

# SERVICING

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# 1. TROUBLESHOOTING

Symptom	Probable Cause	Solution	Reference Page
<b>Blade Does Not Turn</b>	Mid-PTO system malfunctioning	Check transmission	2-S39
	Mower belt broken	Replace mower belt	7-S18
<b>Blade Speed Is Slow</b>	Mower belt loosen	Replace mower belt or tension spring	7-S18
	Grass clogged	Remove grass	–
	Cup washer flattened out or worn	Replace cup washer	7-S20
	Engine rpm too low	Mow at full throttle, check and reset engine rpm	–
<b>Cutting Is Poor</b>	Mower blade worn or broken	Sharpen or replace mower blade	7-S20
	Mower blade screw loosen	Retighten mower blade screw	7-S20
	Cutting height improper	Adjust cutting height	7-S13 to 7-S16
	Ground speed too fast	Slow-down	–
	Low tire inflation	Add air to correct	G-64
	Anti-scalp rollers not adjusted correctly	Adjust anti-scalp rollers	7-S16
<b>Mower Is Not Lifted</b>	Linkage system broken	Replace linkage system	7-S13
	Trouble of hydraulic system	Check hydraulic system	–

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## 2. SERVICING SPECIFICATIONS

Item		Factory Specification	Allowable Limit
Stopper and Rear Link	Clearance	0 to 0.5 mm 0 to 0.01 in.	—
Front Tip and Rear Tip of Blade	Difference	0.0 to 5.0 mm 0.0 to 0.20 in.	—
Left Tip and Right Tip of Blade	Difference	Less than 3 mm 0.12 in.	—
Balancer Spring	Length	55.0 mm 2.17 in.	—
Input Shaft (without Mower Belt)	Turning Torque	Less than 0.7 N·m 0.07 kgf·m 0.52 lbf·ft	—
Bevel Gears in Gear Box [RCK48-18BX, RCK54-23BX, RCK60B-23BX, RCK54D-26BX and RCK60D-26BX]  [RCK48P-18BX and RCK54P-23BX]	Backlash	0.10 to 0.20 mm 0.0040 to 0.0078 in.	0.40 mm 0.016 in.
	Backlash	0.13 to 0.25 mm 0.0051 to 0.0098 in.	0.40 mm 0.016 in.

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### 3. TIGHTENING TORQUES

Tightening torques of screws, bolts and nuts on the table below are especially specified.  
 (For general use screws, bolts and nuts: Refer to "5. TIGHTENING TORQUES" on page G-13.)

**[RCK48-18BX, RCK54-23BX, RCK60B-23BX, RCK54D-26BX and RCK60D-26BX]**

Item	N·m	kgf·m	lbf·ft
Gear box mounting screw	78 to 90	7.9 to 9.2	58 to 66
Mower blade screw	103 to 117	10.5 to 12.0	76.0 to 86.7
Center pulley holder bolt and nut	78 to 90	7.9 to 9.2	58 to 66
Outer pulley mounting nut	197 to 225	20.0 to 23.0	145 to 166
Gear box bracket mounting bolt and nut	78 to 90	7.9 to 9.2	58 to 66
Pulley boss mounting nut	24 to 27	2.4 to 2.8	18 to 20
Outer pulley holder mounting bolt and nut (RCK48-18BX)	48.0 to 55.9	4.9 to 5.7	35.4 to 41.2
Outer pulley holder mounting bolt and nut (RCK54-23BX, RCK60B-23BX, RCK54D-26BX and RCK60D-26BX)	78 to 90	7.9 to 9.2	58 to 66

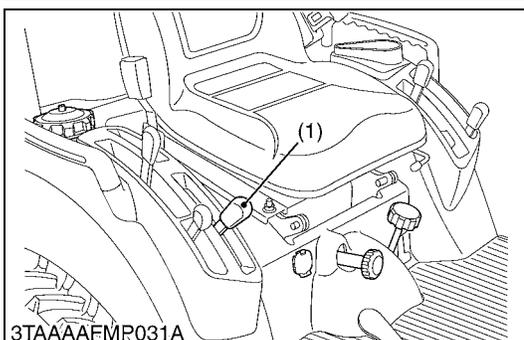
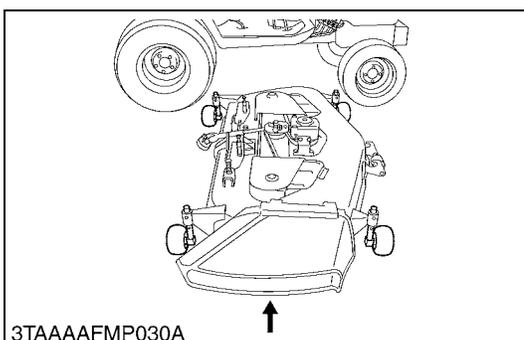
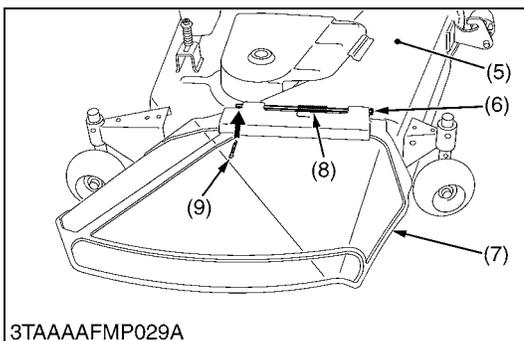
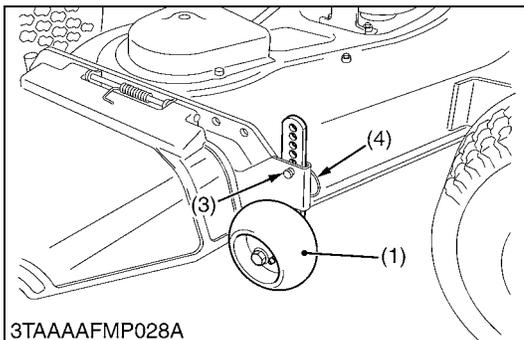
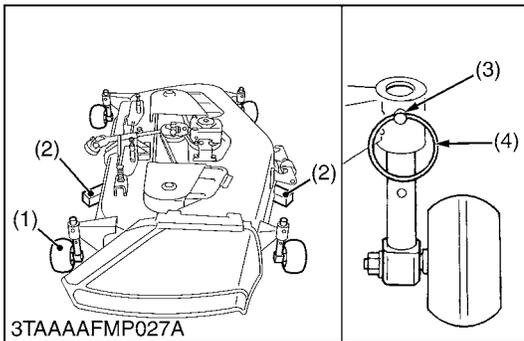
**[RCK48P-18BX and RCK54P-23BX]**

Item	N·m	kgf·m	lbf·ft
Mower blade screw	103 to 117	10.5 to 12.0	76.0 to 86.7
Gear box screw	24 to 27	2.4 to 2.8	17 to 20
Gear box mounting screw (for aluminum gear case)	39 to 44	4.0 to 4.5	29 to 33
Gear box bracket mounting bolt and nut	78 to 90	7.9 to 9.2	58 to 67
Center pulley holder bolt and nut	78 to 90	7.9 to 9.2	58 to 67
Outer pulley mounting nut	167 to 186	17.0 to 19.0	123 to 137
Outer pulley holder mounting bolt and nut	48.0 to 55.9	4.9 to 5.7	35.4 to 41.2

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# 4. SETTING UP MOWER

## [1] RCK48-18BX, RCK54-23BX, RCK60B-23BX, RCK48P-18BX, and RCK54P-23BX



### Assembling Mower

1. Place the mower on blocks as illustrated.  
Turn the anti-scalp rollers sideways and attach to the arms of the deck at the upper position with clevis pins and snap rings. Remove the blocks. (RCK60B-23BX, RCK54P-23BX and RCK54-23BX)
2. Attach the front anti-scalp rollers to the deck with clevis pins and snap rings. (RCK48P-18BX and RCK48-18BX)

### **⚠ DANGER**

To avoid serious injury or death:

- Do not operate the mower without the discharge deflector properly in position.
3. Attach the discharge to the deck with the spring, discharge pin and cotter pin.
  4. Secure the spring to the discharge deflector as illustrated.

- |                       |                         |
|-----------------------|-------------------------|
| (1) Anti-scalp Roller | (6) Discharge Pin       |
| (2) Block             | (7) Discharge Deflector |
| (3) Clevis Pin        | (8) Spring              |
| (4) Snap Ring         | (9) Cotter Pin          |
| (5) Deck              |                         |

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### Setting Mower

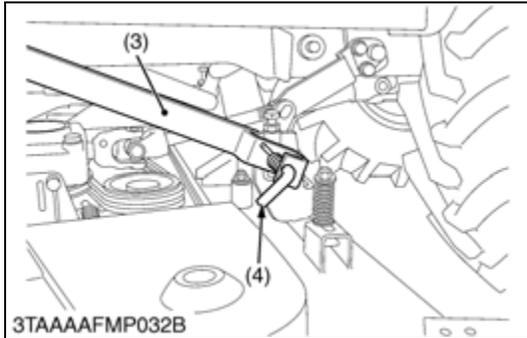
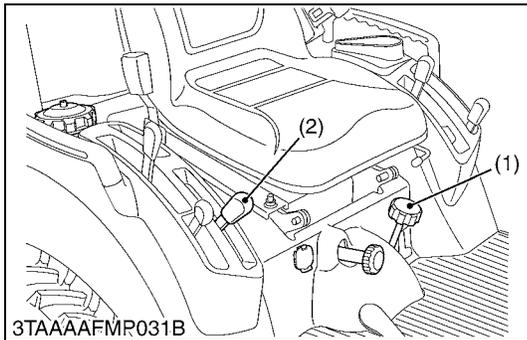
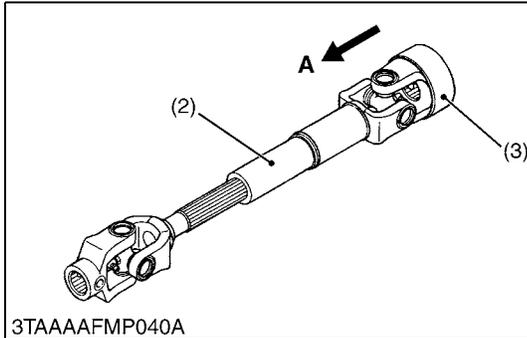
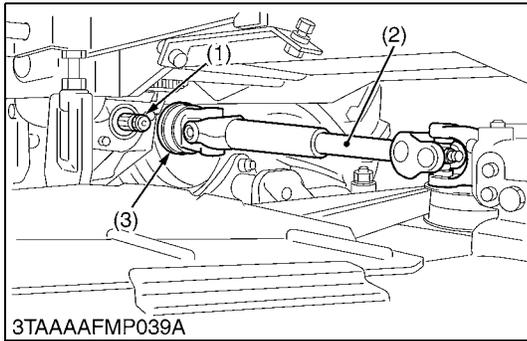
### **⚠ CAUTION**

- Park the tractor on a firm, flat and level surface, set the parking brake, stop the engine and remove the key.

1. Start the engine and the hydraulic lever rearward to raise the mower rear link to the highest position.
2. Stop the engine and remove the key.
3. Roll the mower under the tractor from right side.

- (1) Hydraulic Control Lever

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**Universal Joint**

1. Pull back the coupler (3) of the universal joint (2).
2. Push the universal joint (2) onto the mid-PTO shaft (1), until the coupler locks.
3. Slide the universal joint back and forward to make sure the universal joint is locked securely.

**IMPORTANT**

- **Finally, tug on the universal joint to make sure it is locked on the PTO shaft.**

- (1) Mid-PTO Shaft
- (2) Universal Joint
- (3) Coupler

**A: Tug**

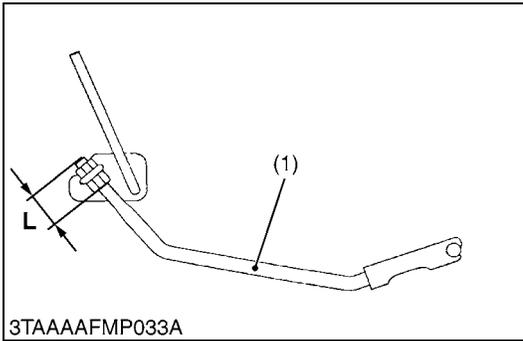
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**Rear Link**

1. Set the cutting height control dial (1) to zero inch position.
2. Operate the tractor's hydraulic control lever (2) forward to lower the mower rear links (3).  
Attach the rear links (3) to the mower with the L pins (4).

- (1) Cutting Height Control Dial
- (2) Hydraulic Control Lever
- (3) Rear Link
- (4) L Pin

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**Front Link**

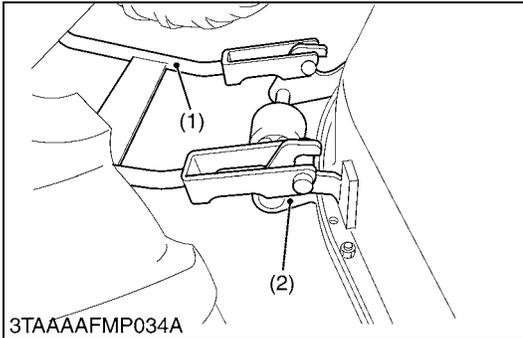
1. Hook the front link (1) to the front bracket groove (2) as shown in the figure.

**(Reference)**

- Make sure the length "L" of the front link (1) is 47 mm (1.85 in.).

- |                |                          |
|----------------|--------------------------|
| (1) Front Link | (2) Front Bracket Groove |
|----------------|--------------------------|

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**Mounting Front Link**

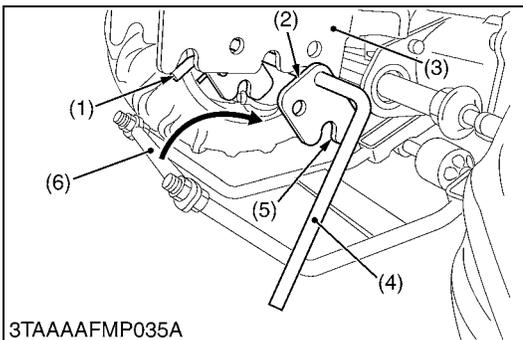
1. Position the front lever to the front link bracket.
2. Pull and lock the L pin. Then lower the front lever.
3. Hook the front link to the lever fulcrum, and lift the front lever.
4. Release the L pin to lock the front lever.

■ **NOTE**

- When hooking the front link to the lever fulcrum, normal position of the lever fulcrum groove is open to downward.

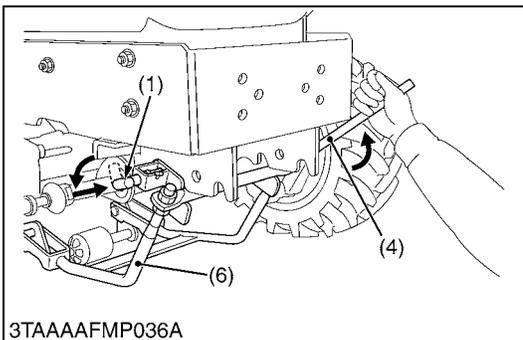
■ **IMPORTANT**

- Check that the front lever is locked securely with the L pin.

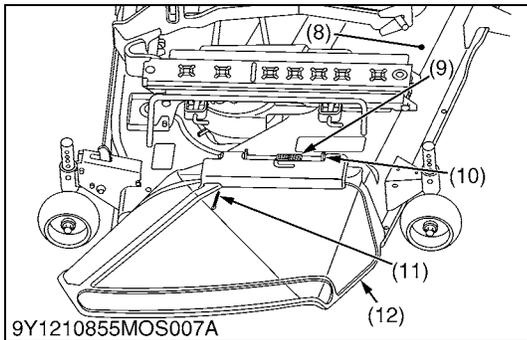
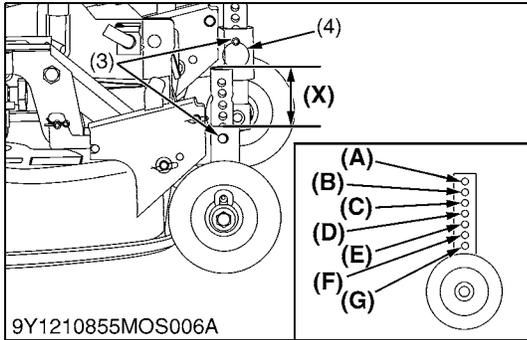
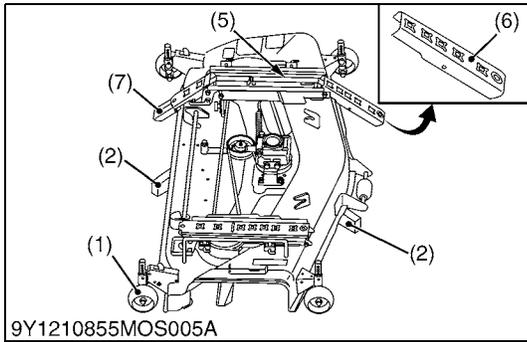


- |                        |                          |
|------------------------|--------------------------|
| (1) L pin              | (4) Front Lever          |
| (2) Lever Fulcrum      | (5) Lever Fulcrum Groove |
| (3) Front Link Bracket | (6) Front Link           |

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## [2] RCK54D-26BX, RCK60D-26BX



### Assembling Mower

1. Place the mower on blocks as illustrated.
2. Attach all the anti-scalp rollers to the arms of the deck. Put clevis pins from outside and snap rings inside in the "F" position. 4.5 holes (X) must be visible.

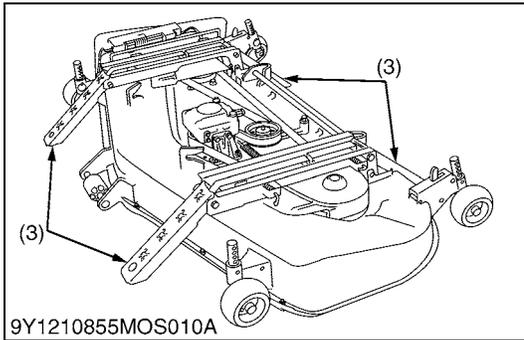
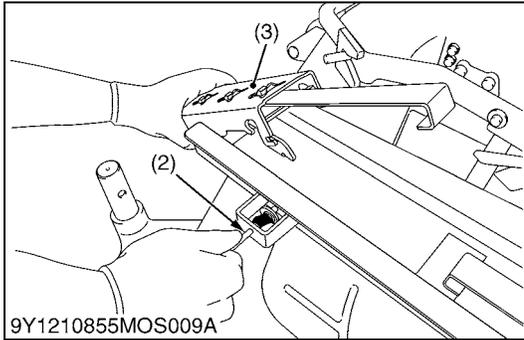
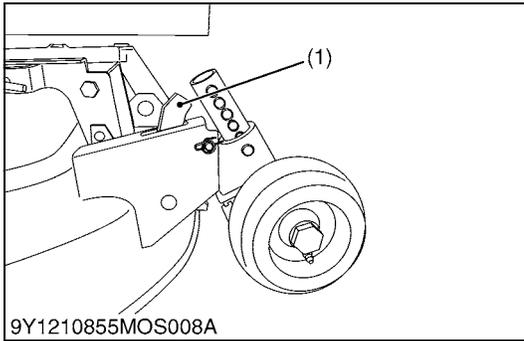
### **!** DANGER

To avoid serious injury or death:

- Do not operate the mower without the discharge deflector properly in position.
3. Attach the discharge deflector to the deck with the spring (9), discharge pin (10) and cotter pin (11). Secure the spring to the discharge deflector as illustrated.

- |                       |                          |
|-----------------------|--------------------------|
| (1) Anti-scalp Roller | (8) Deck                 |
| (2) Block             | (9) Spring               |
| (3) Clevis Pin        | (10) Discharge Pin       |
| (4) Snap Ring         | (11) Cotter Pin          |
| (5) F Spring          | (12) Discharge Deflector |
| (6) Ramp F            |                          |
| (7) Ramp R            |                          |

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**Setting Mower**

**⚠ WARNING**

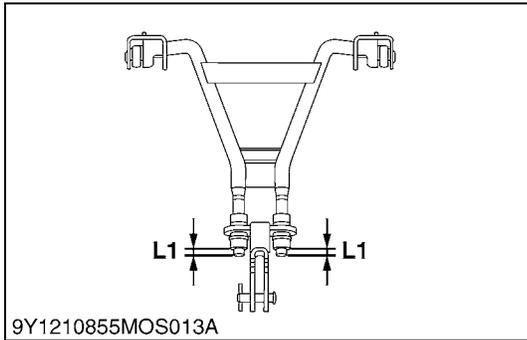
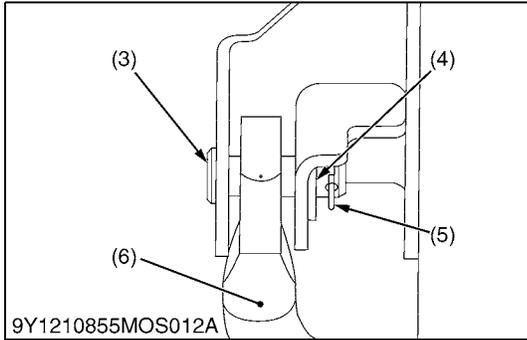
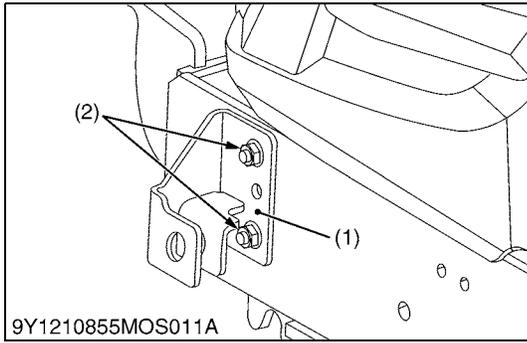
To avoid serious injury:

- Park the tractor on a firm, flat and level surface, set the parking brake, stop the engine and remove the key.
- Clean up mower deck, slope and frame link. Make sure there is no debris inside the universal joint.  
**Check all functions work correctly.**
- Remove the front loader, front attachment and 3 point hitch attachment.

1. Adjust all the anti-scalp rollers to the "F" position. 4.5 holes (X) must be visible. (See in "Assembling Mower")
2. Unlock the lever (1) to lift up the rear anti-scalp roller.
3. Pull the L-pin (2) and extend the ramp (3) to front and rear sides.

- |           |          |
|-----------|----------|
| (1) Lever | (3) Ramp |
| (2) L-pin |          |

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**Front Link**

1. Place all front link and frame link under the tractor.
2. Attach the stay link (1) with the nut (2) on the tractor front frame.

**⚠ CAUTION**

To avoid personal injury:

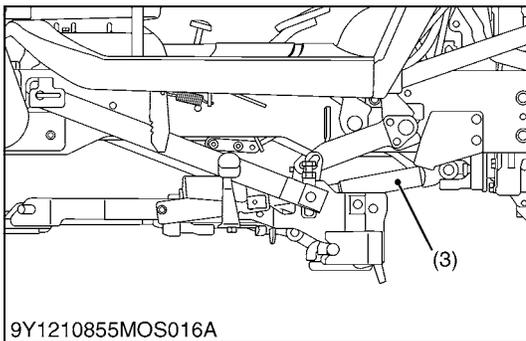
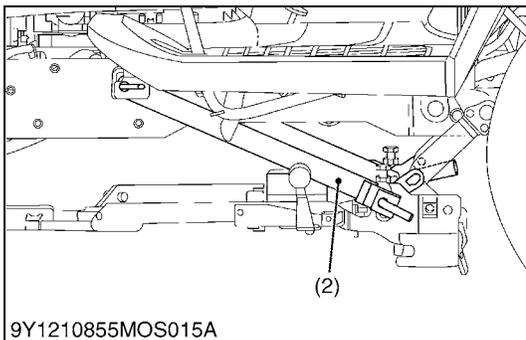
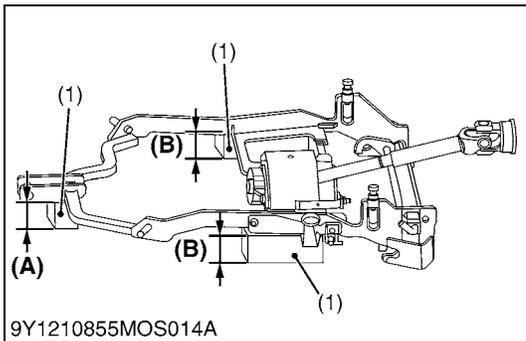
- Attach the stay link left and right. Do not loosen both left and right side nuts at the same time.
3. Attach the front link (6) to the stay link (1) with joint pin (3), washer (4) and snap pin (5).
  4. Before attaching the mower links, adjust lengths L1 to 22 mm.

Tightening torque	Stay link nut	43.3 to 50.3 N·m 4.4 to 5.1 kgf·m 32 to 37 lbf·ft
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- (1) Stay Link
- (2) Nut
- (3) Joint Pin
- (4) Washer
- (5) Snap Pin
- (6) Front Link

**L1: 22 mm**

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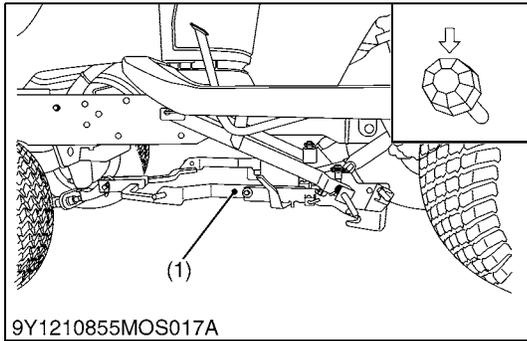


**Frame Link**

1. Place blocks below the frame link if one person does the setting. Heights of blocks are recommended value for attaching.
2. Start engine. Set the cutting height to 0" and lower the frame link. Then stop the engine.
3. Attach the frame link to the link arm.
4. Joint the front link and frame link with joint pin and snap ring.
5. Attach the universal joint to tractor.

- |                     |                      |
|---------------------|----------------------|
| (1) Block           | (A) 160 mm (6.3 in.) |
| (2) Link Arm        | (B) 120 mm (4.7 in.) |
| (3) Universal Joint |                      |

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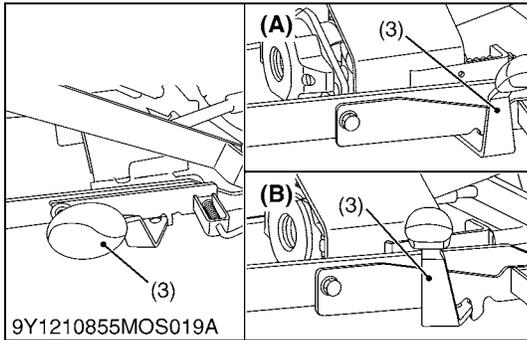
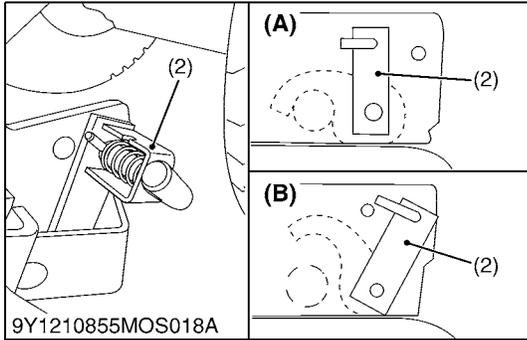


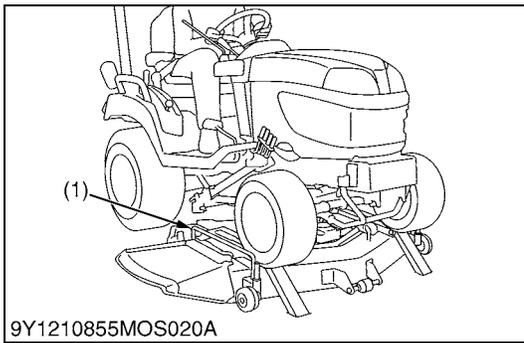
**Setting Tractor**

1. Make sure that the frame link (1) is lifted up to the "TOP" position when tractor is traveling without mower. Stop the tractor behind the mower. Set the parking brake.
2. Set the cutting height to 0" and lower the frame link (1). Then stop the engine.
3. Make sure that the rear lock (2) is unlocked.
4. Make sure that the universal joint (3) is in rear position.
5. Make sure that the frame link (1) is fully down.

- |                                   |        |
|-----------------------------------|--------|
| (1) Frame Link                    | (A) NG |
| (2) Rear Lock                     | (B) OK |
| (3) Lever Guide (Universal Joint) |        |

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**Mounting Mower**

1. Start the engine and engage 4WD. Set the range gear shift lever to "LOW". Release the parking brake.
2. With the right front tire, make a driving target to the guide (1).
3. Drive over the ramp of mower along the guide (1). Keep the front tire side touching the guide rod.

**⚠ WARNING**

To avoid serious injury:

- If mower moves forward before the tractor rides on, there is less grip between the ground and mower. Change area and try again.

4. Just after the tractor drove over the mower, stop the engine. Make sure frame link is connected to mower.
5. Lock the rear lock (2).

**⚠ WARNING**

To avoid serious injury:

- Double check that frame link is locked to mower deck.

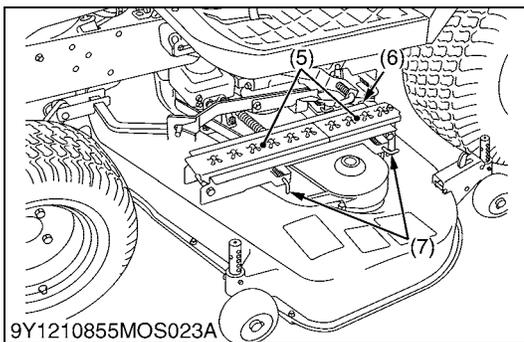
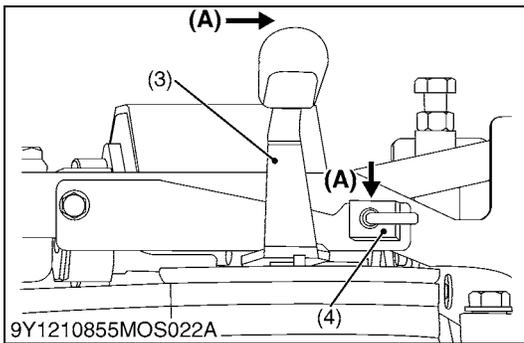
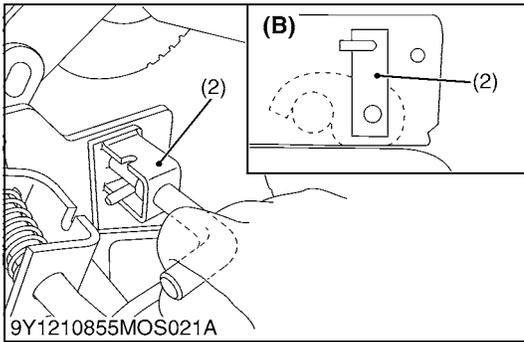
6. Set the PTO select lever to "Rear-PTO" position.
7. Connect the universal joint by the lever guide (3).
8. Lock the lever guide by the lock lever (4).

**⚠ WARNING**

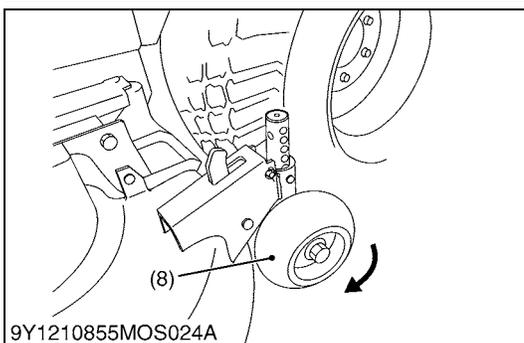
To avoid serious injury:

- Double check that lever guide is locked.

9. Set the PTO select lever to "Mid-PTO" position.
10. Put front and rear ramps (5) back to the ramp bracket (6). Lock the L-pin (7).
11. Start the engine. Lift up the mower to the "TOP" position. Lock the dial gauge and set the parking brake. And then, stop the engine.
12. Lock the rear anti-scalp roller (8).
13. Adjust the anti-scalp roller (8). See "CUTTING HEIGHT" in "Checking and Adjusting" section for further information.



- |                       |            |
|-----------------------|------------|
| (1) Guide             | (A) Engage |
| (2) Rear Lock         | (B) OK     |
| (3) Lever Guide       |            |
| (4) Lever Lock        |            |
| (5) Ramp              |            |
| (6) Ramp Bracket      |            |
| (7) L-Pin             |            |
| (8) Anti-Scalp Roller |            |



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# 5. CHECKING AND ADJUSTING

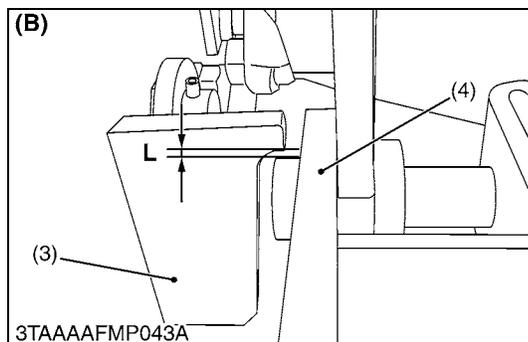
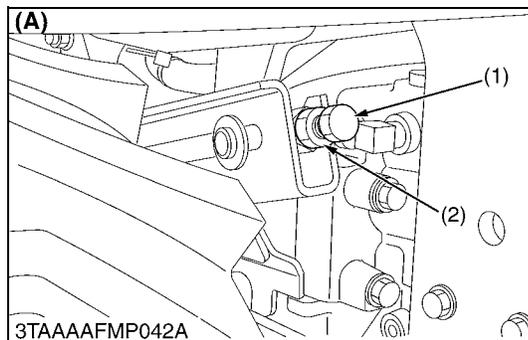
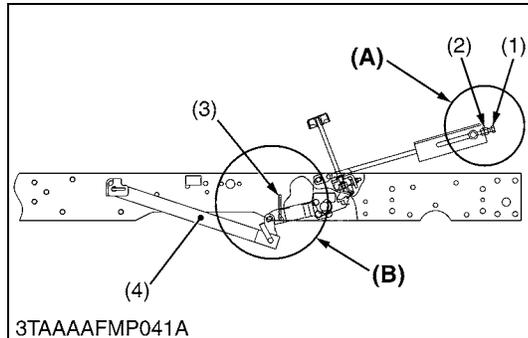
## [1] MOWER ADJUSTMENT

### WARNING

To avoid serious injury:

- Park the tractor on a firm, flat and level surface and set the parking brake.
- Stoop the engine, remove the key, and allow the blades to stop before making adjustments.
- Wear heavy gloves or wrap end of blade with a rag when you handle blades.
- 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 (OFF).

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### Adjusting Mower Link

#### ■ IMPORTANT

Readjustment is necessary after following situation:

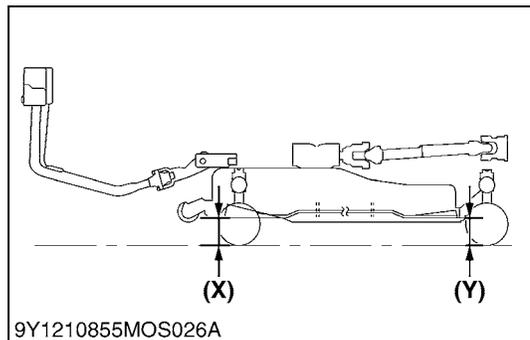
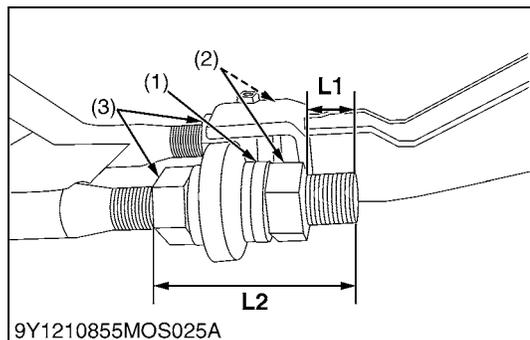
- Gear box is disassembled for maintenance.
  - Attach different drive over mower deck.
  - Re-attach frame link.
1. Tire pressure must be correct.
  2. Move the hydraulic control lever rearward to raise the mower to the highest position.
  3. Stop the engine and remove the key.
  4. Adjust the left side links with bolt so that the clearance "L" is as follows.

Clearance "L" between stopper and rear link	Factory specification	0 to 0.5 mm 0 to 0.01 in.
---	-----------------------	------------------------------

- (1) Bolt
- (2) Lock Nut
- (3) Stopper
- (4) Rear Link

**L: 0 to 0.5 mm (0 to 0.01 in.)**  
**(A) Adjustment Point**  
**(B) Check Point**

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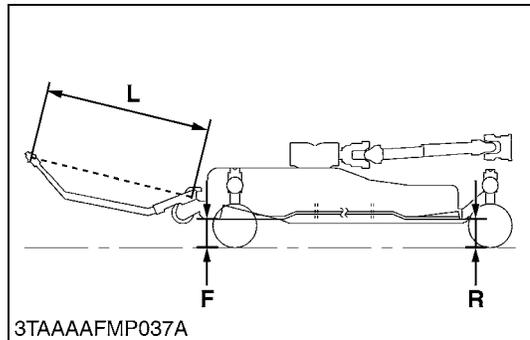
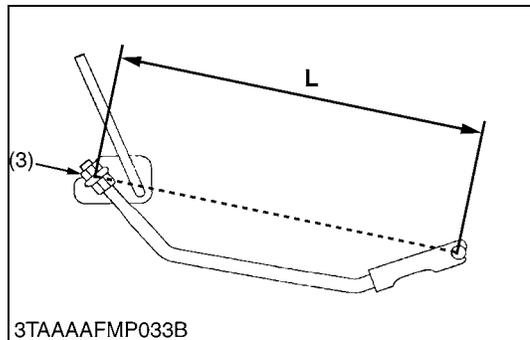
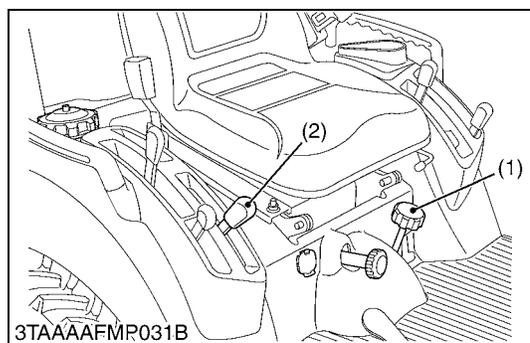
**Adjusting Front and Rear Cutting Height [RCK54D-26BX and RCK60D-26BX]**

1. Park the machine on a firm, flat and level surface and set the parking brake.
2. Tire pressure must be correct. (See "[1] TIRE PRESSURE" in "GENERAL" section.)
3. Turn the cutting height control dial to "2.0" and keep clearance between the anti-scalp rollers and ground from 6 to 13 mm (0.25 to 0.5 in.) as shown in "CUTTING HEIGHT" in "CHECKING AND ADJUSTING" section.
4. Make sure the level of the mower blades is adjusted as shown below. Align the ends of the right side blade towards the front and rear of the machine. Turn blade by hand in either direction. Adjust "L1" of front links with lock nuts so that "A" is 0 to 5 mm (0 to 0.2 in.) "A" = (Y) - (X)
5. To adjust "L1", loose (2) nuts then turn (3) nuts. Rotate both (3) nuts same time to set LH and RH "L2" in even length. Tighten (2) nuts to lock securely.

Tightening torque	Front link lock nut	60 to 70 N·m 6.2 to 7.1 kgf·m 45 to 51 lbf·ft
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- (1) Spring Lock Washer (3) Lock Nut  
(2) Lock Nut

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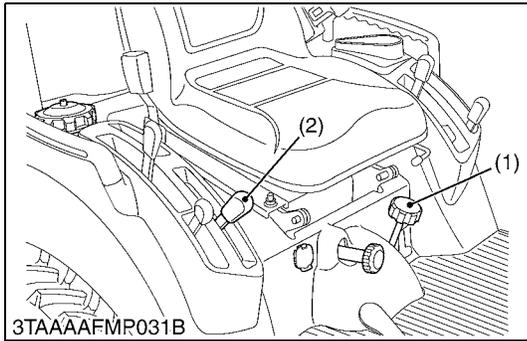
**Adjusting Front and Rear Cutting Height [RCK60B-23BX, RCK54-23BX, RCK48-18BX, RCK54P-23BX and RCK48P-18BX]**

1. Tire pressure must be correct.
2. Make sure the level of the mower blades is adjusted as shown below. Then tighten the lock nuts securely.
3. Turn the cutting height control dial to "2.0" and the anti-scalp roller's height to keep clearance between rollers and ground from 6 to 13 mm (0.25 to 0.5 in.).
4. Turn right blade by hand parallel to direction of travel.
5. Adjust "L" of front links with lock nuts so that "A" is 0 to 5 mm (0 to 0.2 in.) "A" = "R" - "F".
6. If the difference between front tip and rear tip of blade is not within the factory specification, adjust the length "L" of front link with lock nut (3). The height of rear blade tip "R" should be bigger than the front.

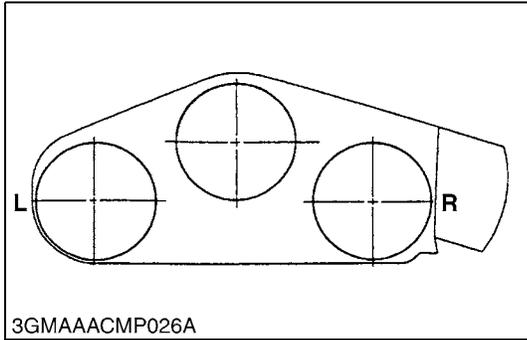
Difference "R" - "F" ("R" ≥ "F") between front tip and rear tip of blade	Factory specification	0.0 to 5.0 mm 0.0 to 0.20 in.
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- (1) Cutting Height Control Dial L: Length of Front Link  
(2) Hydraulic Control Lever F: Height of Blade Tip (Front)  
(3) Lock Nut R: Height of Blade Tip (Rear)

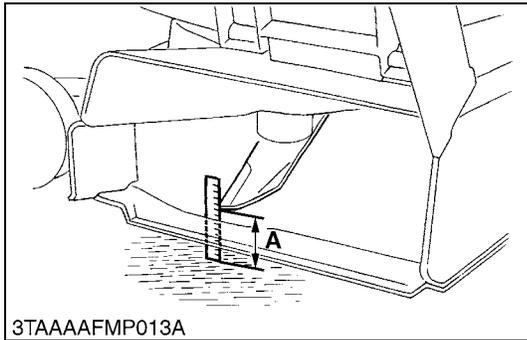
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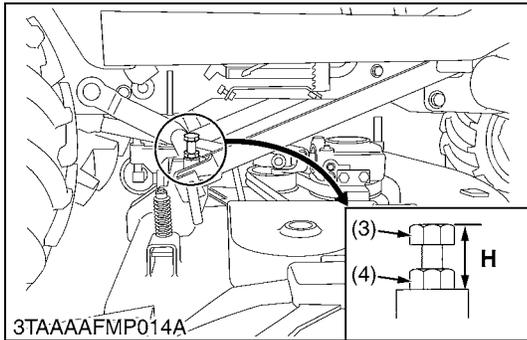
3TAAAFMP031B



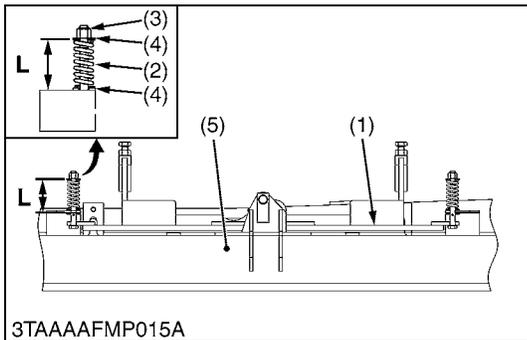
3GMAAACMP026A



3TAAAFMP013A



3TAAAFMP014A



3TAAAFMP015A

### Adjusting Left and Right Cutting Height

1. Tire pressure must be correct.
2. Operate the hydraulic control lever (2) rearward to raise the mower deck to the highest position.
3. Stop the engine and remove the key.
4. Turn the cutting height control dial to the desired height.
5. Set the anti-scalp roller's height to keep clearance between rollers and ground from 6 to 13 mm (0.2 to 0.5 in.).
6. Lower the mower deck by moving the hydraulic control lever forward.
7. Turn left blade by hand parallel to tractor axle and turn right blade parallel to axle to measure from the outside blade tip at "L" and "R" to the level surface.
8. The difference between measurement should be less than 3 mm (0.12 in.).
9. If the difference between measurement is more than 3 mm (0.12 in.), loosen the lock nut of the left side.
10. Adjust the cutting height fine turning bolts so that the difference between measurement "L" and "R" is less than 3 mm (0.12 in.). Then lock the nut.

Difference "L" - "R" between left tip and right tip of blade	Factory specification	Less than 3 mm 0.12 in.
--	-----------------------	-------------------------

- (1) Cutting Height Control Dial
- (2) Hydraulic Control Lever
- (3) Cutting Height Fine Turning Bolt
- (4) Lock Nut

- L: Left Blade Measurement Position**
- R: Right Blade Measurement Position**
- A: Blade Height**

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### Adjusting Self-Balance Suspended Linkage [RCK60B-23BX Only]

1. Check the length "L" of balancer spring (2).
2. If the length "L" is not within the factory specification, adjust the length of balancer spring (2) with lock nut (3).

■ **NOTE**

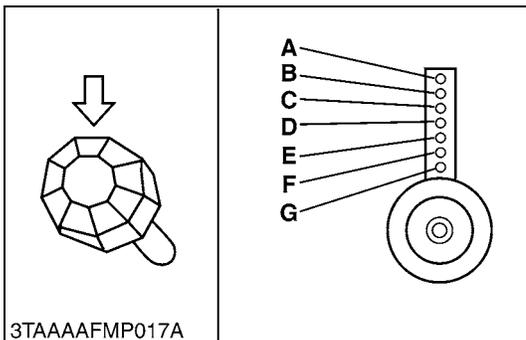
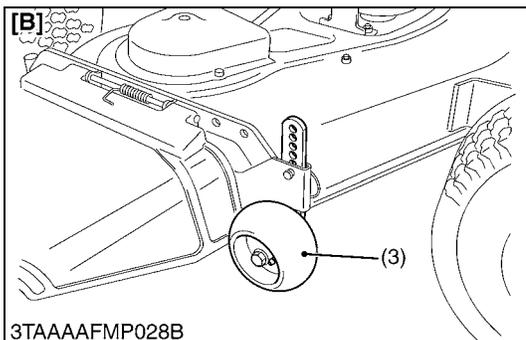
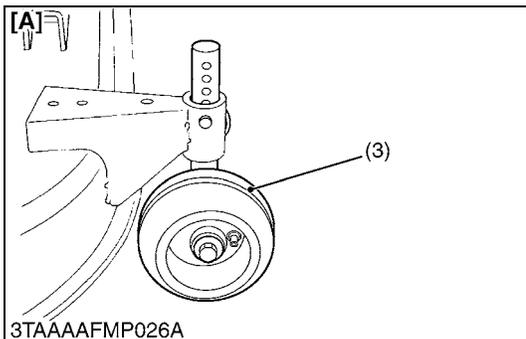
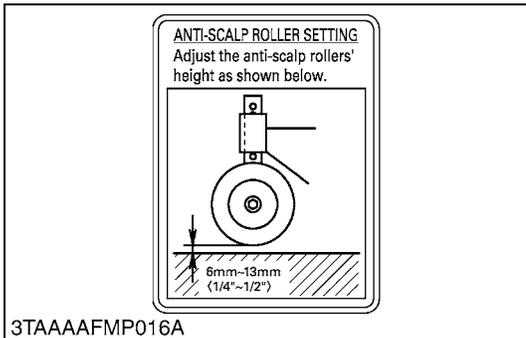
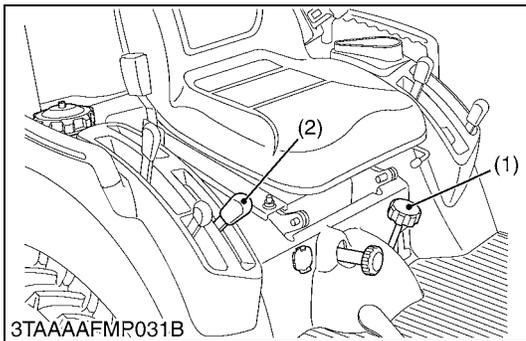
- Check the left and right cutting height difference after adjusting the self-balancer linkage.

Balancer spring length "L" (Right and left)	Factory specification	55.0 mm 2.17 in.
---	-----------------------	------------------

- (1) Self-Balancer
- (2) Balancer Spring
- (3) Lock Nut
- (4) Plain Washer
- (5) Mower Deck

- L: Balancer Spring Length**

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**Cutting Height**



To avoid serious injury or death:

- Never operate the mower in transport position.

**IMPORTANT**

- (for self-balance suspended linkage)

To reduce the stepped difference in cutting height when mowing rolling terrain, follow the procedure below.

1. To set the cutting height, move the hydraulic control lever rearward to raise the mower to the highest position. Turn the cutting height control dial (1) to adjust height.
2. Set the anti-scalp roller's (3) height as shown to keep clearance between rollers and ground from 6 to 13 mm (0.2 to 0.5 in.).
3. Lower the mower deck by moving the hydraulic control lever (2) forward.
4. Use the higher settings for mowing in a rough area or when mowing tall grass. Lower settings should be used only for smooth lawns where short grass is desired.

**IMPORTANT**

To reduce the stepped differences in cutting height when mowing rolling terrain, follow the procedure below.

5. To set the cutting height, move the hydraulic control lever (2) rearward to raise the mower to the highest position. Turn the cutting height control dial to adjust height.
6. Set the anti-scalp roller's (3) position as shown to have the same cutting height.

Dial (Cutting Height)	Anti-scalp Roller
25 mm (1.0 in.), 32 mm (1.25 in.)	G
38 mm (1.5 in.), 45 mm (1.75 in.)	F
51 mm (2.0 in.), 57 mm (2.25 in.)	E
64 mm (2.5 in.), 70 mm (2.75 in.)	D
76 mm (3.0 in.), 83 mm (3.25 in.)	C
89 mm (3.5 in.), 95 mm (3.75 in.)	B
102 mm (4.0 in.)	A

- (1) Cutting Height Control Dial
- (2) Hydraulic Control Lever
- (3) Anti-scalp Roller

[A] RCK54-23BX, RCK54P-23BX, RCK60B-23BX, RCK54D-26BX and RCK60D-26BX

[B] RCK48P-18BX and RCK48-18BX

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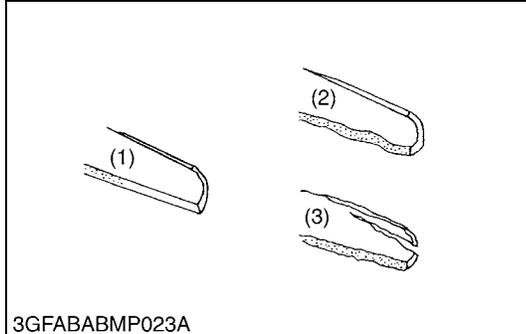
## [2] CHECKING MOWER BLADE AND BELT

### WARNING

To avoid serious injury or death:

- Be sure to stop the engine and remove the key.
- Blades may be sharp. When you handle blades, wear heavy gloves or wrap end of blade with a rag.
- Be sure to reinstall the removed cover after replacing the belt.

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### Checking Mower Blade

1. Check the cutting edge of mower blade.
2. Sharpen the cutting edges, if the mower blades are as shown in figure (2).
3. Replace the mower blades, if they are as shown in figure (3).

#### ■ IMPORTANT

- Never forget to set the dust cover, cup washer(s) and lock washer, when reassembling the mower blades. (See page 7-S20.)

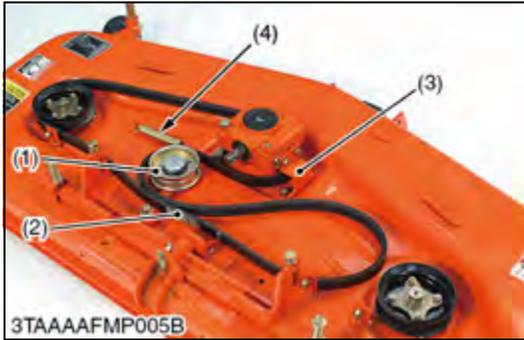
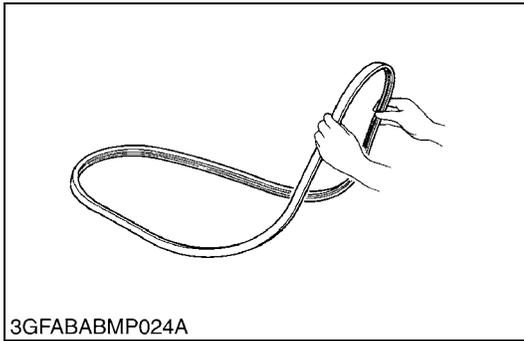
#### ■ NOTE

- To sharpen the mower blades by yourself, clamp the mower blade securely in a vise and use a large mill file along the original bevel.
- To balance the mower blade, place a small rod through the center hole and check to see if the blade balance evenly. File heavy side of the blade until it balance out even.

- (1) New Blade  
 (2) Worn Blade

- (3) Cracked Blade

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**Checking Mower Belt [RCK48-18BX, RCK54-23BX, RCK60B-23BX, RCK48P-18BX and RCK54P-23BX]**

1. Check to see the mower belt.
2. Replace the mower belt with a new one, if there is found surface split at more than 3 positions.

**(When replacing mower belt)**

1. Dismount the mower from the tractor.
2. Remove the left and right hand belt cover from the mower deck.
3. Clean around gear box.
4. Remove tension spring (4), loosening the belt.
5. Remove gear box bracket (right) (3) which mounts the gear box to the mower deck.
6. Remove the mower belt (2) from the tension pulley (1). Slip the mower belt over the top of the gear box.
7. To install a new belt, reverse the above procedure.

**[RCK48-18BX, RCK54-23BX and RCK60B-23BX]**

Tightening torque	Gear box bracket mounting bolt and nut	78 to 90 N·m 7.9 to 9.2 kgf·m 58 to 66 lbf·ft
	Gear box mounting screw	78 to 90 N·m 7.9 to 9.2 kgf·m 58 to 66 lbf·ft

**[RCK48P-18BX and RCK54P-23BX]**

Tightening torque	Gear box bracket mounting bolt and nut	78 to 90 N·m 7.9 to 9.2 kgf·m 58 to 66 lbf·ft
	Gear box mounting screw (for aluminum gear case)	39 to 44 N·m 4.0 to 4.5 kgf·m 29 to 33 lbf·ft

**■ IMPORTANT**

- **After setting the gear box bracket mounting screws on the deck without tightening, then mount the other screws on the gear box. And finally tighten them.**

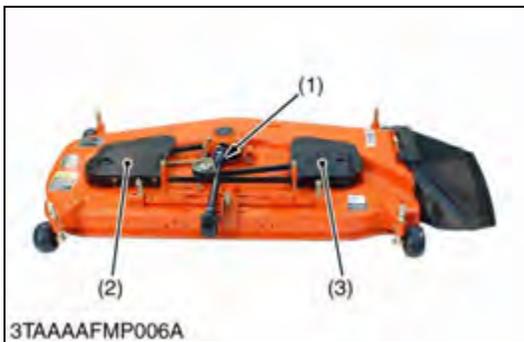
- |                    |                              |
|--------------------|------------------------------|
| (1) Tension Pulley | (3) Gear Box Bracket (Right) |
| (2) Mower Belt     | (4) Tension Spring           |

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# 6. DISASSEMBLING AND SERVICING

## [1] DISASSEMBLING AND ASSEMBLING



### Universal Joint and Belt Cover [RCK48-18BX, RCK54-23BX, RCK60B-23BX, RCK48P-18BX and RCK54P-23BX]

1. Remove the universal joint screw.
2. Remove the universal joint (1).
3. Remove the left and right belt covers (2), (3).

- (1) Universal Joint
- (2) Belt Cover (Left)
- (3) Belt Cover (Right)

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### Ramps and Belt Cover [RCK54D-26BX and RCK60D-26BX]

1. Remove left and right ramp bracket pins.
2. Remove left and right ramps (1), (2).
3. Remove the left and right belt covers (3), (4).

- (1) Ramp (Left)
- (2) Ramp (Right)
- (3) Belt Cover (Right)
- (4) Belt Cover (Left)

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### Mower Blades (Center Blade and Outer Blades)

1. Turn over the mower.
2. Remove the mower blade screw (5), and remove the lock washer (4), cup washer(s) (3), mower blade (2) and dust cover (1).

■ **NOTE**

- To remove the blade securely, wedge a block of wood between one blade and the mower deck in such position that it will hold the blade safely while loosening or tightening the blade screw.

(When reassembling)

### [RCK48-18BX, RCK54-23BX, RCK48P-18BX and RCK54P-23BX]

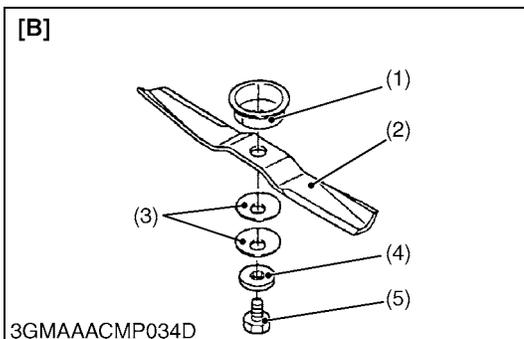
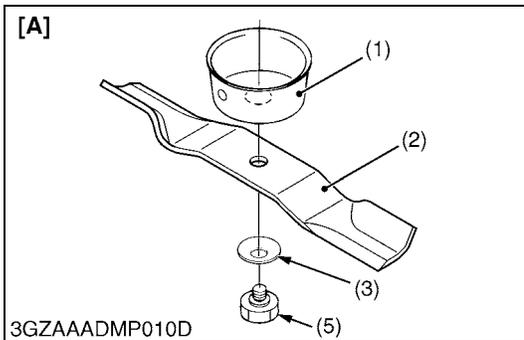
- Install the blade in position together with the dust cover and the cup washer. Tighten them up with the screw.

### [RCK60B-23BX, RCK54D-26BX and RCK60D-26BX]

- Install the blade in position together with the dust cover, the lock washer and the 2 cup washers. Tighten them up with the screw.

■ **IMPORTANT**

- Make sure the cup washer is not flattened out or worn, causing blade to slip easily.
- Replace cup washer(s) if either is damaged.



Tightening torque	Mower blade screw	103 to 117 N·m 10.5 to 12.0 kgf·m 76.0 to 86.7 lbf·ft
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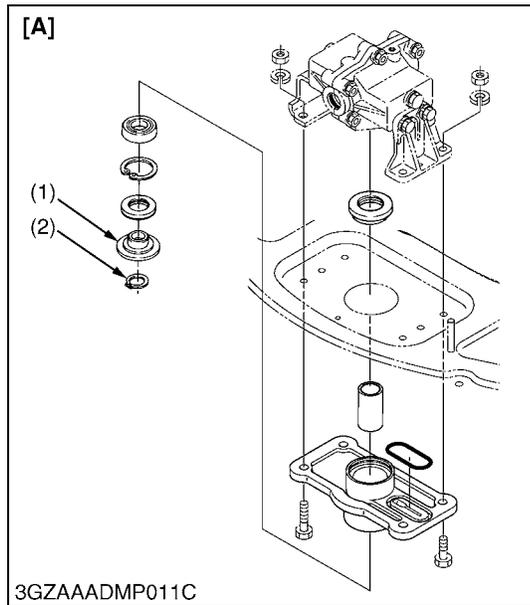
- (1) Dust Cover
- (2) Mower Blade
- (3) Cup Washer
- (4) Lock Washer
- (5) Mower Blade Screw

[A] RCK48-18BX, RCK54-23BX, RCK48P-18BX and RCK54P-23BX

[B] RCK60B-23BX, RCK54D-26BX and RCK60D-26BX

a: Loosen

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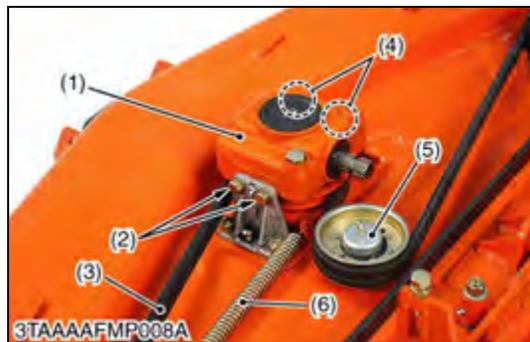
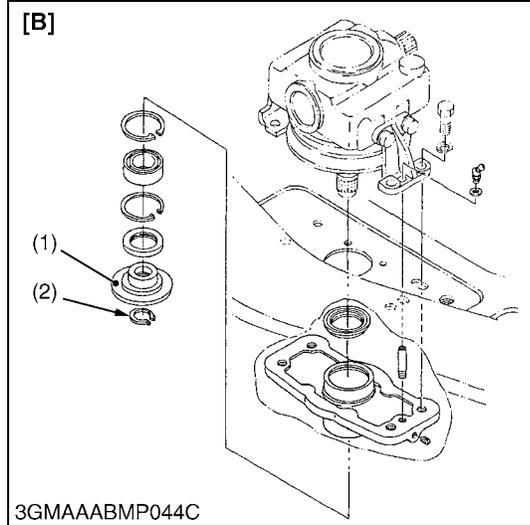
**Blade Boss**

1. Remove the external snap ring (2).
2. Remove the blade boss (1).

- (1) Blade Boss
- (2) External Snap Ring

**[A] RCK48P-18BX and RCK54P-23BX**  
**[B] RCK48-18BX, RCK54-23BX,**  
**RCK60B-23BX, RCK54D-26BX**  
**and RCK60D-26BX**

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**Gear Box and Mower Belt**

1. Turn over the mower.
2. Remove the mower belt (3) from the tension pulley (5).
3. Remove the left and right gear box mounting screws (2), (4) and remove the gear box (1) from the mower deck.

**(When reassembling)**

- Install the reamer screws (2) at their original positions as shown in the figure.

**[RCK48-18BX, RCK54-23BX, RCK60B-23BX, RCK54D-26BX and RCK60D-26BX]**

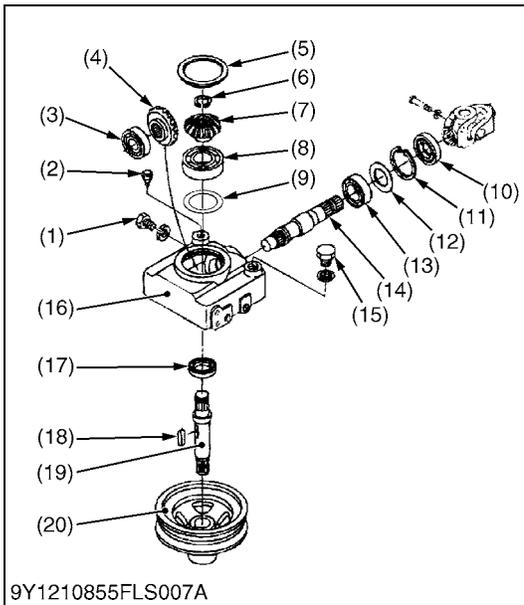
Tightening torque	Gear box mounting screw	78 to 90 N·m 7.9 to 9.2 kgf·m 58 to 66 lbf·ft
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**[RCK48P-18BX and RCK54P-23BX]**

Tightening torque	Gear box mounting screw (for aluminum gear box)	39 to 44 N·m 4.0 to 4.5 kgf·m 29 to 33 lbf·ft
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- (1) Gear Box
- (2) Gear Box Mounting Screw (Reamer Screw)
- (3) Mower Belt
- (4) Gear Box Mounting Screw
- (5) Tension Pulley
- (6) Tension Spring

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**Disassembling Gear Box [RCK48-18BX, RCK54-23BX, RCK60B-23BX, RCK54D-26BX and RCK60D-26BX]**

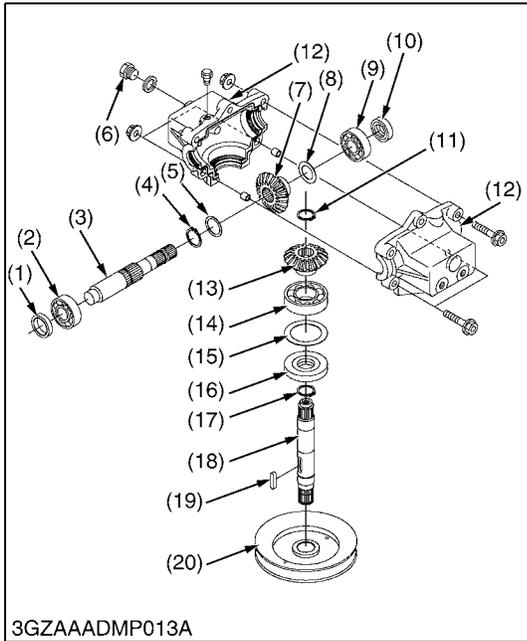
1. Remove the drain plug (1), and drain the gear box oil.
2. Remove the center pulley (20) with a puller, and remove the feather key (18) on the bevel gear shaft (19).
3. Remove the gear box cap (5).
4. Remove the oil seal (10), internal snap ring (11) and shim (12).
5. Tap out the pinion shaft (14) with the ball bearing (13), and remove the bevel gear (4).
6. Remove the ball bearing (3) and shims (if installed).
7. Remove the external snap ring (6), and draw out the bevel gear shaft (19).
8. Remove the bevel gear (7), ball bearing (8), shim (9) and oil seal (17).

**(When reassembling)**

- Replace the oil seals (10), (17) and gear box cap (5) with new ones.
- Check the backlash and turning torque.  
If not proper, adjust with the shims.  
(See page 7-S27 and 7-S28.)

- |   |                                      |
|---|--------------------------------------|
| (1) Drain Plug  | (8) Ball Bearing                     |
| (2) Breather  | (9) Shim                             |
| (3) Ball Bearing  | (10) Oil Seal                        |
| (4) 21T Bevel Gear (RCK48-18BX)<br>19T Bevel Gear (RCK54-23BX and<br>RCK54D-26BX) | (11) Internal Snap Ring<br>(12) Shim |
| (5) Gear Box Cap  | (13) Ball Bearing                    |
| (6) External Snap Ring  | (14) Pinion Shaft                    |
| (7) 16T Bevel Gear (RCK48-18BX,<br>RCK54-23BX and RCK54D-26BX)                    | (15) Oil Filler Plug                 |
| (17) Bevel Gear (RCK60B-23BX<br>and RCK60D-26BX)                                  | (16) Gear Box                        |
|   | (17) Oil Seal                        |
|   | (18) Feather Key                     |
|   | (19) Bevel Gear Shaft                |
|   | (20) Center Pulley                   |

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**Disassembling Gear Box [RCK48P-18BX and RCK54P-23BX]**

1. Remove the drain plug (6), and drain the gear box oil.
2. Remove the center pulley (20) with a puller.
3. Remove the gear box.
4. Open the gear box.
5. Remove the input shaft (3) and the blade shaft (18).
6. Disassembling the input shaft (3) and the blade shaft (18).

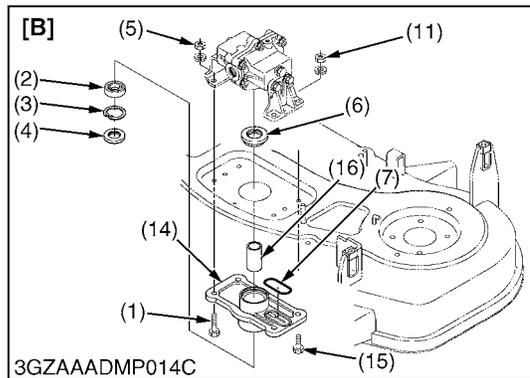
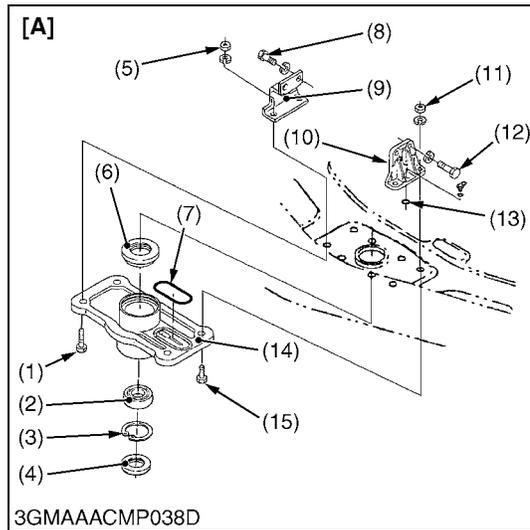
**(When reassembling)**

- Replace the oil seals (1), (10) and (16) with new ones.
- Check the backlash and turning torque.  
If not proper, adjust with the shims.  
(See page 7-S27 and 7-S28.)
- After cleaning dirty and gear box oil and the gear box surface, apply the liquid gasket.

Tightening torque	Gear box screw	24 to 27 N·m 2.4 to 2.8 kgf·m 17 to 20 lbf·ft
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- |                      |                       |
|----------------------|-----------------------|
| (1) Oil Seal         | (11) External Circlip |
| (2) Ball Bearing     | (12) Bevel Gear Case  |
| (3) Input Shaft      | (13) Bevel Gear       |
| (4) External Circlip | (14) Ball Bearing     |
| (5) Shim             | (15) Shim             |
| (6) Drain Plug       | (16) Oil Seal         |
| (7) Bevel Gear       | (17) External Circlip |
| (8) Shim             | (18) Blade Shaft      |
| (9) Ball Bearing     | (19) Feather Key      |
| (10) Oil Seal        | (20) Center Pulley    |

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**Center Pulley Holder**

1. Remove the center pulley holder bolt (1), (15) / center pulley nut (5), (11).
2. Remove the upper oil seal (6) and lower oil seal (4).
3. Remove the internal snap ring (3) and ball bearing (2).

**(When reassembling)**

- Replace the oil seals (4), (6) with new ones.
- Install the reamer screw (12) / reamer bolt (15) at their original positions as shown in the figure.
- Be sure to fix the O-rings (7), (13) to the original position.

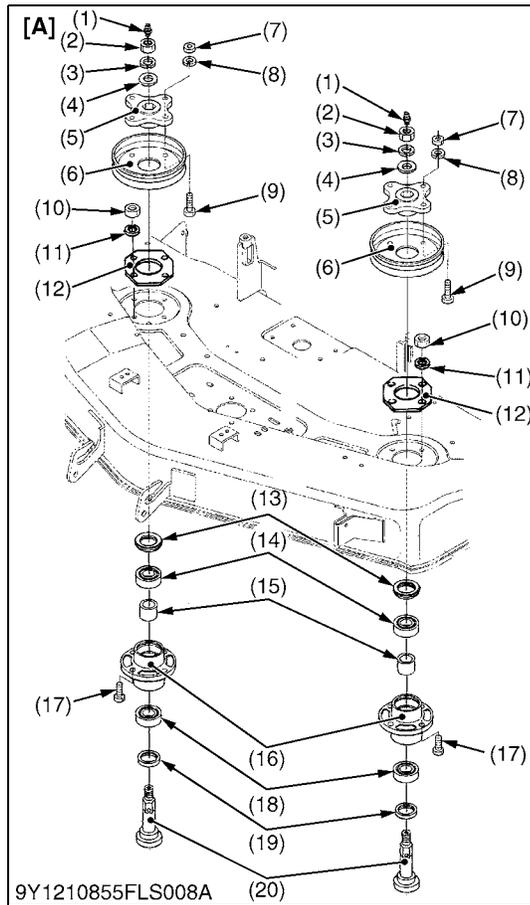
**NOTE**

- **When reassembling the center pulley holder (14), gear box and gear box bracket (9), (10), tighten the bolts and nuts in the order as below, to prevent the incline the gear box.**
- **Tighten the reamer screw (12) to the gear box first, then tighten the reamer bolts (15) and nut (11) to the center pulley holder (14) with specified torque.**
- **Tighten the gear box screws (8) to the gear box and then tighten the center pulley holder bolts (1) and nut (5) with specified torque.**
- **See page 7-S21 for tightening torque of gear box mounting screw.**

Tightening torque	Center pulley holder bolt and nut	78 to 90 N·m 7.9 to 9.2 kgf·m 58 to 66 lbf·ft
-------------------	-----------------------------------	---

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>(1) Center Pulley Holder Bolt</li> <li>(2) Ball Bearing</li> <li>(3) Snap Ring</li> <li>(4) Oil Seal</li> <li>(5) Nut</li> <li>(6) Oil Seal</li> <li>(7) O-ring</li> <li>(8) Gear Box Mounting Screw</li> <li>(9) Gear Box Bracket (Right)</li> <li>(10) Gear Box Bracket (Left)</li> <li>(11) Nut</li> </ul> | <ul style="list-style-type: none"> <li>(12) Gear Box Reamer Screw</li> <li>(13) O-ring</li> <li>(14) Center Pulley Holder</li> <li>(15) Center Pulley Holder Reamer Bolt</li> <li>(16) Collar</li> </ul> <p><b>[A] RCK48-18BX, RCK54-23BX, RCK60B-23BX, RCK54D-26BX and RCK60D-26BX</b></p> <p><b>[B] RCK48P-18BX and RCK54P-23BX</b></p> |
|--|---|

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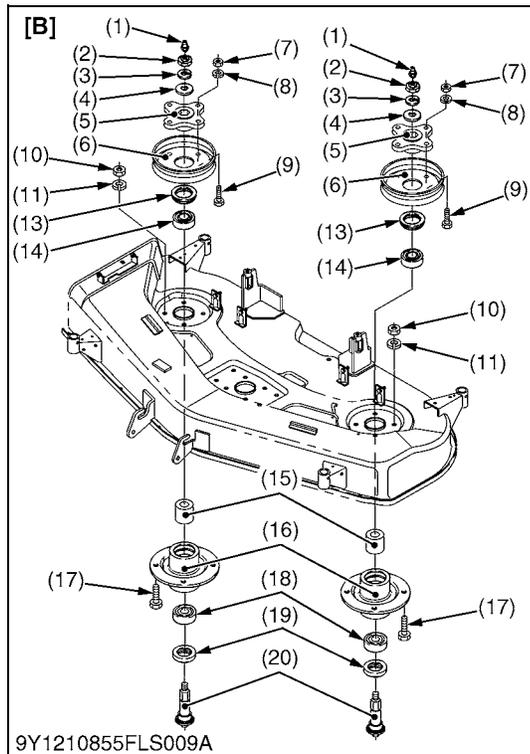
**Outer Pulley and Blade Shaft [RCK48-18BX, RCK54-23BX, RCK60B-23BX, RCK54D-26BX and RCK60D-26BX]**

1. Remove the outer pulley mounting nut (2), and remove the outer pulley (6).
2. Remove the outer pulley holder mounting nut (10), and remove the outer pulley holder (16).
3. Remove the oil seal (13) and tap out the blade shaft (20) with the ball bearing (18) and (14), taking care not to damage the grease fitting (1).
4. Remove the ball bearing (14), and collar (15) from the blade shaft (20).
5. Remove the ball bearing (18), and oil seal (19).

**(When reassembling)**

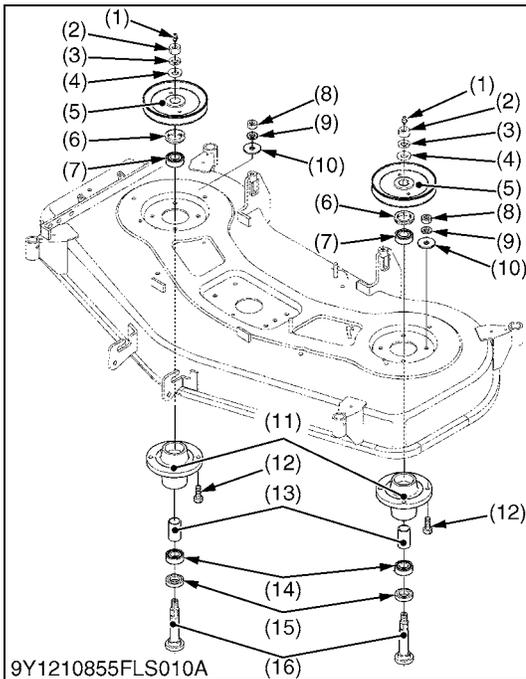
- Replace the oil seals (13) and (19) with new ones.

Tightening torque	Outer pulley mounting nut	197 to 225 N·m 20.0 to 23.0 kgf·m 145 to 166 lbf·ft
	Pulley boss mounting nut	24 to 27 N·m 2.4 to 2.8 kgf·m 18 to 20 lbf·ft
	Outer pulley holder mounting bolt and nut (RCK48-18BX)	48.0 to 55.9 N·m 4.9 to 5.7 kgf·m 35.4 to 41.2 lbf·ft
	Outer pulley holder mounting bolt and nut (RCK54-23BX, RCK60B-23BX, RCK54D-26BX and RCK60D-26BX)	78 to 90 N·m 7.9 to 9.2 kgf·m 58 to 66 lbf·ft



- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>(1) Grease Fitting</li> <li>(2) Outer Pulley Mounting Nut</li> <li>(3) Spring Washer</li> <li>(4) Plain Washer</li> <li>(5) Outer Pulley Boss</li> <li>(6) Outer Pulley</li> <li>(7) Nut</li> <li>(8) Spring Washer</li> <li>(9) Pulley Boss Mounting Bolt</li> <li>(10) Nut</li> <li>(11) Spring Washer</li> <li>(12) Pulley Holder Plate (RCK48-18BX)</li> </ul> | <ul style="list-style-type: none"> <li>(13) Oil Seal</li> <li>(14) Ball Bearing</li> <li>(15) Collar</li> <li>(16) Outer Pulley Holder</li> <li>(17) Outer Pulley Holder Mounting Bolt</li> <li>(18) Ball Bearing</li> <li>(19) Oil Seal</li> <li>(20) Blade Shaft</li> </ul> |
|---|---|
- [A] RCK48-18BX**  
**[B] RCK54-23BX, RCK60B-23BX, RCK54D-26BX and RCK60D-26BX**

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**Outer Pulley and Blade Shaft [RCK48P-18BX and RCK54P-23BX]**

1. Remove the outer pulley mounting nut (2), and remove the outer pulley (5).
2. Remove the outer pulley holder mounting nut (8), and remove the outer pulley holder (11).
3. Remove the oil seal (6) and tap out the blade shaft (16) with the ball bearings (14) and (7), taking care not to damage the grease fitting (1).
4. Remove the ball bearing (7) and collar (13) from the blade shaft (16).
5. Remove the ball bearing (14) and oil seal (15).

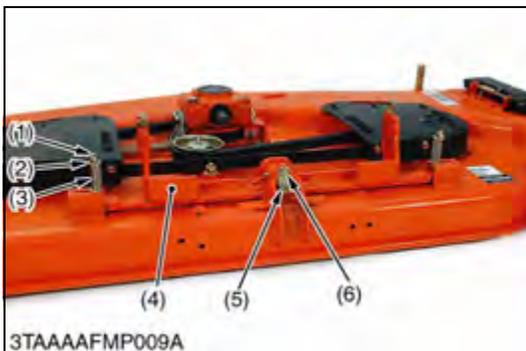
**(When reassembling)**

- Replace the oil seals (6) and (15) with new ones.

Tightening torque	Outer pulley mounting nut	167 to 186 N·m 17.0 to 19.0 kgf·m 123 to 137 lbf·ft
	Outer pulley holder mounting bolt and nut	48.0 to 55.9 N·m 4.9 to 5.7 kgf·m 35.4 to 41.2 lbf·ft

- |                               |  |
|-------------------------------|--|
| (1) Grease Fitting            | (9) Spring Washer                      |
| (2) Outer Pulley Mounting Nut | (10) Plain Washer                      |
| (3) Spring Washer             | (11) Outer Pulley Holder               |
| (4) Plain Washer              | (12) Outer Pulley Holder Mounting Bolt |
| (5) Outer Pulley              | (13) Collar                            |
| (6) Oil Seal                  | (14) Ball Bearing                      |
| (7) Ball Bearing              | (15) Oil Seal                          |
| (8) Nut                       | (16) Blade Shaft                       |

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**Balancer**

1. Remove the lock nut (1) both side.
2. Remove the plain washer (2) and balancer spring (3).
3. Remove the center pin bolt (6).
4. Remove the center pin (5) and balancer plate (4).

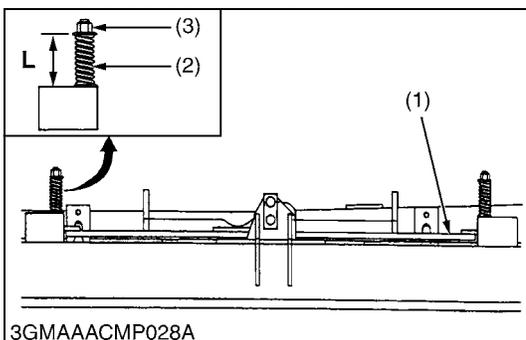
**(When reassembling)**

- Apply grease to the center pin (5).
- Adjust the balancer spring (3) length to the factory specification, with lock nut (1).

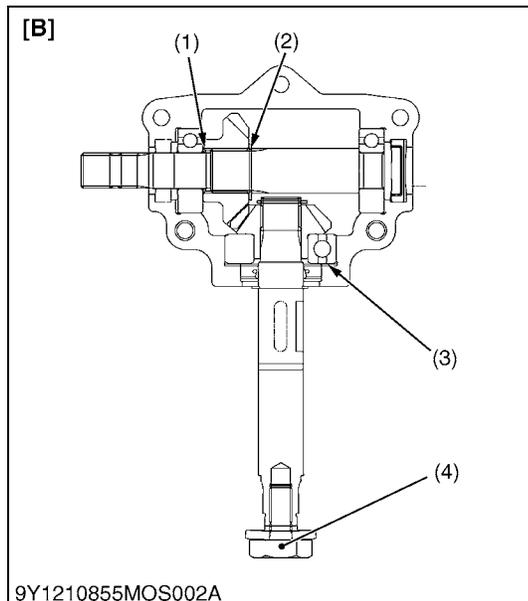
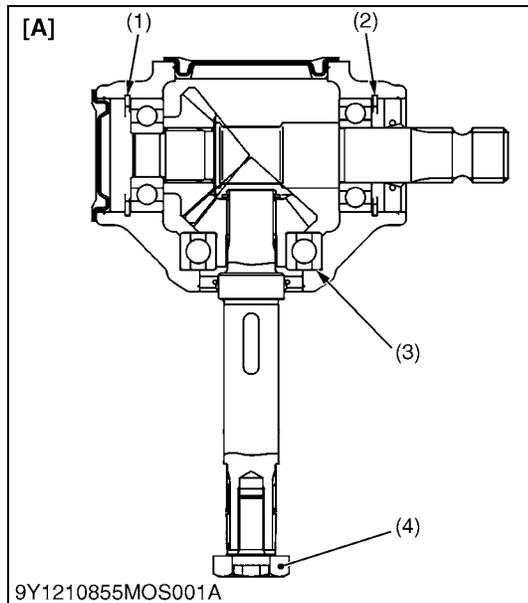
Balancer spring length "L" (Right and left)	Factory specification	55.0 mm 2.17 in.
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- |                     |                     |
|---------------------|---------------------|
| (1) Lock Nut        | (4) Balancer Plate  |
| (2) Plain Washer    | (5) Center Pin      |
| (3) Balancer Spring | (6) Center Pin Bolt |

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## [2] SERVICING



### Turning Torque of Pinion Shaft

1. Set the blade screw (4) for the blade shaft to measure the turning torque.
2. Turn the blade screw (4) clockwise with torque wrench and measure the turning torque

Turning torque	Factory specification	Less than 0.7 N·m 0.07 kgf·m 0.52 lbf·ft
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### (Reference)

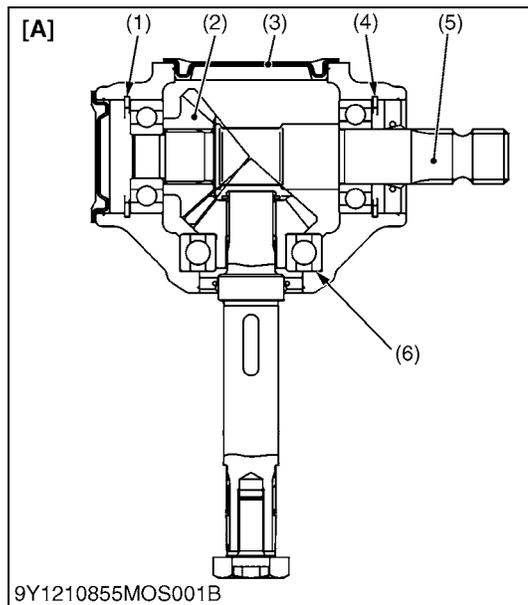
- Thickness of adjusting shims (1), (2):  
0.2 mm (0.0079 in.)  
0.3 mm (0.0118 in.)
- Thickness of adjusting shims (3):  
0.2 mm (0.0079 in.)  
0.3 mm (0.0118 in.)

- (1) Adjusting Shim
- (2) Adjusting Shim
- (3) Adjusting Shim
- (4) Blade Screw

**[A] RCK48-18BX, RCK54-23BX,  
RCK60B-23BX, RCK54D-26BX  
and RCK60D-26BX**

**[B] RCK48P-18BX and RCK54P-23BX**

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**Backlash between Bevel Gears**

1. Remove the gear box cap (3).
2. Place the plastigauges or wire of solder the bevel gear (2) on the input shaft (5).
3. Turn the input shaft (5).
4. Remove the plastigauges or wire of solder, and measure the thickness with the gage or an outside micrometer.
5. If the backlash exceeds the allowable limit, adjust with shims (1), (4), (6).

**[RCK48-18BX, RCK54-23BX, RCK60B-23BX, RCK54D-26BX and RCK60D-26BX]**

Backlash between bevel gears	Factory specification	0.10 to 0.20 mm 0.0040 to 0.0078 in
	Allowable limit	0.40 mm 0.016 in.

**(Reference)**

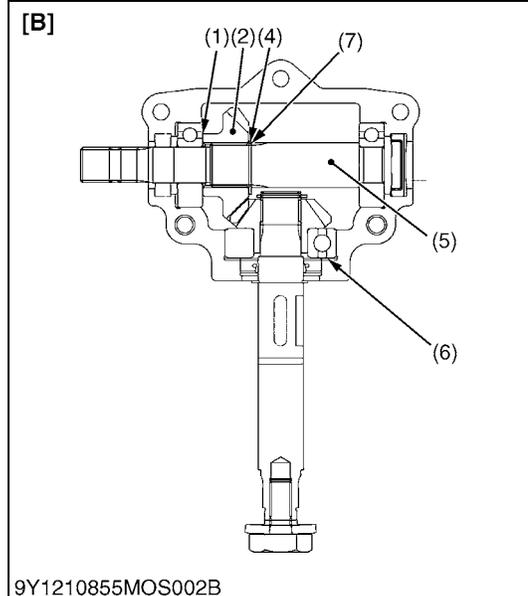
- Thickness of adjusting shims (1), (4):  
0.2 mm (0.0079 in.)  
0.3 mm (0.0118 in.)
- Thickness of adjusting shims (6):  
0.1 mm (0.0039 in.)  
0.2 mm (0.0079 in.)

**[RCK48P-18BX and RCK54P-23BX]**

Backlash between bevel gears	Factory specification	0.13 to 0.25 mm 0.0051 to 0.0098 in.
	Allowable limit	0.40 mm 0.016 in.

**(Reference)**

- Thickness of adjusting shims (1), (4):  
0.2 mm (0.0079 in.)  
0.3 mm (0.0118 in.)
- Thickness of adjusting shims (6):  
0.2 mm (0.0079 in.)  
0.3 mm (0.0118 in.)



- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>(1) Shim</li> <li>(2) 21T Bevel Gear (RCK48-18BX and RCK48P-18BX)</li> <li>19T Bevel Gear (RCK54-23BX and RCK54P-23BX)</li> <li>18T Bevel Gear (RCK60B-23BX)</li> <li>(3) Gear Box Cap</li> </ul> | <ul style="list-style-type: none"> <li>(4) Shim</li> <li>(5) Input Shaft</li> <li>(6) Shim</li> <li>(7) External Circlip</li> </ul> |
|--|---|

**[A] RCK48-18BX, RCK54-23BX, RCK60B-23BX, RCK54D-26BX and RCK60D-26BX**

**[B] RCK48P-18BX and RCK54P-23BX**

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