WSM

WORKSHOP MANUAL

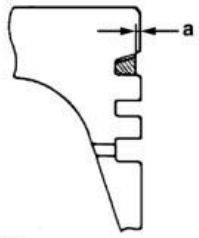
ZD1211-AU,ZD1221R-AU, ZD1221L-AU,ZD1221RL-AU

Kubota

KiSC issued 11, 2019 A

Item		Factory Specification	Allowable Limit
Valve Spring [D1305-E3]	Free Length	35.1 to 35.6 mm 1.39 to 1.40 in.	34.8 mm 1.37 in.
	Tilt	–	1.3 mm 0.051 in.
	Setting Load/ Setting Length	74 N / 31.0 mm 7.5 kgf / 31.0 mm 17 lbf / 1.22 in.	63 N / 31.0 mm 6.4 kgf / 31.0 mm 14 lbf / 1.22 in.
Rocker Arm Shaft to Rocker Arm	Clearance	0.016 to 0.045 mm 0.00063 to 0.0017 in.	0.10 mm 0.0039 in.
• Rocker Arm Shaft	O.D.	11.973 to 11.984 mm 0.47138 to 0.47181 in.	–
• Rocker Arm	I.D.	12.000 to 12.018 mm 0.47244 to 0.47314 in.	–
Push Rod	Alignment	–	0.25 mm 0.0098 in.
Tappet to Tappet Guide	Clearance	0.020 to 0.062 mm 0.00079 to 0.0024 in.	0.07 mm 0.003 in.
• Tappet	O.D.	19.959 to 19.980 mm 0.78579 to 0.78661 in.	–
• Tappet Guide	I.D.	20.000 to 20.021 mm 0.78741 to 0.78822 in.	–
Timing Gear • Crank Gear to Idle Gear 1	Backlash	0.032 to 0.115 mm 0.0013 to 0.00452 in.	0.15 mm 0.0059 in.
• Idle Gear 1 to Cam Gear	Backlash	0.036 to 0.114 mm 0.0015 to 0.00448 in.	0.15 mm 0.0059 in.
• Idle Gear 1 to Injection Pump Gear	Backlash	0.034 to 0.116 mm 0.0014 to 0.00456 in.	0.15 mm 0.0059 in.
Governor Gear • Governor Gear to Injection Pump Gear	Backlash	0.030 to 0.117 mm 0.0012 to 0.00460 in.	0.15 mm 0.0059 in.
Idle Gear • Idle Gear 1	Side Clearance	0.20 to 0.51 mm 0.0079 to 0.020 in.	0.80 mm 0.031 in.
Camshaft	Side Clearance	0.07 to 0.22 mm 0.003 to 0.0087 in.	0.30 mm 0.012 in.
	Alignment	–	0.01 mm 0.0004 in.
Cam Height	Intake	28.80 mm 1.134 in.	28.75 mm 1.132 in.
	Exhaust	29.00 mm 1.142 in.	28.95 mm 1.140 in.

(A)



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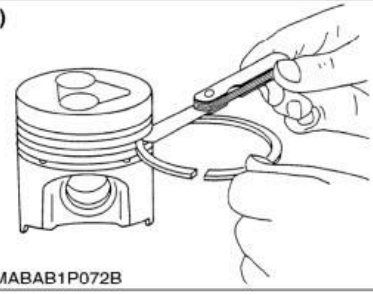
(B)



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Clearance between Piston ring and Piston Ring Groove

1. Clean the rings and the ring grooves, and install each ring in its groove.
2. Measure the clearance between the ring and the groove with a feeler gauge or depth gauge.
3. If the clearance exceeds the allowable limit, replace the piston ring.
4. If the clearance still exceeds the allowable limit with new ring, replace the piston.

[D1305-E3]

Clearance between piston ring and piston ring groove	Second ring	Factory specification	0.095 to 0.122 mm 0.0038 to 0.00480 in.
		Allowable limit	0.20 mm 0.0079 in.
	Oil ring	Factory specification	0.020 to 0.060 mm 0.00079 to 0.0024 in.
		Allowable limit	0.15 mm 0.0059 in.

[D1105-E4]

Clearance between piston ring and piston ring groove	Second ring	Factory specification	0.085 to 0.112 mm 0.0034 to 0.00440 in.
		Allowable limit	0.20 mm 0.0079 in.
	Oil ring	Factory specification	0.02 to 0.06 mm 0.0008 to 0.002 in.
		Allowable limit	0.15 mm 0.0059 in.

Factory specification: **a**	More than 0.2 mm 0.008 in.

(A) Top Ring (Key Stone Type) **(B) 2nd, Oil Ring**

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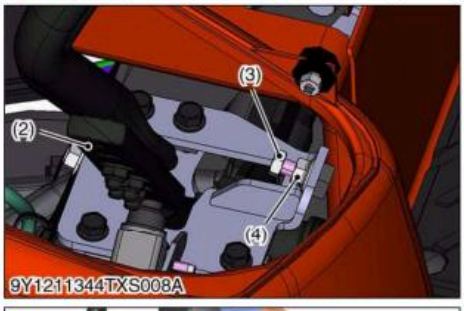

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Adjusting Maximum Speed

WARNING

To avoid serious injury:

- **Park the machine on a hard and level surface.**
- **If it is necessary to operate engine in an enclosed area, use a gas tight exhaust pipe extension to remove the fumes.**
- **Always try to work in a well-ventilated area.**
- **Lift up and secure with jack stands or blocking the rear of the machine, do not operate the machine while adjusting.**
- **Do not adjust only one of the following adjustment; exclude "MOTION CONTROL LEVER POSITION".**
  They are relative each other.

1. Turn key switch to **OFF** position.
2. Apply the parking brake.
3. Set the motion control lever (2) to **Neutral lock** position.
4. Raise and latch the seat assembly.
5. Remove the connector from the seat safety switch, then temporarily install a jumper wire across the terminals in the connector of the wiring harness.
6. Remove the motion control lever cover (1).
7. Raise the rear of machine and block up so that rear wheels can rotate freely.
8. Start the engine.
9. Move the throttle lever to **Max. speed** position.
10. Push the motion control lever (2) to the front until the speed set bolt (3) comes into contact with the stopper plate.

■ **NOTE**

- **At this time, the speed set bolt (3) touches the stopper plate.**

11. Measure the rotations of rear wheel.
12. If the measurement is not within the factory specifications, loosen the lock nut (4) and adjust the length of speed set bolt (3).

Max. speed: Wheel rotation	Factory specifi-cation	Forward	158 min^{-1} (rpm) or over at max. engine speed
		Reverse	149 min^{-1} (rpm) or over at max. engine speed

■ **NOTE**

- **The right and left speed set bolt can be adjusted independently.**

(1) Motion Control Lever Cover
(2) Motion Control Lever
(3) Speed Set Bolt
(4) Lock Nut

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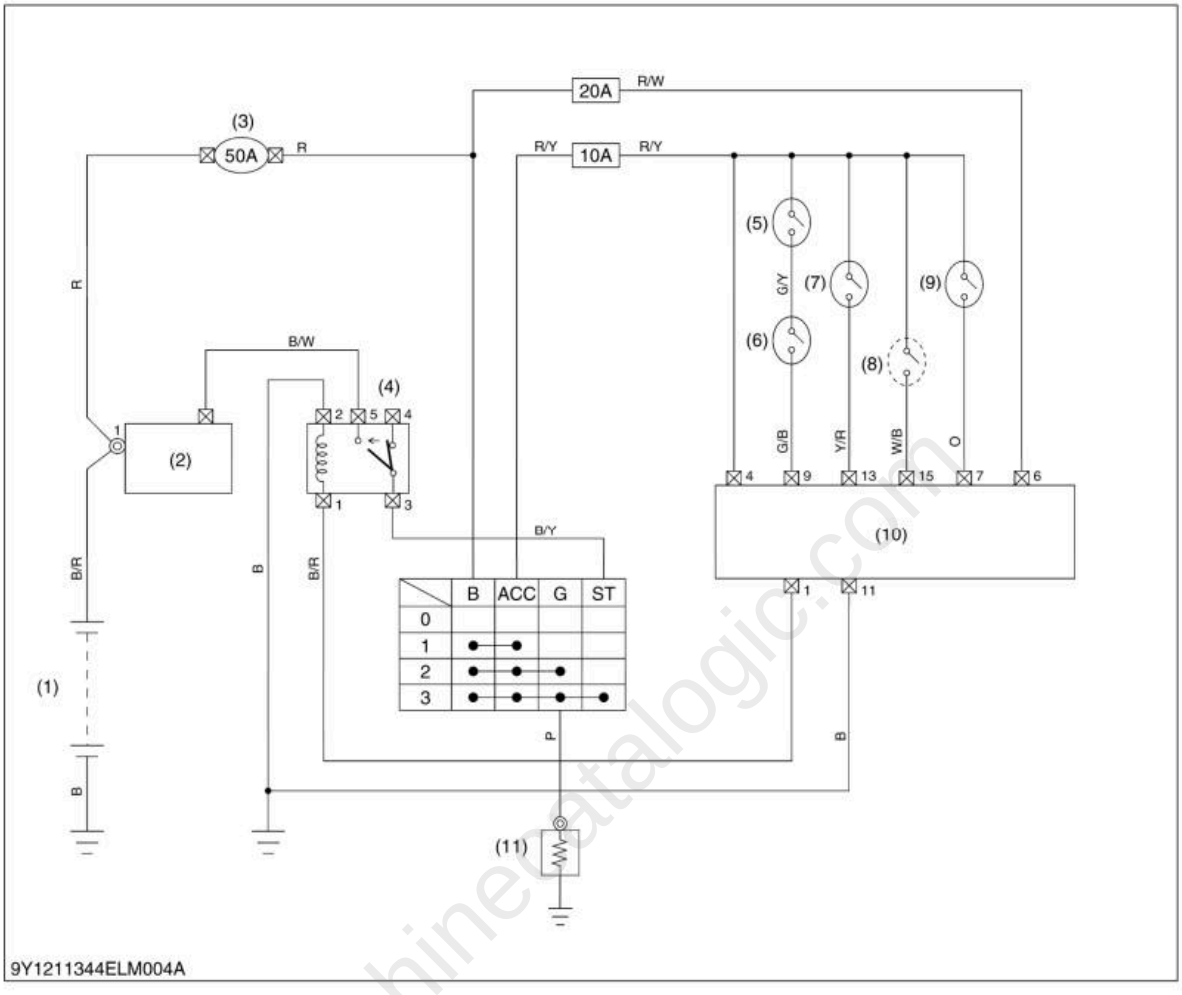
4. STARTING SYSTEM



(1) Battery
(2) Starter
(3) Slow Blow
(4) Starter Relay
(5) Neutral (R)
(6) Neutral (L)
(7) Seat
(8) Parking Brake
(9) PTO
(10) OPC
(11) Glow Plug

When the main switch is turned to the **PREHEAT** position, the terminal **B** is connected to the terminals **G** and **ACC**. The glow plugs become red-hot, and the preheat indicator lamp also lights on while preheating.

When the main switch is then turned to the **START** position with the safety switches on, the terminal **B** is connected to the terminals **ST** and **ACC**. Consequently, battery current flows to the starter motor and start the engine.

The main switch automatically returns to the **ON** position, the terminal **B** is connected only to the terminal **ACC**, thereby causing the starting circuit to be opened, stopping the starter motor.

When the main switch turned from the **ON** position to the **OFF** position, the fuel cut-off solenoid moves the fuel injection pump control rack to the **"No Fuel Injection"** position and stop the engine.

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Full Version Available

Kubota ZD1221RL-AU Zero Turn Mower Workshop Manual

This is a short preview. The complete manual contains all chapters, wiring diagrams, torque specifications and full service procedures.