to prescribed level.

**■ IMPORTANT**

- **Use only the KUBOTA UDT or SUPER UDT fluid. Use of other oils may damage the transmission or hydraulic system.**
  **Refer to "LUBRICANTS, FUEL AND COOLANT" (See page G-8).**
- **Never work the machine immediately after changing the transmission oil. Keeping the engine at medium speed for a few minutes to prevents damage to the transmission.**
- **Do not mix different blands oil together.**

| | | |
|---|---|---|
| Transmission fluid | Capacity | 3.3 L<br>0.87 U.S.gals<br>0.73 Imp.gals |

(1) Suction Pipe
(2) Strainer
(3) O-ring
(4) O-ring
(5) Filling Plug with Dipstick

0000010127E

Battery

**⚠ CAUTION**

- **When disconnecting the battery cables, disconnect the negative cable from the battery first. When connecting, connect the positive cable to the battery first.**

1. Open the bonnet.
2. Remove the radiator net.
3. Disconnect the negative cable (1) from the battery.
4. Disconnect the positive cable (2) from the battery and remove the battery (3).

(1) Negative Cable
(2) Positive Cable
(3) Battery

0000010084E



MidWestTech | Kubota GR2100EC Lawn and Garden Tractor Service Manual | Publication... Order the manual at mid-west-tech.com >