WSM

WORKSHOP MANUAL
ROTARY MOWER

RCK54-24B-EC,RCK60-24B-EC, RCK60-27B-ECRC60-24BR, RC60-27BR

Kubota

KiSC issued 11, 2006 A

TO THE READER

This Workshop Manual has been prepared to provide servicing personnel with information on the mechanism, service and maintenance of KUBOTA rotary mower RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC, RC60-24BR and RC60-27BR. It is divided into two parts, “Mechanism” and “Servicing”

■ **Mechanism**

Information on the Features and New Mechanisms are described. This information should be understood before proceeding with troubleshooting, disassembling and servicing.

■ **Servicing**

Under the heading “General” section comes general precautions, check and maintenance and special tools. Other section, there are troubleshooting, servicing specification lists, checking and adjusting, disassembling and assembling, and servicing which cover procedures, precautions, factory specifications and allowable limits.

All information, illustrations and specifications contained in this manual are based on the latest production information available at the time of publication.

The right is reserved to make changes in all information at any time without notice.

Due to covering many models of this manual, illustration being used have not been specificated as one model.

February 2001

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 repair or use this unit.

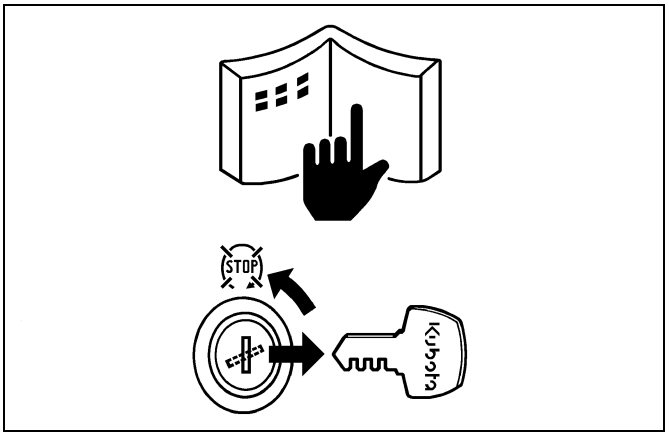
DANGER : Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

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, may result in minor or moderate injury.

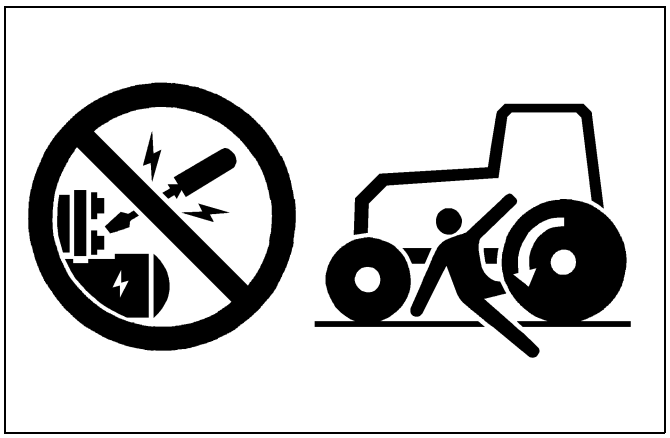
■ IMPORTANT : Indicates that equipment or property damage could result if instructions are not followed.

■ NOTE : Gives helpful information.



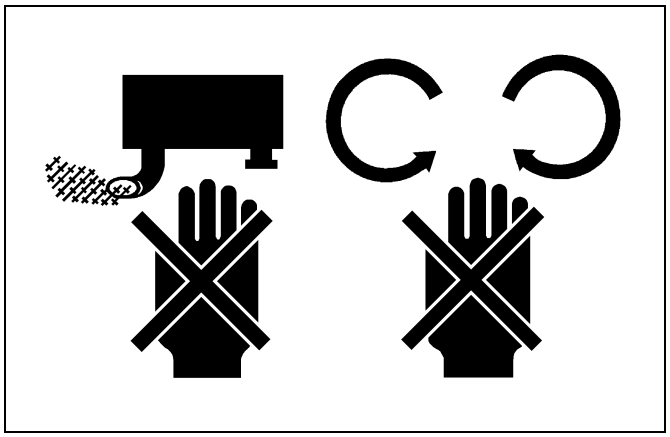
BEFORE SERVICING AND REPAIRING

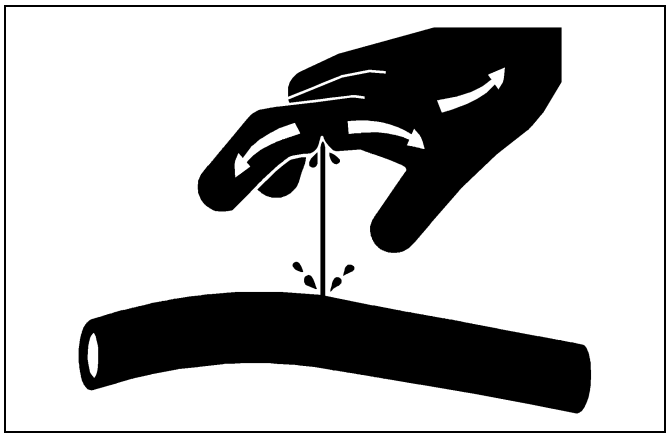
- Read all instructions and safety instructions in this manual and on your machine safety decals.
- Clean the work area and machine.
- Park the machine on a firm and level ground, and set the parking brake.
- Lower the implement to the ground.
- Stop the engine, and remove the key.
- Disconnect the battery negative cable.
- Hang a "**DO NOT OPERATE**" tag in operator station.



SAFETY STARTING

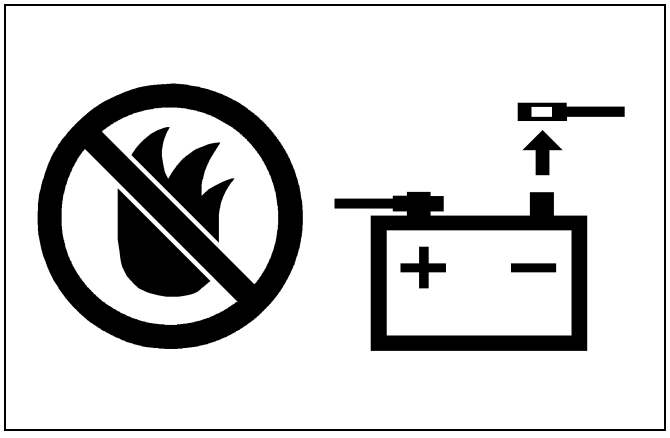
- Do not start the engine by shorting across starter terminals or bypassing the safety start switch.
- Do not alter or remove any part of machine safety system.
- Before starting the engine, make sure that all shift levers are in neutral positions or in disengaged positions.
- Never start the engine while standing on ground. Start the engine only from operator's seat.





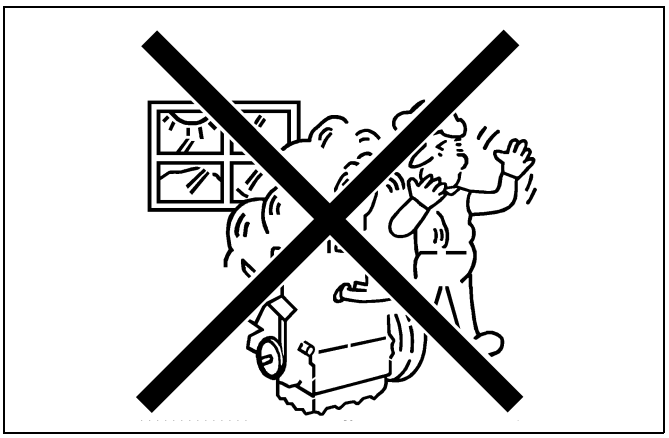
SAFETY WORKING

- Do not work on the machine while under the influence of alcohol, medication, or other substances or while fatigued.
- Wear close fitting clothing and safety equipment appropriate to the job.
- Use tools appropriate to the work. Markshift tools, parts, and procedures are not recommended.
- When servicing is performed together by two or more persons, take care to perform all work safely.
- Do not work under the machine that is supported solely by a jack. Always support the machine by safety stands.
- Do not touch the rotating or hot parts while the engine is running.
- Never remove the radiator cap while the engine is running, or immediately after stopping. Otherwise, hot water will spout out from radiator. Only remove radiator cap when cool enough to touch with bare hands. Slowly loosen the cap to first stop to relieve pressure before removing completely.
- Escaping fluid (fuel or hydraulic oil) under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or fuel lines. Tighten all connections before applying pressure.



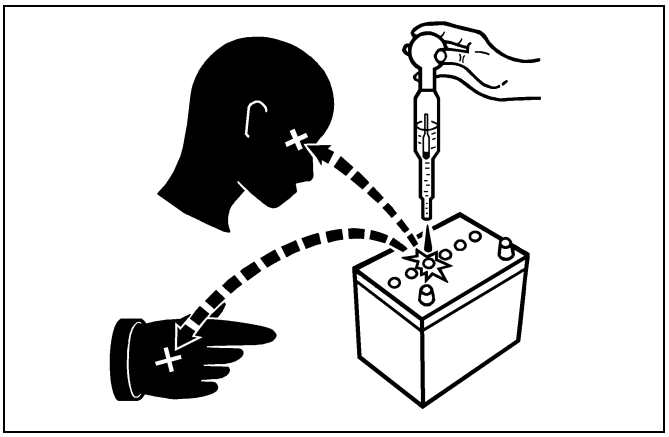
AVOID FIRES

- Fuel is extremely flammable and explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.
- To avoid sparks from an accidental short circuit, always disconnect the battery negative cable first and connect it last.
- Battery gas can explode. Keep sparks and open flame away from the top of battery, especially when charging the battery.
- Mark sure that no fuel has been spilled on the engine.



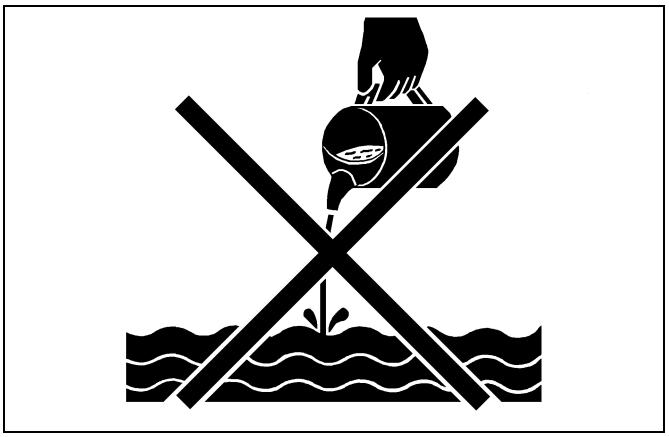
VENTILATE WORK AREA

- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in a closed area. The exhaust gas contains poisonous carbon monoxide.



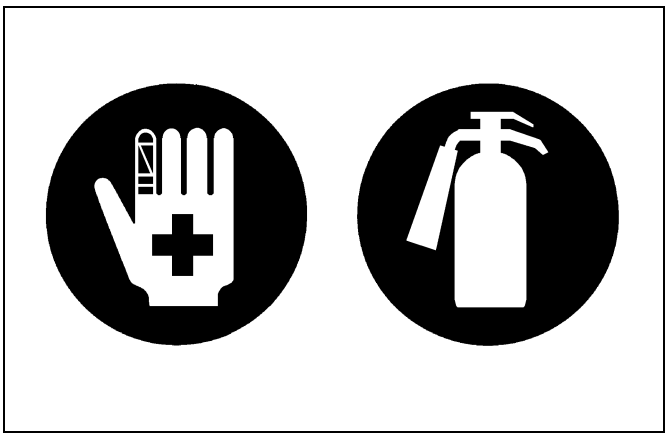
PREVENT ACID BURNS

- Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, clothing and cause blindness if splashed into eyes. Keep electrolyte away from eyes, hands and clothing. If you spill electrolyte on yourself, flush with water, and get medical attention immediately.



DISPOSE OF FLUIDS PROPERLY

- Do not pour fluids into the ground, down a drain, or into a stream, pond, or lake. Observe relevant environmental protection regulations when disposing of oil, fuel, coolant, electrolyte and other harmful waste.



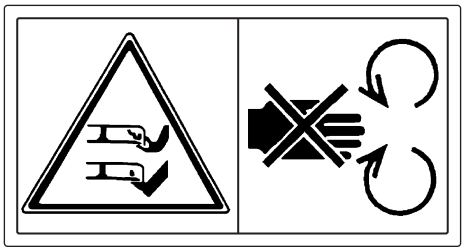
PREPARE FOR EMERGENCIES

- Keep a first aid kit and fire extinguisher handy at all times.
- Keep emergency numbers for doctors, ambulance service, hospital and fire department near your telephone.

SAFETY DECALS

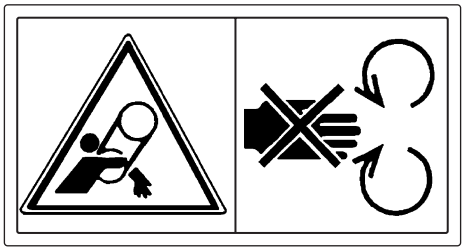
The following safety decals are installed on the mower.
If a decal becomes damaged, illegible or is not on the mower, replace it. The decal part number is listed in the parts list.

(1) Part No.
Nº de l'élément : K5761-4179-1
Code Nr.



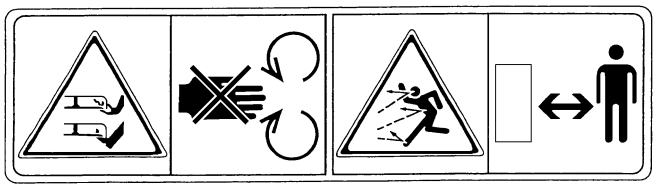
- Stay clear of mower while the engine is running.
- Se tenir éloigné de la tondeuse tant que le moteur est en train de tourner.
- Sich vom Mähwerk fernhalten, solange der Motor läuft.

(2) Part No.
Nº de l'élément : K5761-4180-1
Code Nr.



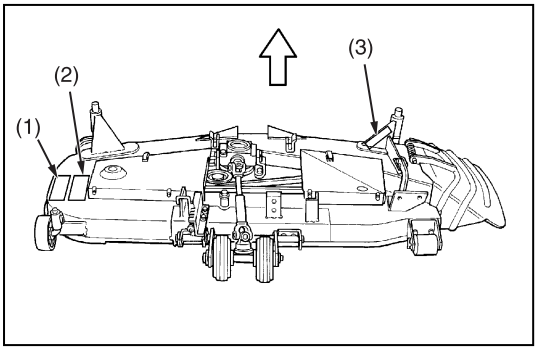
- Do not open or remove safety shields while the engine is running.
  Stay clear of rotating parts while the engine is running.
- Ne pas ouvrir ou retirer les boucliers de sécurité pendant que le moteur est en train de foncionner.
  Se tenir éloigné des pièces mobiles en train de tourner pendant que le moteur est en train de fonctionner.
- Die Sicherheitsabdeckungen dürfen nicht entfernt werden, während der Motor läuft.
  Sich von den rotierenden Bauteilen fernhalten, während der Motor läuft.

(3) Part No.
Nº de l'élément : K5761-4178-1
Code Nr.

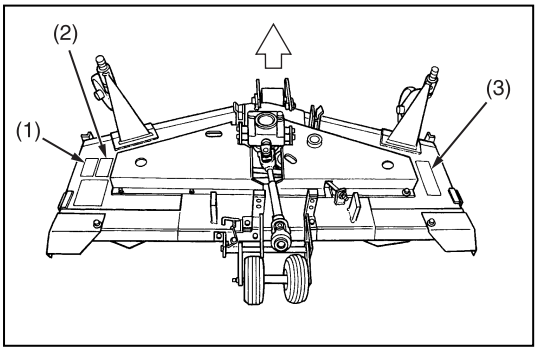


- Stay clear of mower while the engine is running.
  Keep a safe distance from the machine.
- Se tenir éloigné de la tondeuse tant que le moteur est en train de tourner.
  Se tenir à une distance de sécurité suffisante de la machine.
- Sich vom Mähwerk fernhalten, solange der Motor läuft.
  Einen sichern Abstand zur Maschine halten.

RCK54-24B-EC, RCK60-24B-EC
RCK60-27B-EC



RC60-24BR, RC60-27BR



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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 KUBOTA Distributor.**
4. **If a component with danger, warning or caution label(s) affixed is replaced with new part, make sure the 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.**

ENTRETIEN DES ETIQUETTES DE DANGER, D'AVERTISSEMENT ET D'ATTENTION

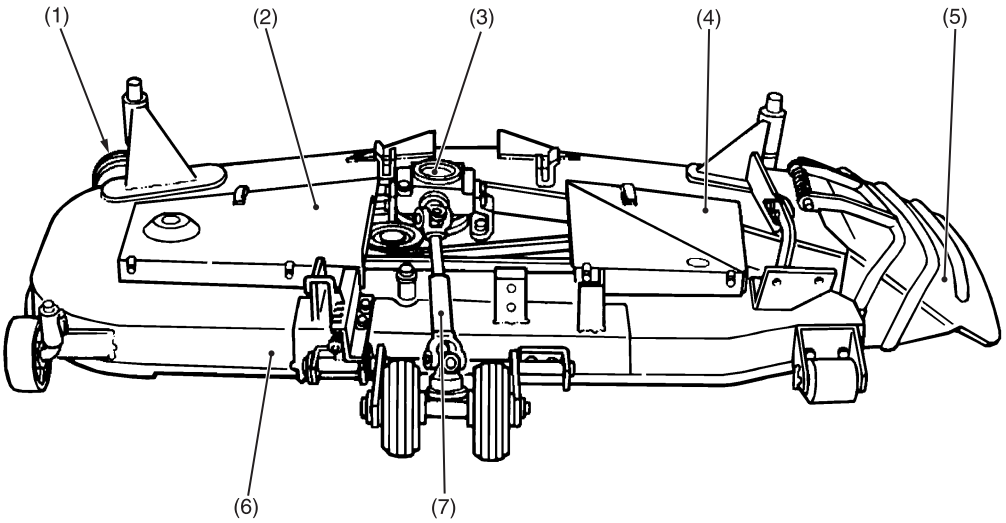
1. **Conserver les étiquettes de danger, d'avertissement et d'attention propres et exemptes d'un matériel d'obstruction.**
2. **Nettoyer les étiquettes de danger, d'avertissement et d'attention avec de l'eau et du savon, puis les essuyer avec un tissu doux.**
3. **Remplacer les étiquettes de danger, d'avertissement et d'attention endommagées ou manquantes par des étiquettes neuves de chez votre distributeur KUBOTA.**
4. **Si un élément mentionné par des étiquettes de danger, d'avertissement ou d'attention est remplacé par une pièce neuve, s'assurer que les étiquettes soient placées au(x) même(s) endroit(s) que l'élément remplacé.**
5. **Placer une étiquette neuve de danger, d'avertissemant ou d'attention en l'appliquant sur une surface sèche et propre et en appuyant dessus pour y éliminer vers le bord extérieur les bulles d'air qui peuvent s' y trouver.**

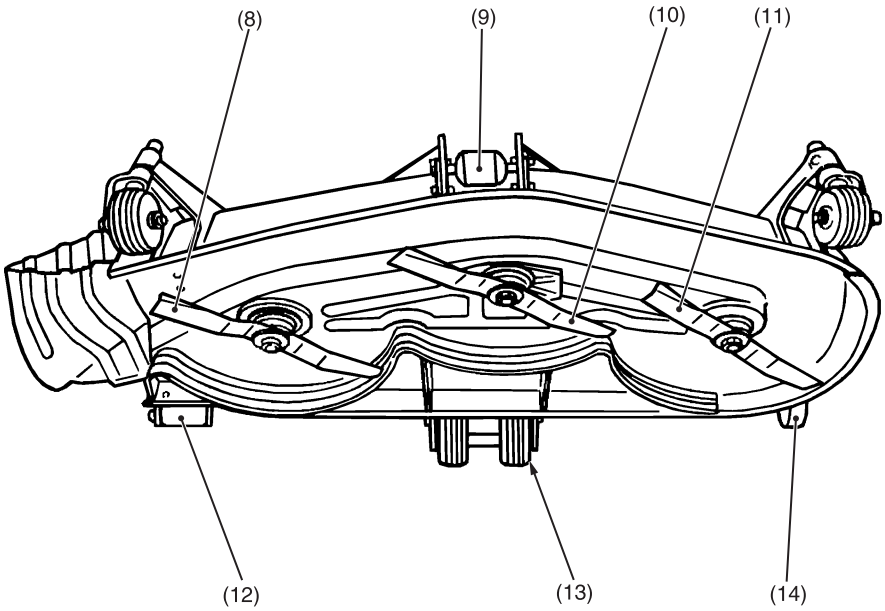
ACHTEN SIE AUF DIE ERHALTUNG DER WARN- UND HINWEIS-AUFKLEBER

1. **Die Warn- und Hinweis- Aufkleber sauber und lesbar halten.**
2. **Die Aufkleber mit Seife und Wasser waschen und sie mit einem weichen Tuch abtrocknen.**
3. **Beschädigte oder verlorengegangene Aufkleber durch neue Original-Schilder von lhrem KUBOTA Verteiler ersetzen.**
4. **Falls ein Bauteil mit Warn- und / oder Hinweis-Aufklebern durch ein Neuteil ersetzt wurde, darauf achten, daß das Neuteil die gleichen Aufkleber besitzt oder erhält.**
5. **Beim Erneuern von Aufklebern darauf achten, daß der Untergrund sauber, trocken und fettfrei ist. Etwaige Blasen nach außen drücken.**

TERMINOLOGY

[RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC]





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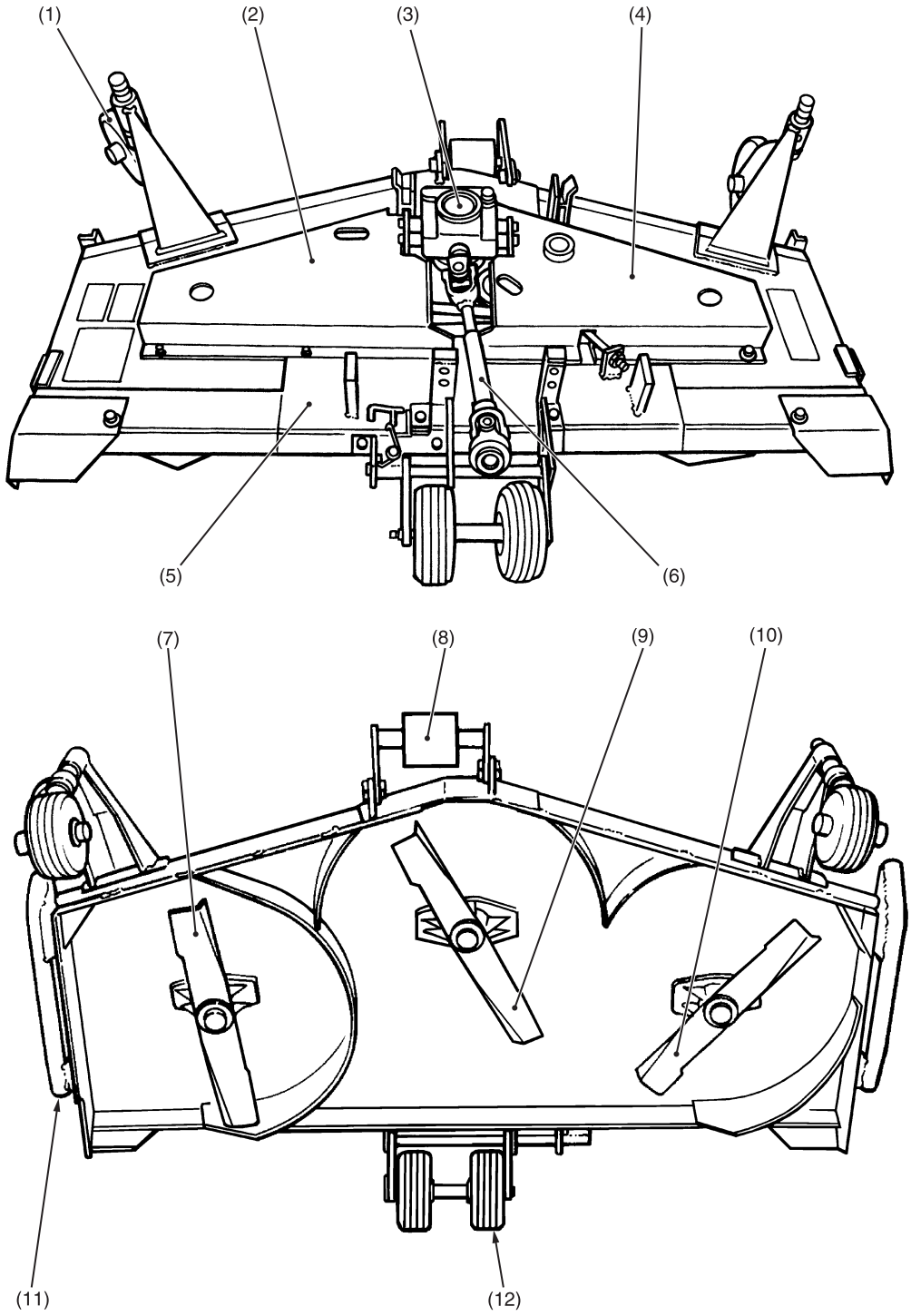
(1) Front Gauge Wheel
(2) Belt Cover (Left)
(3) Gear Box
(4) Belt Cover (Right)
(5) Discharge Chute
(6) Deck
(7) Universal Joint
(8) Outer Blade
(9) Front Anti-scalp Roller
(10) Center Blade
(11) Outer Blade
(12) Rear Anti-scalp Roller
(13) Rear Gauge Wheel
(14) Anti-scalp Wheel

[RC60-24BR, RC60-27BR]



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(1) Front Gauge Wheel
(2) Belt Cover (Left)
(3) Gear Box
(4) Belt Cover (Right)
(5) Deck
(6) Universal Joint
(7) Outer Blade
(8) Front Anti-scalp Roller
(9) Center Blade
(10) Outer Blade
(11) Skid
(12) Rear Gauge Wheel

SPECIFICATIONS

Model		RCK54-24B-EC	RCK60-24B-EC	RCK60-27B-EC
Suitable tractor		B1710, B2110, B2410		B2710
Type		Side discharge rotary mower		
Mounting method		Parallel linkage		
Adjustment of cutting height		Gauge wheel		
Cutting width		1372 mm (54 in.)	1524 mm (60 in.)	
Cutting height		38 to 102 mm (1.5 to 4.0 in.)		
Weight (Approx.)		156 kg (344 lbs)	158 kg (348 lbs)	
Blade spindle speed		50.0 r/s (3000 rpm)	44.7 r/s (2680 rpm)	
Blade tip velocity		74.6 m/s (14680 fpm)	73.4 m/s (14439 fpm)	
Blade length		475 mm (18.7 in.)	523 mm (20.6 in.)	
Number of blades		3		
Dimensions	Total length	1072 mm (42.2 in)	1100 mm (43.3 in.)	1060 mm (41.7 in.)
	Total width	1695 mm (66.7 in.)	1881 mm (74.0 in.)	
	Total height	345 mm (13.6 in.)		

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Model		RCK60-24BR	RC60-27BR
Suitable tractor		B1710, B2110, B2410	B2710
Type		Rear discharge rotary mower	
Mounting method		Parallel linkage	
Adjustment of cutting height		Gauge wheel	
Cutting width		1524 mm (60 in.)	
Cutting height		25 to 89 mm (1.0 to 3.5 in.)	
Weight (Approx.)		154 kg (336 lbs)	158 kg (348 lbs)
Blade spindle speed		49.5 r/s (2970 rpm)	
Blade tip velocity		81.3 m/s (15995 fpm)	
Blade length		520 mm (20.5 in.)	
Number of blades		3	
Dimensions	Total length	1122 mm (44.2 in)	1175 mm (46.3 in.)
	Total width	1613 mm (63.5 in.)	
	Total height	348 mm (13.7 in.)	

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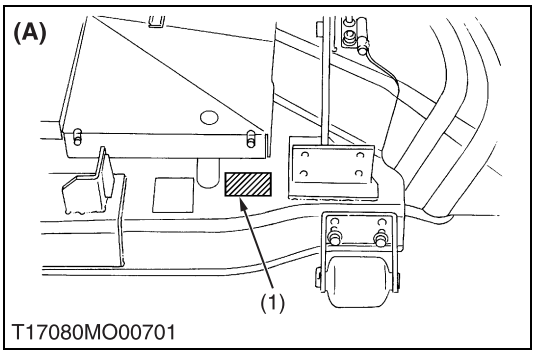
GENERAL

CONTENTS

1. MOWER IDENTIFICATION



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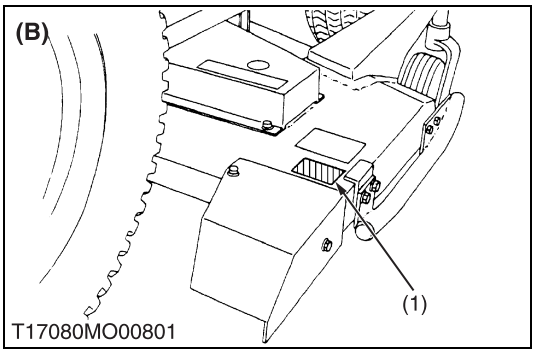

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When contacting your local KUBOTA distributor, always specify mower serial number.

(1) Mower Serial Number

(A) RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC
(B) RC60-24BR, RC60-27BR

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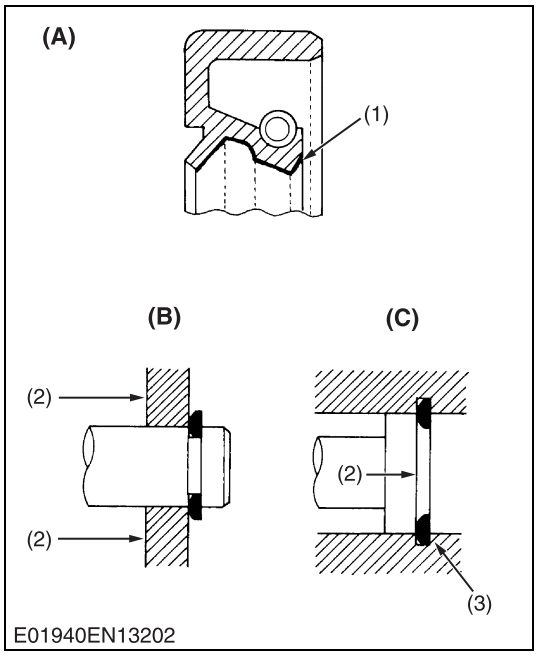
2. GENERAL PRECAUTION



- During disassembly, carefully arrange removed parts in a clean area to prevent confusion later. Screws, bolts and nuts should be installed in their original position to prevent reassembly errors.
- When special tools are required, use KUBOTA genuine special tools. Special tools which are not frequently used should be made according to the drawings provided.
- Use KUBOTA genuine parts or KUBOTA-recommended parts and lubricants or their equivalents.
- Gaskets and o-rings must be replaced during reassembly.
- Apply grease to new o-rings or oil seals before assembling. See the figure.
- When reassembling external snap rings or internal snap rings, they must be positioned so that sharp edge faces against the direction from which a force is applied. See the figure.
- Metric screws, bolts and nuts are not interchangeable with nonmetric fasteners.
- Remove oil and dirt from parts before measuring.

(1) Grease
(2) Force
(3) Sharp Edge
(A) Oil Seal
(B) External Snap Ring
(C) Internal Snap Ring

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3. LUBRICANTS

No.	Place	Capacity	Lubricants
1	Gear Box	0.36 L 0.38 U.S.qts. 0.32 lmp.qts.	SAE 90 gear oil (API Service GL-5 gear oil)
Greasing			
2	Universal joint	Until grease overflows	SAE multi-purpose type grease
3	Spindle shafts (Bevel gear shaft and blade shafts)		
4	Belt tension pulley		
5	Belt tension pivot		
6	Life arms		
7	Front gauge wheels		
8	Rear gauge wheels		
9	Front center anti-scalp roller		
10	Middle lift arm (B1710, B2110, B2410 with lift cylinder type)		
11	Lift cylinder joint pin (with lift cylinder type)		

4. TIGHTENING TORQUES (GENERAL USE SCREWS, BOLTS AND NUTS)

Screws, bolts and nuts whose tightening torques are not specified in this Workshop Manual should be tightened according to the table below.

Indication on top of bolt	⬡ 4 **No-grade or 4T**						⬡ 7 **7T**						⬡ 9 **9T**		
Material of bolt	SS400, S20C						S43C, S48C						SCr435, SCM435		
Material of opponent part	Ordinariness			Aluminum			Ordinariness			Aluminum			Ordinariness		
Unit / **Diameter**	N·m	kgf·m	ft-lbs	N·m	kgf·m	ft-lbs	N·m	kgf·m	ft-lbs	N·m	kgf·m	ft-lbs	N·m	kgf·m	ft-lbs
M6 (6 mm, 0.24 in.)	7.85 to 9.31	0.80 to 0.95	5.79 to 6.87	7.85 to 8.82	0.80 to 0.90	5.79 to 6.50	9.81 to 11.2	1.00 to 1.15	7.24 to 8.31	7.85 to 8.82	0.80 to 0.90	5.79 to 6.50	12.3 to 14.2	1.25 to 1.45	9.05 to 10.4
M8 (8 mm, 0.31 in.)	17.7 to 20.5	1.8 to 2.1	13.1 to 15.1	16.7 to 19.6	1.7 to 2.0	12.3 to 14.4	23.6 to 27.4	2.4 to 2.8	17.4 to 20.2	17.7 to 20.5	1.8 to 2.1	13.1 to 15.1	29.5 to 34.3	3.0 to 3.5	21.7 to 25.3
M10 (10 mm, 0.39 in.)	39.3 to 45.1	4.0 to 4.6	29.0 to 33.2	31.4 to 34.3	3.2 to 3.5	23.2 to 25.3	48.1 to 55.8	4.9 to 5.7	35.5 to 41.2	39.3 to 44.1	4.0 to 4.5	29.0 to 32.5	60.9 to 70.6	6.2 to 7.2	44.9 to 52.0
M12 (12 mm, 0.47 in.)	62.8 to 72.5	6.4 to 7.4	46.3 to 53.5	–	–	–	77.5 to 90.2	7.9 to 9.2	57.2 to 66.5	62.8 to 72.5	6.4 to 7.4	46.3 to 53.5	103 to 117	10.5 to 12.0	76.0 to 86.7
M14 (14 mm, 0.55 in.)	108 to 125	11.0 to 12.8	79.6 to 92.5	–	–	–	124 to 147	12.6 to 15.0	91.2 to 108	–	–	–	167 to 196	17.0 to 20.0	123 to 144
M16 (16 mm, 0.63 in.)	167 to 191	17.0 to 19.5	123 to 141	–	–	–	197 to 225	20.0 to 23.0	145 to 166	–	–	–	260 to 304	26.5 to 31.0	192 to 224
M18 (18 mm, 0.71 in.)	246 to 284	25.0 to 29.0	181 to 209	–	–	–	275 to 318	28.0 to 32.5	203 to 235	–	–	–	344 to 402	35.0 to 41.0	254 to 296
M20 (20 mm, 0.79 in.)	334 to 392	34.0 to 40.0	246 to 289	–	–	–	368 to 431	37.5 to 44.0	272 to 318	–	–	–	491 to 568	50.0 to 58.0	362 to 419

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Grade / **Unit**	**SAE GR.5** ⬡			**SAE GR.8** ⬡		
Nominal Diameter	**N·m**	**kgf·m**	**ft-lbs**	**N·m**	**kgf·m**	**ft-lbs**
5/16	23.1 to 27.8	2.35 to 2.84	17.0 to 20.5	32.5 to 39.3	3.31 to 4.01	24.0 to 29.0
3/8	47.5 to 57.0	4.84 to 5.82	35.0 to 42.0	61.0 to 73.2	6.22 to 7.47	45.0 to 54.0
1/2	108.5 to 130.2	11.07 to 13.29	80.0 to 96.0	149.2 to 179.0	15.22 to 18.27	110.0 to 132.0
9/16	149.2 to 179.0	15.22 to 18.27	110.0 to 132.0	217.0 to 260.4	22.14 to 26.57	160.0 to 192.0
5/8	203.4 to 244.1	20.75 to 24.91	150.0 to 180.0	298.3 to 358.0	30.44 to 36.53	220.0 to 264.0

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5. MAINTENANCE CHECK LIST

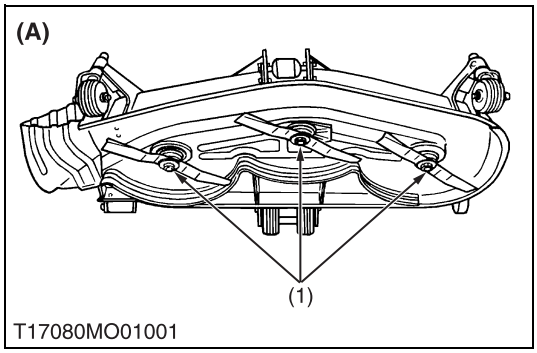
To keep the mower working in good condition as well as to avoid any accident and trouble, carry out periodic inspection and maintenance. Check the following points before use.

Service interval	Check points	Reference Page
Daily (Each use)	• Anything unusual in previous day's operation	–
	• Make sure mower blade screws are tighten	G-6
	• Check mower blades for wear or damage	S-4
	• Check gear box oil level	G-7
	• Check oil leaks	–
	• Check all hardware	–
	• Make sure all pins are in place	–
	• Clean mower deck	–
	• Apply grease to universal joint	G-8
	• Apply grease to spindle shafts (Bevel gear shaft and blade shafts)	G-8
	• Apply grease to belt tension pulley	G-8
	• Apply grease to belt tension pivot	G-8
	• Apply grease to front center anti-scalp roller	G-10
	• Apply grease to lift arms	G-8, 10
Initial 50 hours	• Change gear box oil	G-9
Every 50 hours	• Apply grease to front and rear gauge wheels	G-10
	• Apply grease to middle lift arm	G-10
	• Apply grease to lift cylinder joint pin	G-10
	• Check mower belt	S-4
Every 150 hours	• Change gear box oil	G-9
Every 2 years (After purchase)	• Replace gear box oil seal	G-11

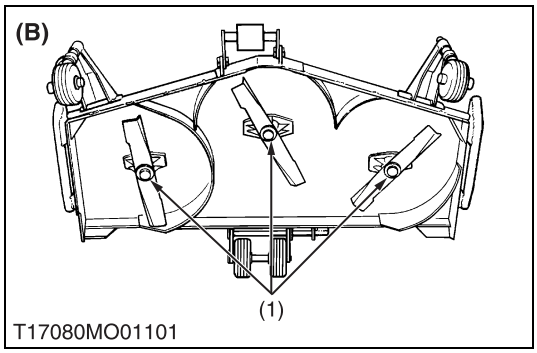
W1013580

6. CHECK AND MAINTENANCE

[1] CHECK POINTS OF DAILY OR EACH USE



T17080MO01001



T17080MO01101

Retightening Mower Blade Screw

CAUTION

- **To avoid injury, always handle the mower blade with care.**

1. Dismount the mower and turn it over to expose the mower blades.
2. Wedge a block of wood securely between the mower blade and mower deck.
3. Retighten the mower blade screw to the specified torque.
4. If the mower blade screw is worn or broken, replace it.

■ **NOTE**

- **The RC60-24BR and RC60-27BR mower blade screw has left-hand threads.**
  Turn it counterclockwise to tighten.

Tightening torque	Mower blade screw	98.1 to 117.1 N·m 10.0 to 12.0 kgf·m 72.3 to 86.8 ft-lbs

(1) Mower Blade Screw

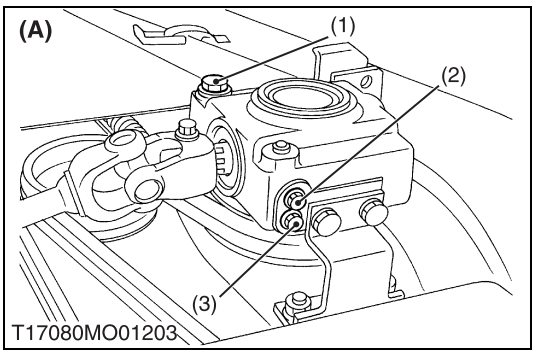
(A) RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC
(B) RC60-24BR, RC60-27BR

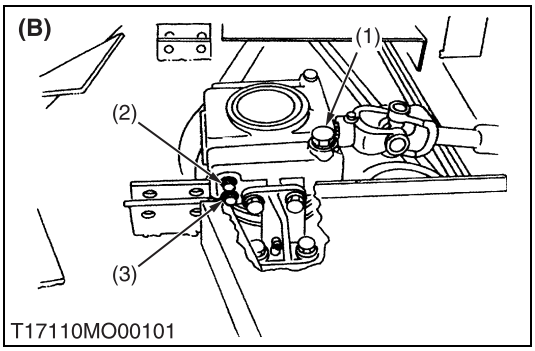
W1025290

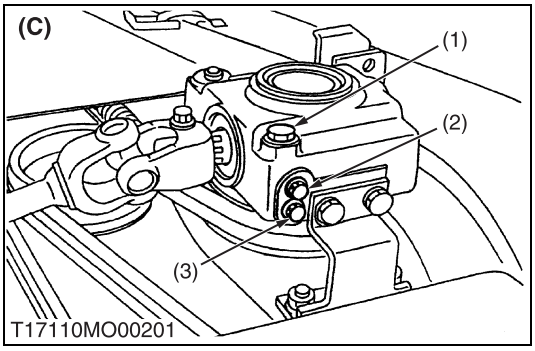
Checking Mower Blade

1. See page S-4.

W1025440







Checking Gear Box Oil Level

1. Place the mower on level ground.
2. Loosen the check plug (2), and check to see if oil seems from the opening.
3. If the oil level is low, remove the oil filler plug (1) and add new gear oil.

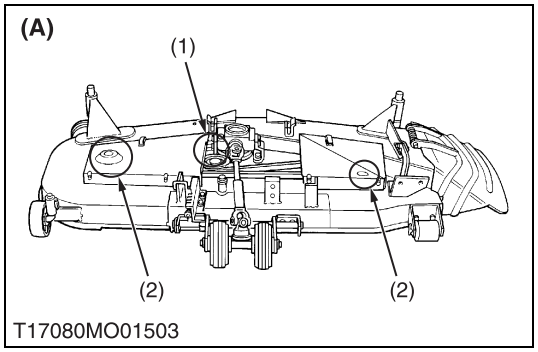
■ **IMPORTANT**

- **Use the specified gear oil.**
  Refer to "LUBRICANTS". (See page G-3.)

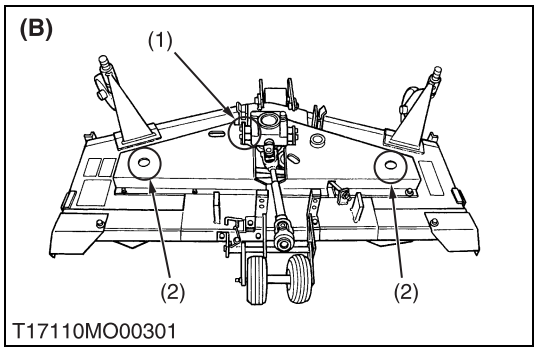
(1) Oil Filler Plug
(2) Check Plug
(3) Drain Plug

(A) RCK54-27B-EC, RCK60-24B-EC
(B) RCK60-27B-EC
(C) RC60-24BR, RC60-27BR

W1025491



T17080MO01503



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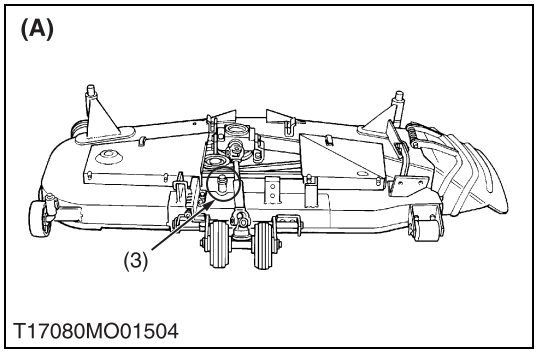

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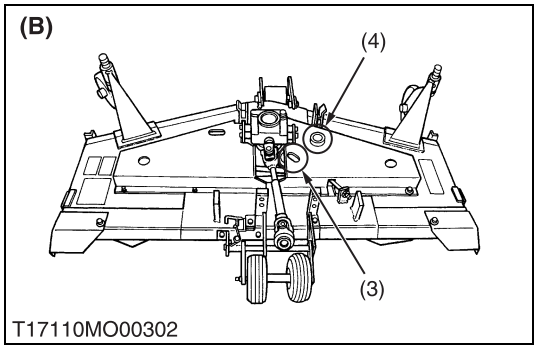

T17110MO00302

Greasing

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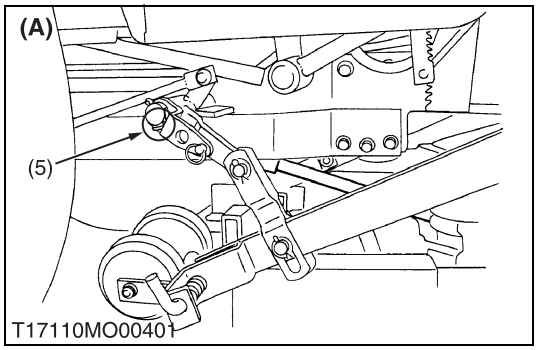

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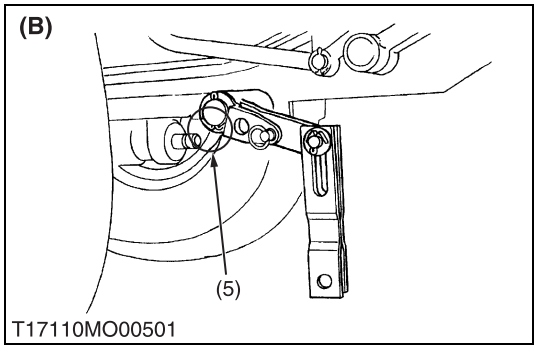

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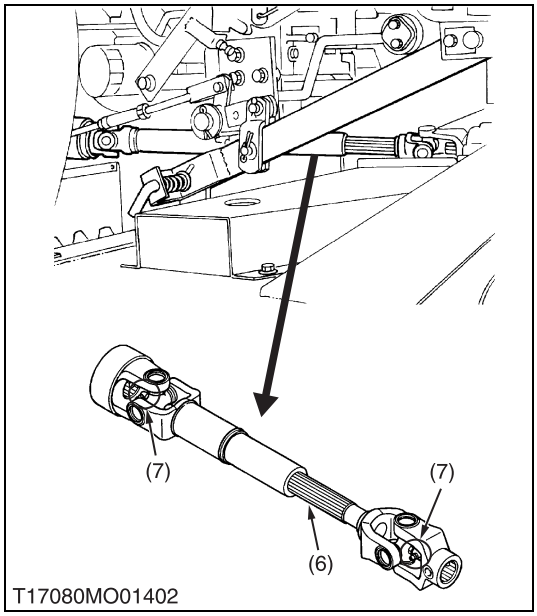
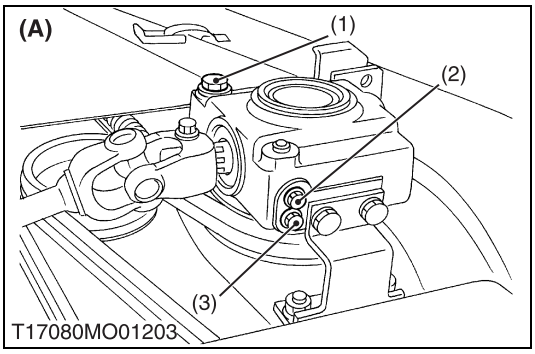


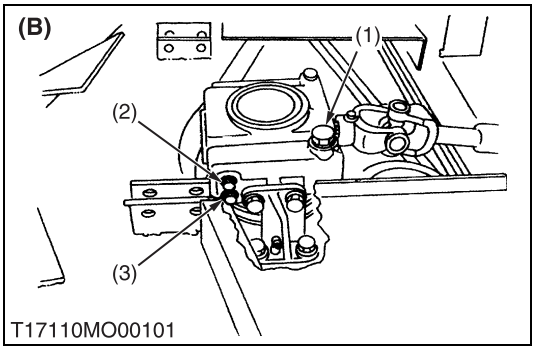
T17080MO01402

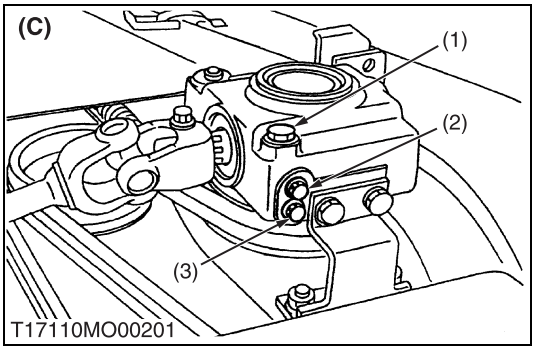
(1) Bevel Gear Shaft
(2) Blade Shaft
(3) Belt Tension Pulley
(4) Belt Tension Pivot
(5) Lift Arm
(6) Spline of Universal Joint
(7) Universal Joint

(A) RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC
(B) RC60-24BR, RC60-27BR

[2] CHECK POINT OF INITIAL 50 HOURS







Changing Gear Box Oil

1. Dismount the mower from the tractor, and place the mower on level ground.
2. Remove the oil filler plug (1).
3. Remove the drain plug (3), and drain the used oil completely.
4. After draining the used oil, reinstall the drain plug.
5. Fill with new oil up to the specified level.

■ **IMPORTANT**

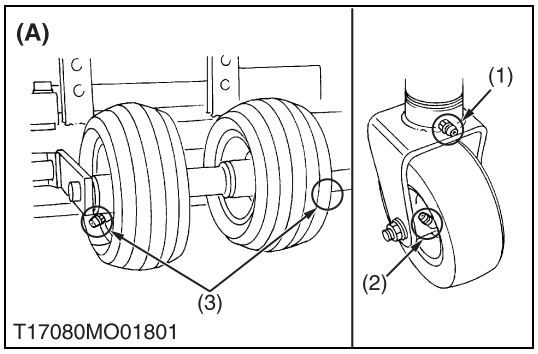
- **Use the specified gear oil.**
  Refer to "LUBRICANTS". (See page G-3.)

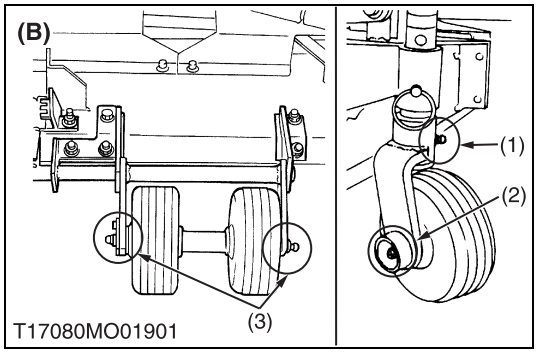
(1) Oil Filler Plug
(2) Check Plug
(3) Drain Plug

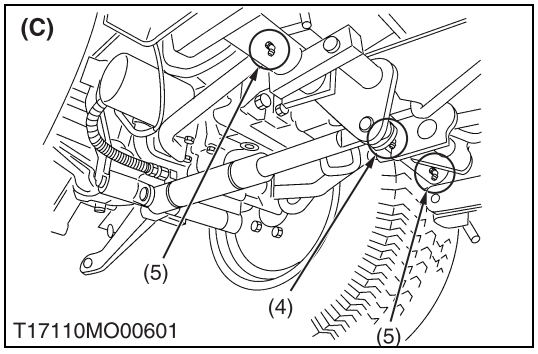
(A) RCK54-24B-EC, RCK60-24B-EC
(B) RCK60-27B-EC
(C) RC60-24BR, RC60-27BR

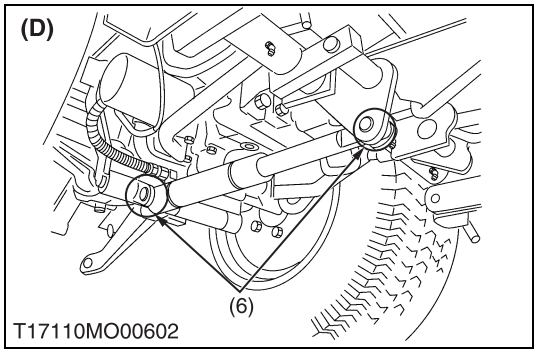
W1028353

[3] CHECK POINTS OF EVERY 50 HOURS



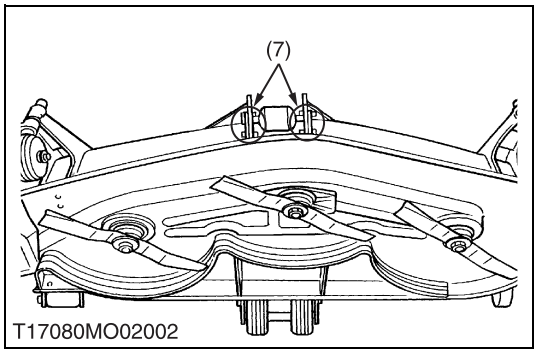






Greasing

1. Apply grease to the following position as figures.



(1) Front Gauge Wheel Bracket
(2) Front Wheel
(3) Rear Wheel
(4) Middle Lift Arm
(5) Lift Arm
(6) Lift Cylinder Joint Pin
(7) Front Center Anti-scalp Roller

(A) RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC
(B) RC60-24BR, RC60-27BR
(C) B1710, B2110, B2410 with Lift Cylinder Type
(D) Lift Cylinder Type

W1014935

Checking Mower Belt

1. See page S-4.

W1028893

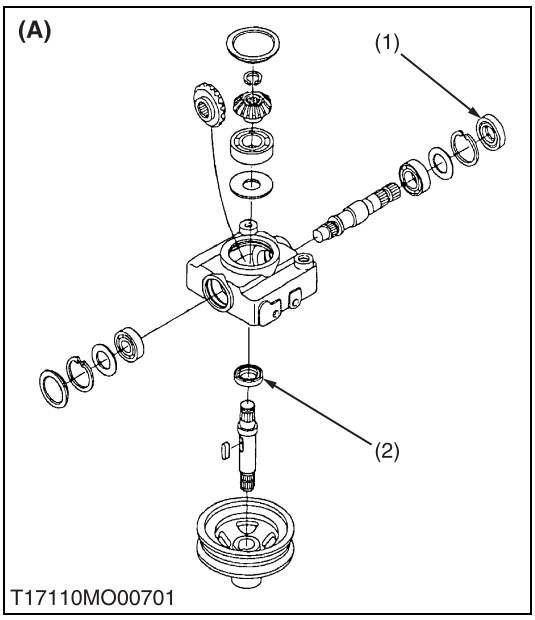
[4] CHECK POINT OF EVERY 150 HOURS

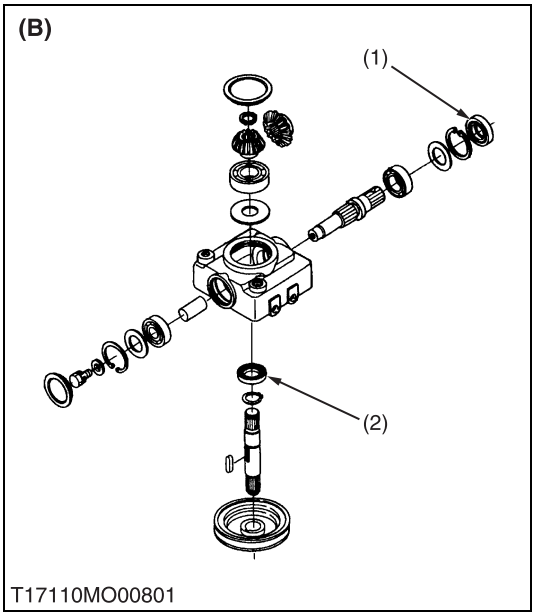
Changing Gear Box Oil

1. See page G-9.

W1029013

[5] CHECK POINT OF EVERY 2 YEARS





Replacing Gear Box Oil Seal

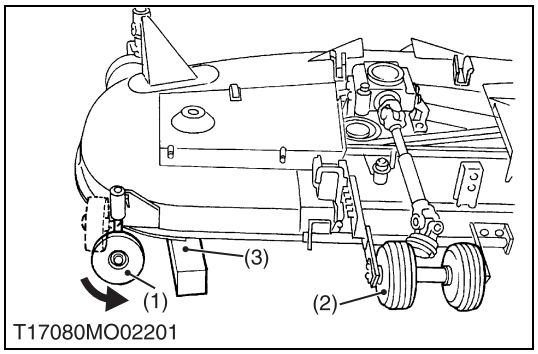
1. Replace the gear box oil seals (1), (2) with new ones. (See page S-8, 13.)

(1) Oil Seal
(2) Oil Seal

(A) RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC
(B) RC60-24BR, RC60-27BR

W1029072

7. SETTING UP MOWER



T17080MO02201

Assembling Mower

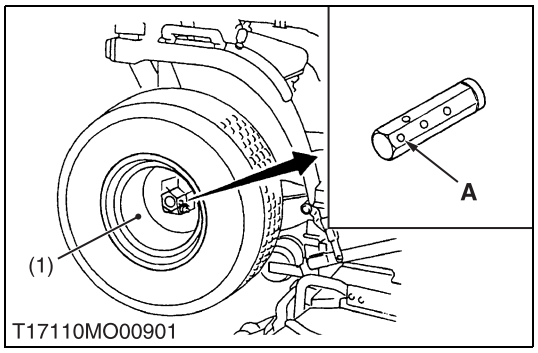
CAUTION

- **Do not operate the rear gauge wheel adjusting lever (4) without support by block (3).**

1. Take out all mower components from the case, and assemble the mower.
2. Support the mower deck with a block (3) as shown in the figure.
3. Turn the anti-scalp wheel (1) sideway position, and set the rear gauge wheel (2) on the lowest cutting height.
4. Remove the block.

(1) Anti-scalp Wheel
(2) Rear Gauge Wheel
(3) Block
(4) Rear Gauge Wheel Adjusting Lever

W1029213



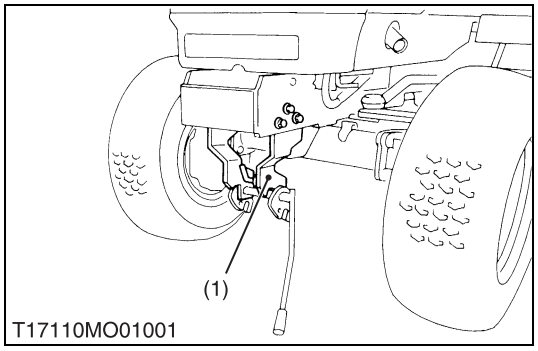
T17110MO00901

Rear Wheel (RCK54-24B-EC, RCK60-24B-EC, RC60-24BR)

1. Park the tractor on level ground, and set the both rear wheels (1) of the tractor at the outer position (**A**).

(1) Rear Wheel
A : Outer Position

W1015453



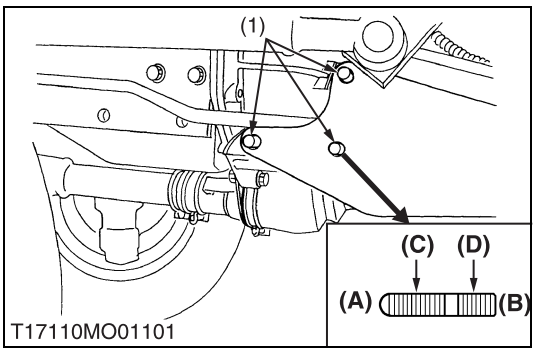
T17110MO01001

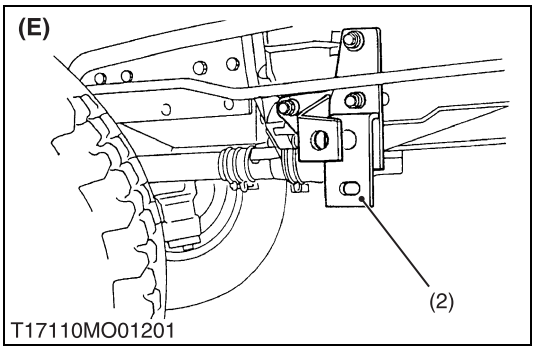
Front Hanger Bracket

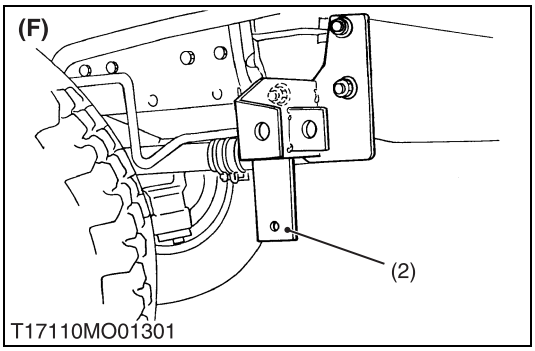
1. Attach the front hanger bracket (1) to the frame with M14 bolts.

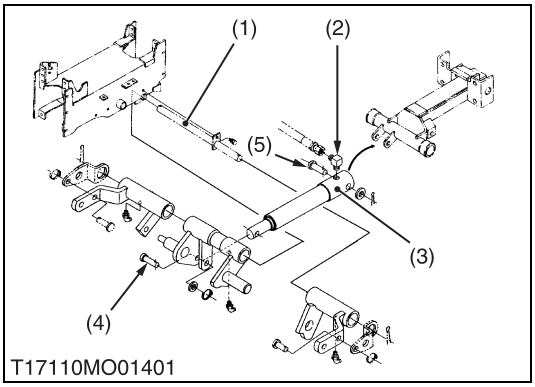
(1) Front Hanger Bracket

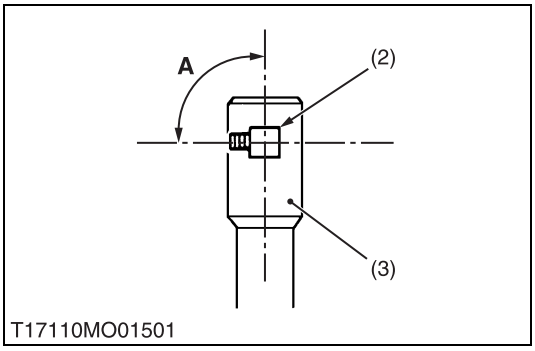
W1029353











Mid Hanger Bracket

1. Screw M12 stud bolts (1) in the clutch housing.
2. Attach the mid hanger brackets (2) to the clutch housing with spring washers and nuts.

Tightening torque	Stud bolt	31.4 N·m 3.2 kgf·m 23.1 ft-lbs
	Nut	68.6 N·m 7.0 kgf·m 50.6 ft-lbs

(1) Stud Bolt
(2) Mid Hanger Bracket

(A) Outside (Round End)
(B) Inside (Flat End)
(C) Thread Size : M12 x Pitch 1.25
(D) Thread Size : M12 x Pitch 1.75
(E) RCK54-24B-EC, RCK60-24B-EC, RC60-24BR
(F) RCK60-27B-EC, RC60-27BR

W1029421

Rear Hanger Bracket (Lift Cylinder Type)

■ B1710, B2110 and B2410

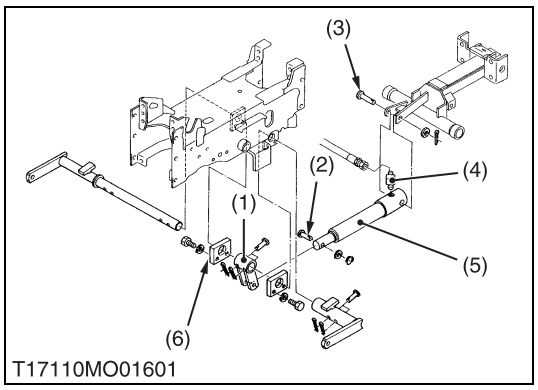
1. Assemble the lift cylinder kit as shown in figure.
2. Apply grease to the cylinder joint pin (4), (5) and lift shaft (1).
3. Apply seal tape to the cylinder adaptor (2) and set the direction as shown in figure.
   Tighten the cylinder adaptor with specified torque then rotate (clockwise) the adaptor to set the specified direction.
4. Set the cylinder rod flat face toward the RH side of machine.

Tightening torque	Cylinder adaptor	24.5 N·m 2.5 kgf·m 18.1 ft-lbs

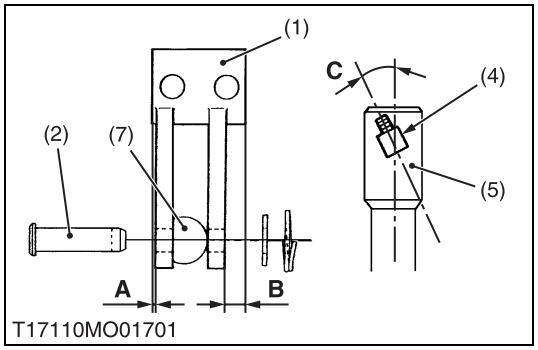
(1) Lift Shaft
(2) Cylinder Adaptor
(3) Cylinder
(4) Joint Pin
(5) Joint Pin

A : 1.57 rad. (90 °)

W1015981



T17110MO01601



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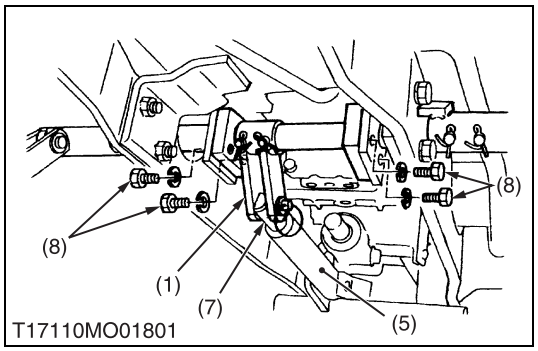


T17110MO01801

■ B2710

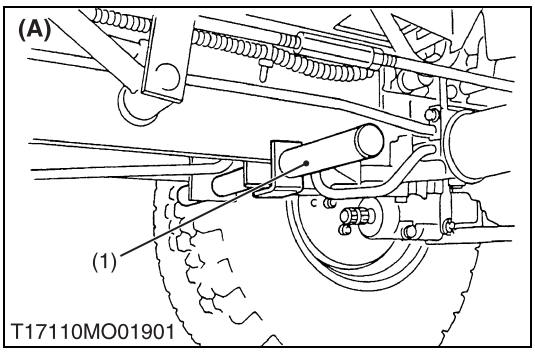
1. Assemble the lift cylinder kit as shown in figure.
2. Apply grease to the cylinder joint pin (2) and (3).
3. Apply seal tape to the cylinder adaptor (4) and set the direction as shown in figure.
   Tighten the cylinder adaptor with specified torque then rotate (clockwise) the adaptor to set the specified direction.
4. Assemble the middle lift arm (1) as shown in figure, smaller clearance toward the RH side of machine.
5. Set the cylinder rod flat face toward the RH side of machine.

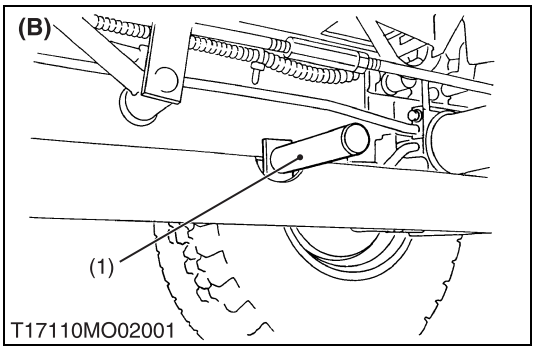
Tightening torque	Cylinder adaptor	24.5 N·m 2.5 kgf·m 18.1 ft-lbs
	Holder mounting reamer screw	48.1 to 55.8 N·m 4.9 to 5.7 kgf·m 35.5 to 41.2 ft-lbs

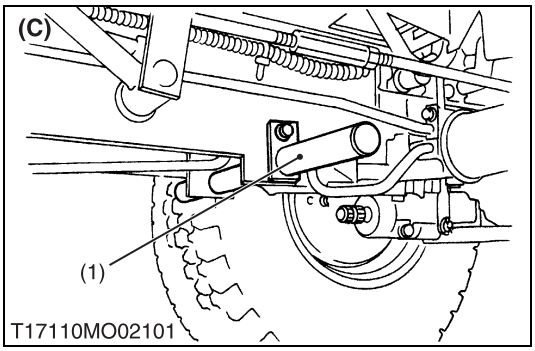
(1) Middle Lift Arm
(2) Joint Pin
(3) Joint Pin
(4) Cylinder Adaptor
(5) Cylinder
(6) Holder
(7) Cylinder Rod
(8) Holder Mounting Reamer Screw

A : Clearance 2.0 mm (0.078 in.)
B : Clearance 10.0 mm (0.394 in.)
C : 0.35 to 0.70 rad. (20 to 40 °)

W1016196







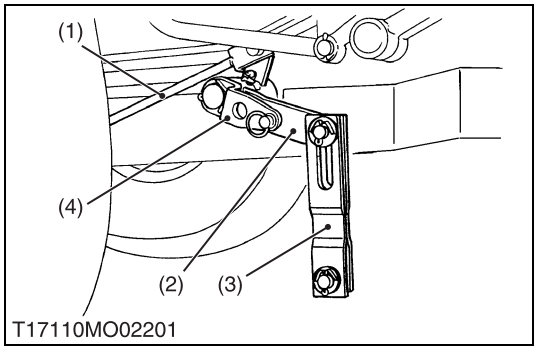
Rear Hanger Bracket (3-Point Hitch Lift Type)

1. Insert the rear hanger bracket (1) from left side of the frame holes, and set it with M8 bolt.

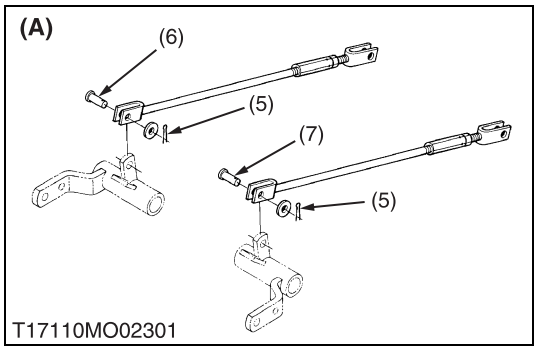
(1) Rear Hanger Bracket

(A) RCK54-24B-EC, RCK60-24B-EC
(B) RCK60-27B-EC
(C) RC60-24BR, RC60-27BR

W1016620



T17110MO02201



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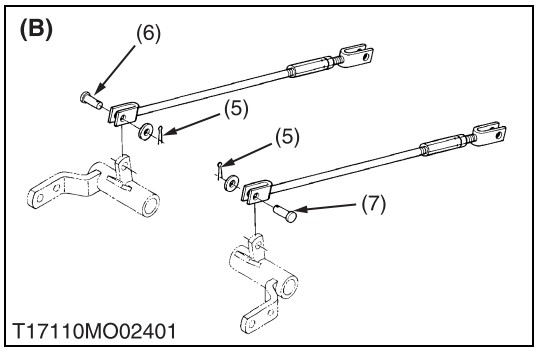
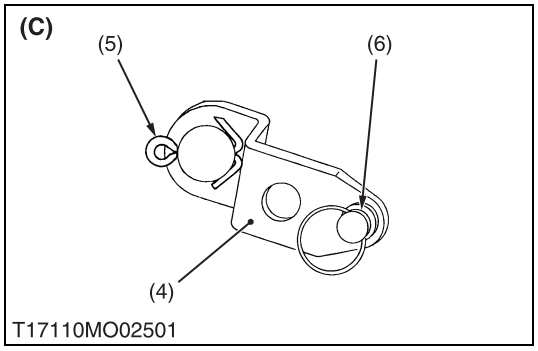


T17110MO02401



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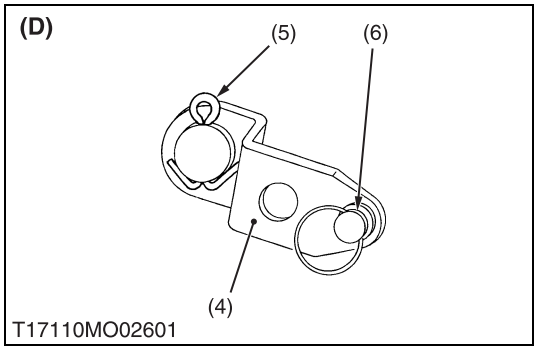


T17110MO02601

Lift Arm, Lift Link and Connecting Rod

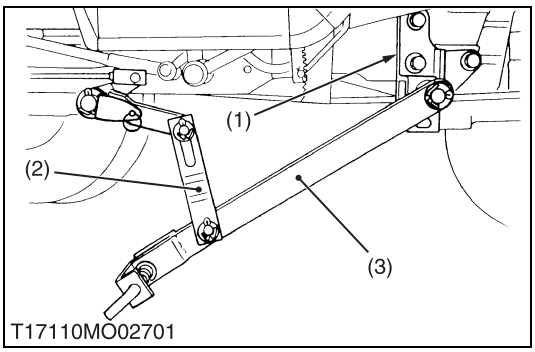
1. Install the lift arms (2), lift links (3) and connecting rods (1) to the rear hanger bracket with plain washers and cotter pins.

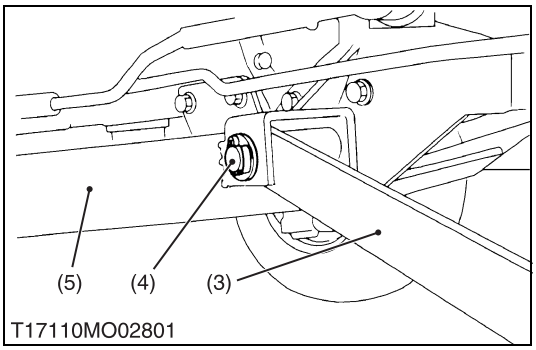
■ **NOTE**
- **The lift cylinder type does not use the connecting rod (1).**
- **Completely bend the cotter pin (5) to prevent contact with link stopper as shown in the figure.**
- **When assembling the connecting rod, insert the clevis pin (6), (7) care with the direction as shown in figure, and be sure to properly bend the cotter pin.**

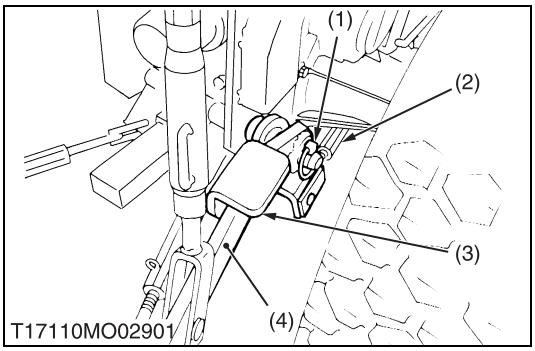
(1) Connecting Rod
(2) Lift Arm
(3) Lift Link
(4) Link Stopper
(5) Cotter Pin
(6) Clevis Pin
(7) Clevis Pin

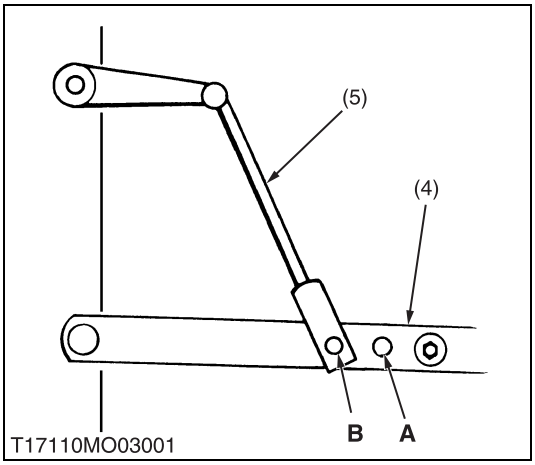
(A) RCK54-24B-EC, RCK60-24B-EC, RC60-24BR, RC60-27BR with 3-Point Hitch Lift Type
(B) RCK60-27B-EC with 3-Point Hitch Lift Type
(C) RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC
(D) RC60-24BR, RC60-27BR

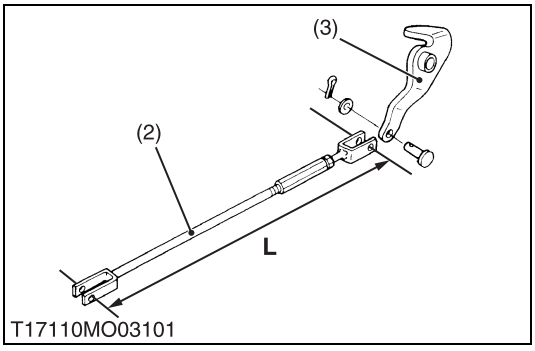
W1016829











Rear Link

(When mounting the mower only)

1. Install the rear links (3) to the mid hanger brackets (1) with plain washers and cotter pins.
2. Attach the lift links (2) to the rear links (3) with clevis pins, plain washers and cotter pins.

(When mounting the mower with front loader)

1. Install the rear links (3) to the front loader frame (5) with pins (4), plain washers and cotter pins.
2. Attach the lift links (2) to the rear links (3) with clevis pins, plain washers and cotter pins.

(1) Mid Hanger Bracket
(2) Lift Link
(3) Rear Link
(4) Pin (20 mm dia. × 135 mm length, 0.79 in. dia. × 5.31 in. length)
(5) Front Loader Frame

W1017268

Lift Bracket (3-Point Hitch Lift Type Only)

1. Remove the spacer and lower links from the shaft of lower link.
2. Attach both lift brackets (3) inside the lower links (4) with the lower link pins (1) as shown in the figure.
3. Connect the connecting rods (2) to the lift brackets (3) with clevis pins, plain washers and cotter pins.

■ **IMPORTANT**

- **Connect the lift rods (5) of the tractor as below, and adjust the length of both lift rods equally with the turnbuckle of the right lift rod.**

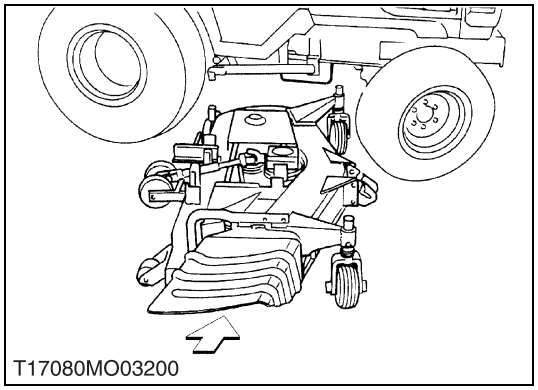
(Reference)

Tractor lift rod and lower link setting position	B2410 B2710	**A** Position
	B1710 B2110	**B** Position
Connecting rod length (**L**)	RCK54-24B-EC RCK60-24B-EC	620 mm 24.4 in.
	RCK60-27B-EC	665 mm 26.2 in.

(1) Lower Link Pin
(2) Connecting Rod
(3) Lift Bracket
(4) Lower Link
(5) Lift Rod

A : Lift rod and lower link setting position
B : Lift rod and lower link setting position

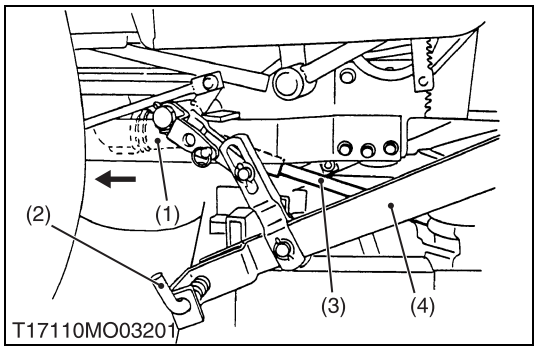
W1017587


T17080MO03200

Setting Mower

1. Turn the steering wheel fully left.
2. Install the mower from right side of the tractor.
3. Roll the mower under the tractor, and then return the steering wheel.

W1030314



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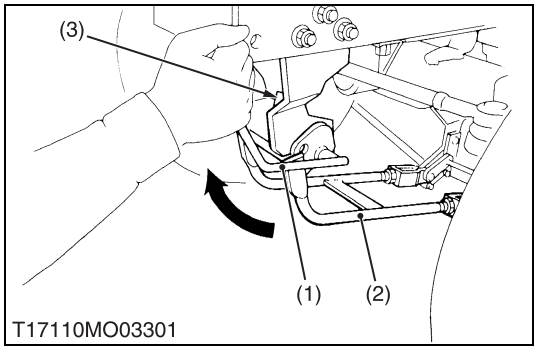
Mounting Universal Joint Rear Link

1. Pull back the coupler (1) of the universal joint.
2. Push the universal joint (3) onto the mid-PTO shaft, and release the coupler (1).
3. Slide the universal joint back and forward to make sure the universal joint is locked securely.
4. Lower the rear links.
5. Attach the rear links (4) to the mower deck, pulling the L-pins (2).

(1) Coupler
(2) L-Pin
(3) Universal Joint
(4) Rear Link

W1030772



T17110MO03301

Mounting Front Link

1. Push down the link fixing lever, pulling the L-pin.
2. Hook the front link (2) to the level fulcrum, and turn the link fixing lever (1).
3. Return the L-pin (3).

■ **NOTE**

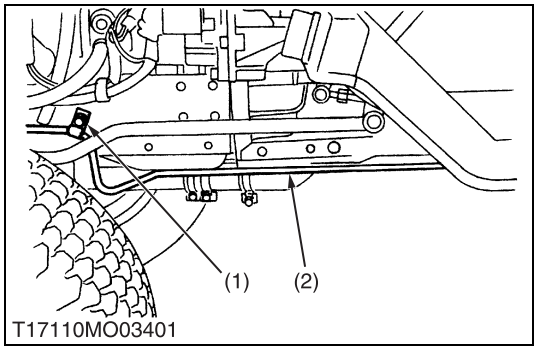
- **Make sure the link fixing lever (1) is fixed with L-pin (3) securely.**

■ **IMPORTANT**

- **After mounted the mower, be sure to check the mower deck and tractor body are not interference.**

(1) Link Fixing Lever
(2) Front Link
(3) L-pin

W1031053



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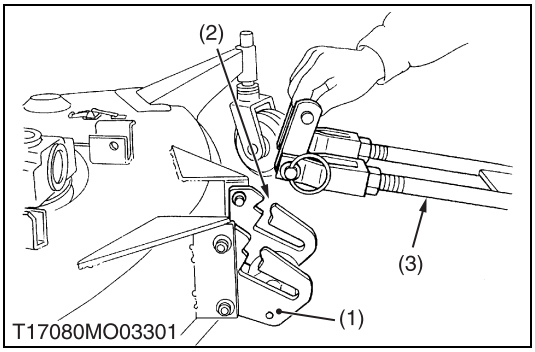
Hydraulic Pipe Fitting
(RCK54-24B-EC, RCK60-24B-EC, RC60-24BR)

1. Loosen the screw (1) and pull up the hydraulic pipe (2) on underside of machine, then retighten the screw (1) to keep the gear box of mower and the hydraulic pipe (2) out of contact.
2. Operate the hydraulic control lever rearward to rise the highest position.
3. Make sure that the gear box of mower and hydraulic pipe (2) do not contact.

(1) Screw
(2) Hydraulic Pipe

W1018237



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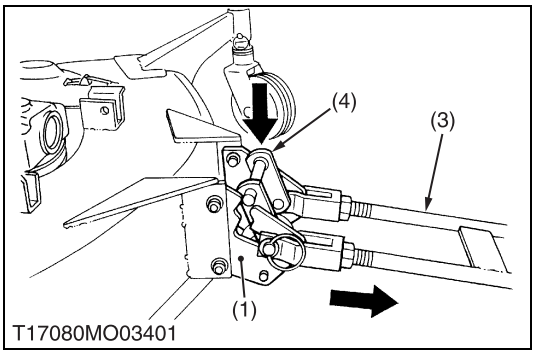

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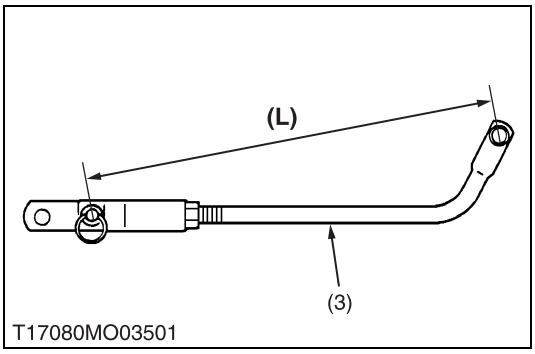

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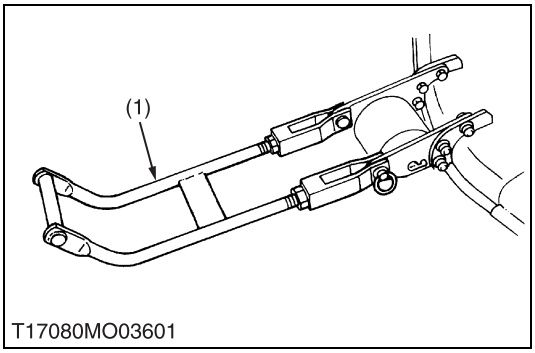

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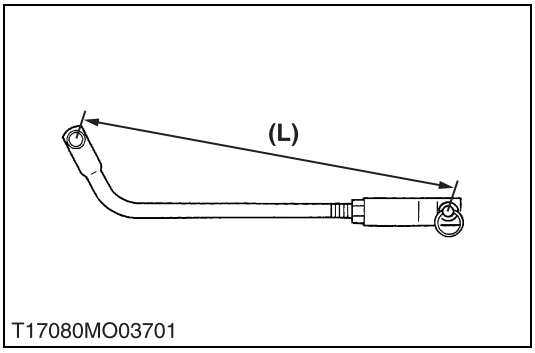

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Front Link

[Side Discharge]

1. Hook the front link (3) with the clevis pin section to front end of the groove (2), and then turn the stopper (4) as shown in the figure.

(Reference)

- Make sure the length (**L**) of the front link (3) as below.

Front link length **(L)**	RCK54-24B-EC	510.0 mm 20.08 in.
	RCK60-24B-EC	505.0 mm 19.88 in.
	RCK60-27B-EC	500.0 mm 19.69 in.

(1) Stay
(2) Groove
(3) Front Link
(4) Stopper

W1030496

[Rear Discharge]

1. Attach the front link (1) to the deck with clevis pins, plain washers and rings.

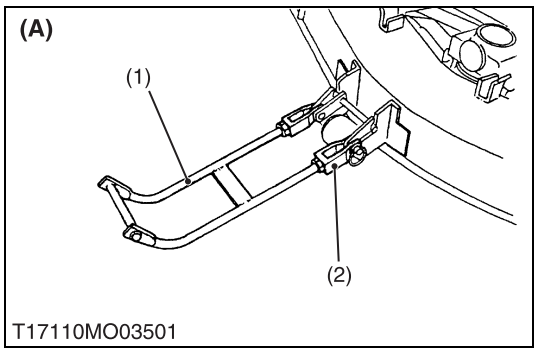
(Reference)

- Make sure the length (**L**) of the front link as below.

Front link length **(L)**	RC60-24BR	470.0 mm 18.5 in.
	RC60-27BR	530.0 mm 20.9 in.

(1) Front Link

W1030661



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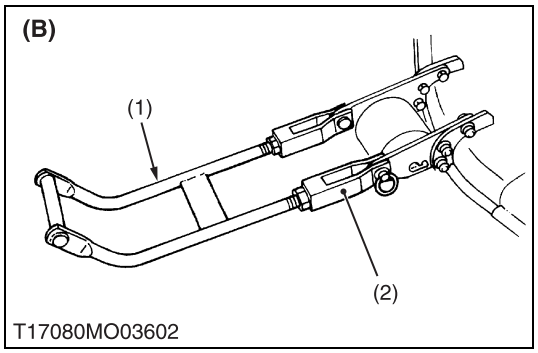

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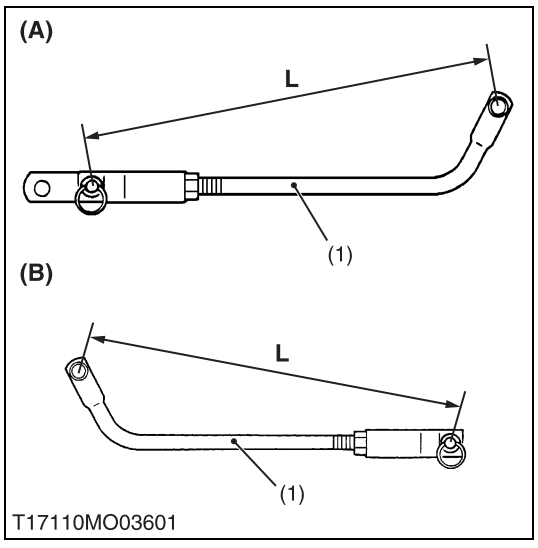


T17110MO03601

Adjusting Front Link (Lift Cylinder Type)

CAUTION

- **Before starting engine, make sure that all levers (including auxiliary hydraulic control lever) are in neutral position.**
- **Shut off the engine and allow the mower blades to stop before making adjustment.**

1. Park the tractor on a firm, flat and level surface.
2. Raise the mower and set the height of mower gauge wheels the same.
3. Lower the mower to the ground.
4. If the gauge wheels are not on the ground, remove the front link from the mower. And adjust the length (**L**) of the front link (1) until the gauge wheels come into contact with the ground.
5. Attach the front link to the mower.
6. Start the engine.
7. Operate the auxiliary hydraulic control lever rearward to rise the mower.
8. Stop the engine then check whether the mower is level. If the mower is not level, lower the mower to the ground and adjust the clevis (2).

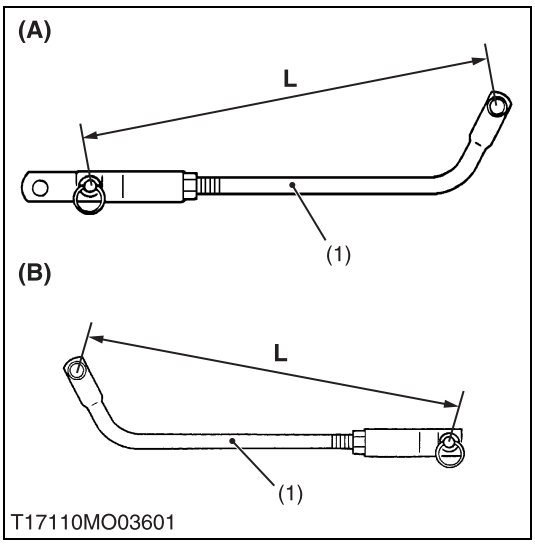
■ **IMPORTANT**

- **Tire pressure must be correct.**

(1) Front Link
(2) Clevis

(A) RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC
(B) RC60-24BR, RC60-27BR

W1018742



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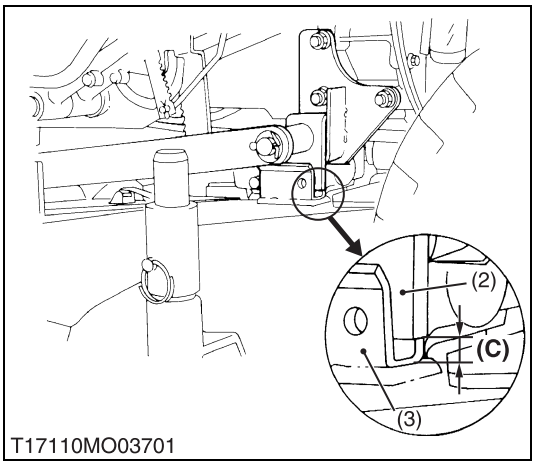

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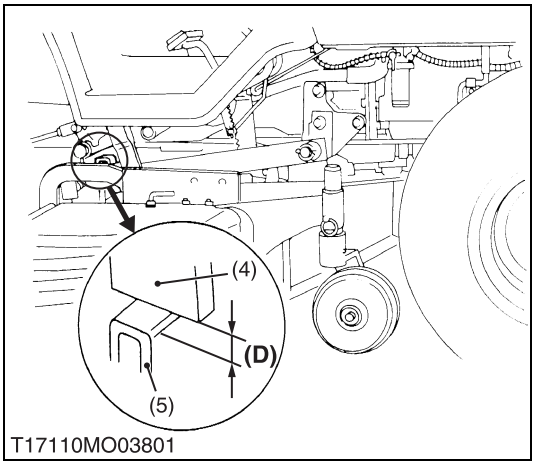

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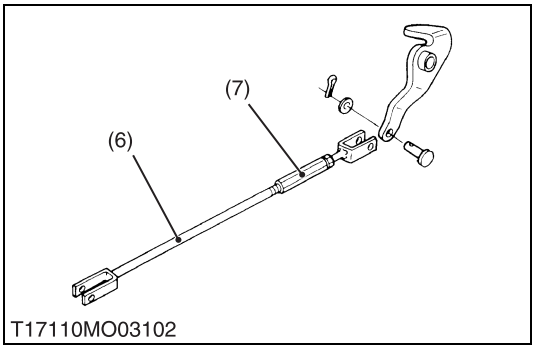


T17110MO03102

Adjusting Front Link and Connecting Rod (3-Point Hitch Lift Type)

CAUTION

- **Before starting the engine, change the mid-PTO and gear shift lever into neutral.**
- **Shut off the engine and allow the mower blades to stop before making adjustments.**

1. Park the tractor on a firm, flat and level surface.
2. Raise the mower and set the height of the mower gauge wheels the same.
3. Lower the mower to the ground.
4. If the gauge wheels are not on the ground, remove the front link from the mower. And adjust the length (**L**) of the front link (1) until the gauge wheels come into contract with the ground.
5. Attach the front link to the mower.
6. Start the engine.
7. Lift the mower to the maximum lifting position and shut off the engine.
8. Adjust the turnbuckles (7) of the left and right connecting rods (6) so that the clearances are within the factory specifications.

Clearance (**C**) between front stopper and mid hanger bracket	Factory spec.	RCK54-24B-EC RCK60-24B-EC RCK60-27B-EC	2.0 to 4.0 mm 0.08 to 0.15 in.	
		RC60-24BR RC60-27BR	2.0 to 5.0 mm 0.08 to 0.20 in.	
Clearance (**D**) between rear stopper and tractor frame	Factory spec.	RCK54-24B-EC RCK60-24B-EC	LH	0 mm, 0 in. Just contact
			RH	5.0 to 8.0 mm 0.20 to 0.31 in.
		RCK60-27B-EC RC60-24BR RC60-27BR	LH and RH	5.0 to 10.0 mm 0.20 to 0.39 in.

■ **IMPORTANT**

- **Proper adjustment for the connecting rod length is very important to avoid damage to the mower lifting system.**
- **Tire pressure must be correct.**

(1) Front Link
(2) Mid Hanger Bracket
(3) Front Stopper
(4) Tractor Frame
(5) Rear Stopper
(6) Connecting Rod
(7) Turnbuckle

(A) RCk54-24B-EC, RCK60-24B-EC, RCK60-27B-EC
(B) RC60-24BR, RC60-27BR

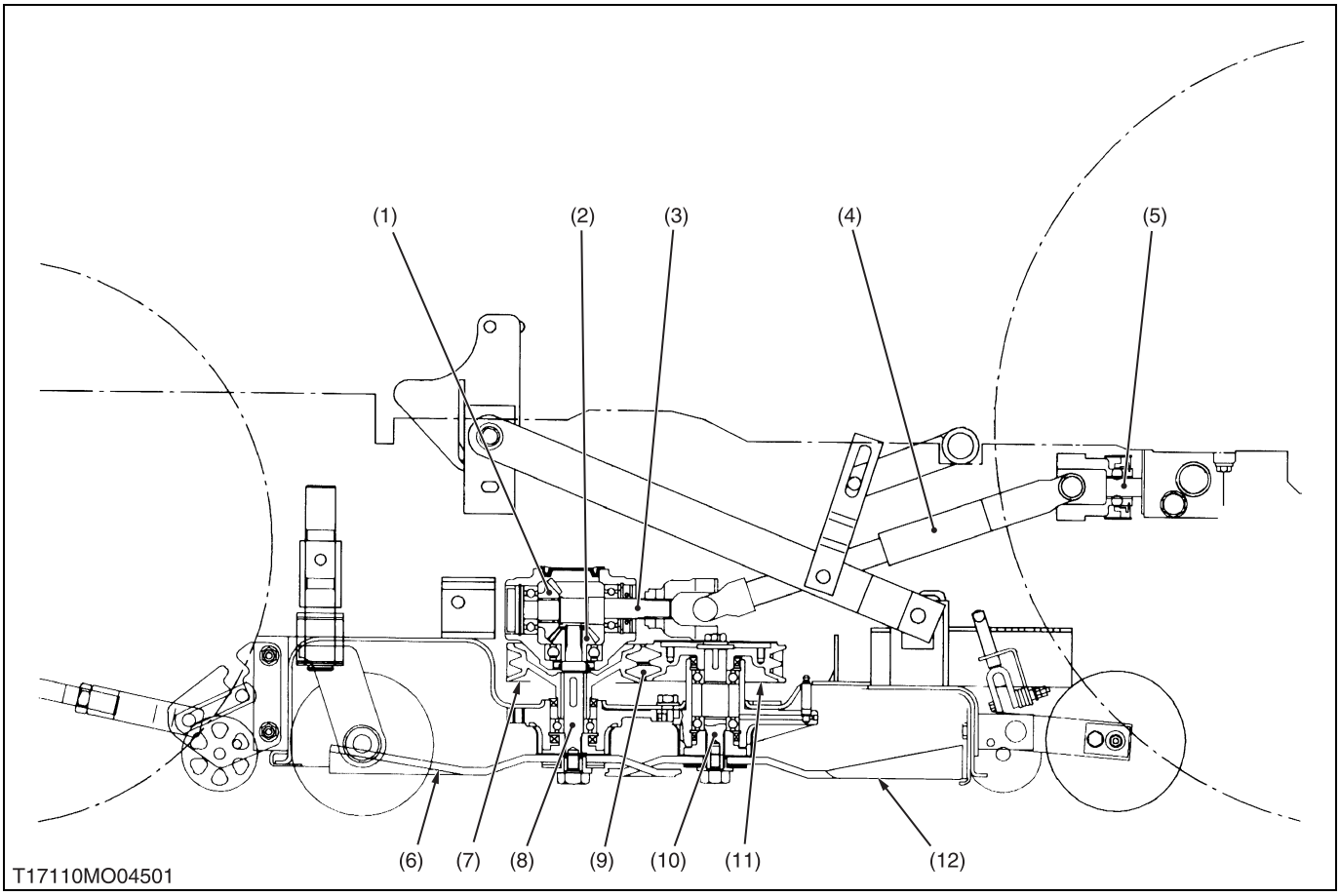
W1019204

MECHANISM

CONTENTS

1. POWER TRANSMISSION

[RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC]



(1) 19T Bevel Gear (RCK60-24B-EC, RCK60-27B-EC) 21T Bevel Gear (RCK54-24B-EC)
(2) 16T Bevel Gear
(3) Pinion Shaft
(4) Universal Joint
(5) Mid-PTO Shaft
(6) Center Blade
(7) Center Pulley
(8) Bevel Gear Shaft
(9) Mower Belt
(10) Blade Shaft
(11) Outer Pulley
(12) Outer Blade

The power is transmitted from mid-PTO to blades as follows:

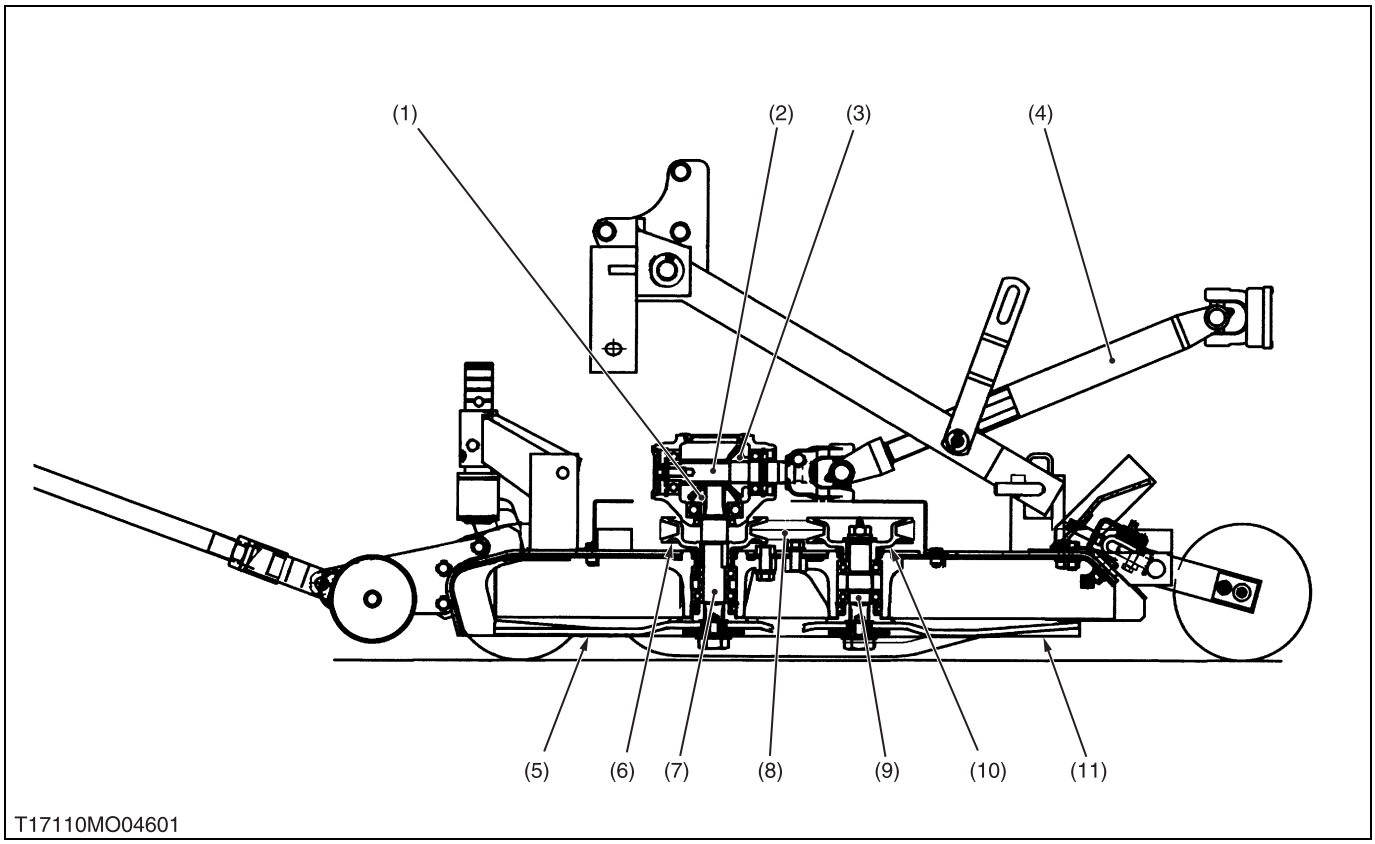
■ **Center Blade**

Mid-PTO Shaft (5) → Universal Joint (4) → Pinion Shaft (3) → Bevel Gear (1) → Bevel Gear (2) → Bevel Gear Shaft (8) → Center Blade (6)

■ **Outer Blade**

Mid-PTO Shaft (5) → Universal Joint (4) → Pinion Shaft (3) → Bevel Gear (1) → Bevel Gear (2) → Bevel Gear Shaft (8) → Center Pulley (7) → Mower Belt (9) → Outer Pulley (11) → Blade Shaft (10) → Outer Blade (12)

[RC60-24BR, RC60-27BR]



(1) 16T Bevel Gear
(2) Pinion Shaft
(3) 19T Bevel Gear
(4) Universal Joint
(5) Center Blade
(6) Center Pulley
(7) Bevel Gear Shaft
(8) Mower Belt
(9) Blade Shaft
(10) Outer Pulley
(11) Outer Blade

The power is transmitted from mid-PTO to blades as follows :

■ **Center Blade**

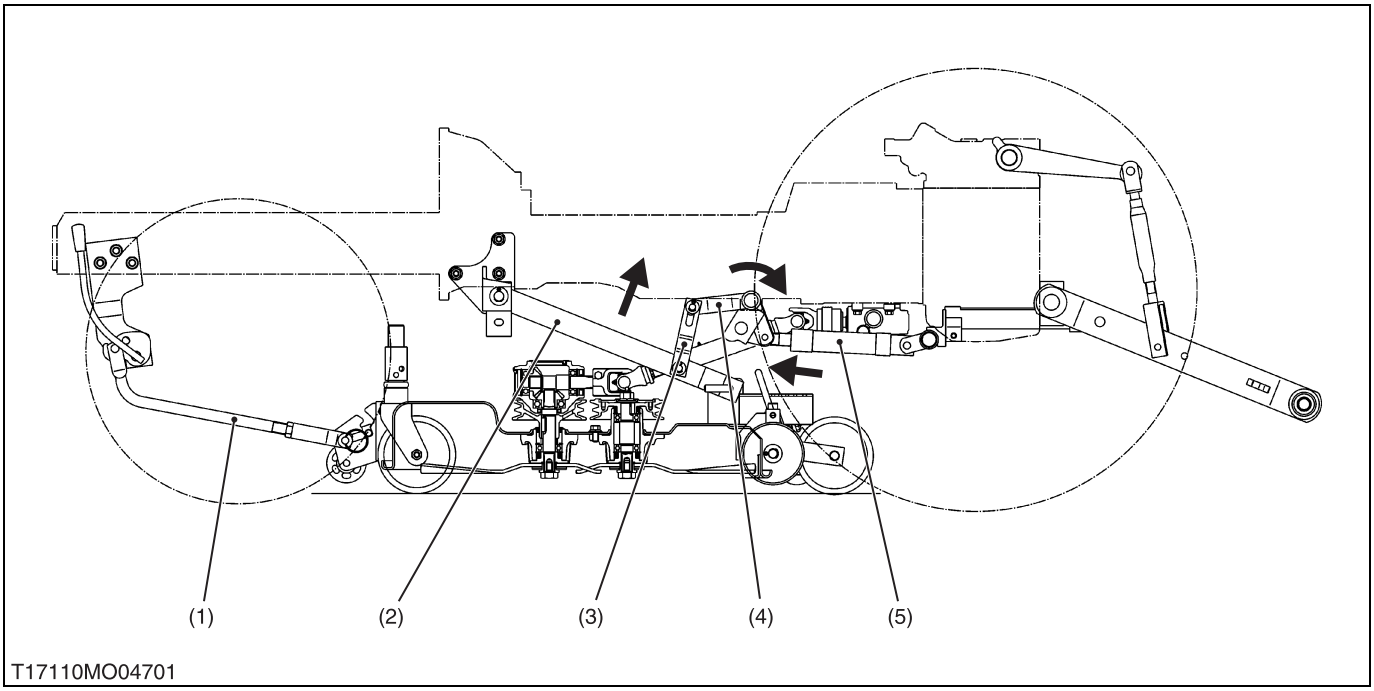
Mid-PTO Shaft → Universal Joint (4) → Pinion Shaft (2) → 19T Bevel Gear (3) → 16T Bevel Gear (1) → Bevel Gear Shaft (7) → Center Blade (5)

■ **Outer Blade**

Mid-PTO Shaft → Universal Joint (4) → Pinion Shaft (2) → 19T Bevel Gear (3) → 16T Bevel Gear (1) → Bevel Gear Shaft (7) → Center Pulley (6) → Mower Belt (8) → Outer Pulley (10) → Blade Shaft (9) → Outer Blade (11)

2. LIFTING MECHANISM

[1] MOWER LIFT CYLINDER TYPE



(1) Front Link
(2) Rear Link
(3) Lift Link
(4) Lift Arm
(5) Mower Lift Cylinder

The lifting of mower is performed by the hydraulic system installed on the tractor.

For avoiding danger, the mower should be kept lifting when traveling. When the auxiliary control valve lever is moved to **"LIFT"** position, the mower lift cylinders (5) retract by the oil pressure, and the cylinder rods are pushed forward.

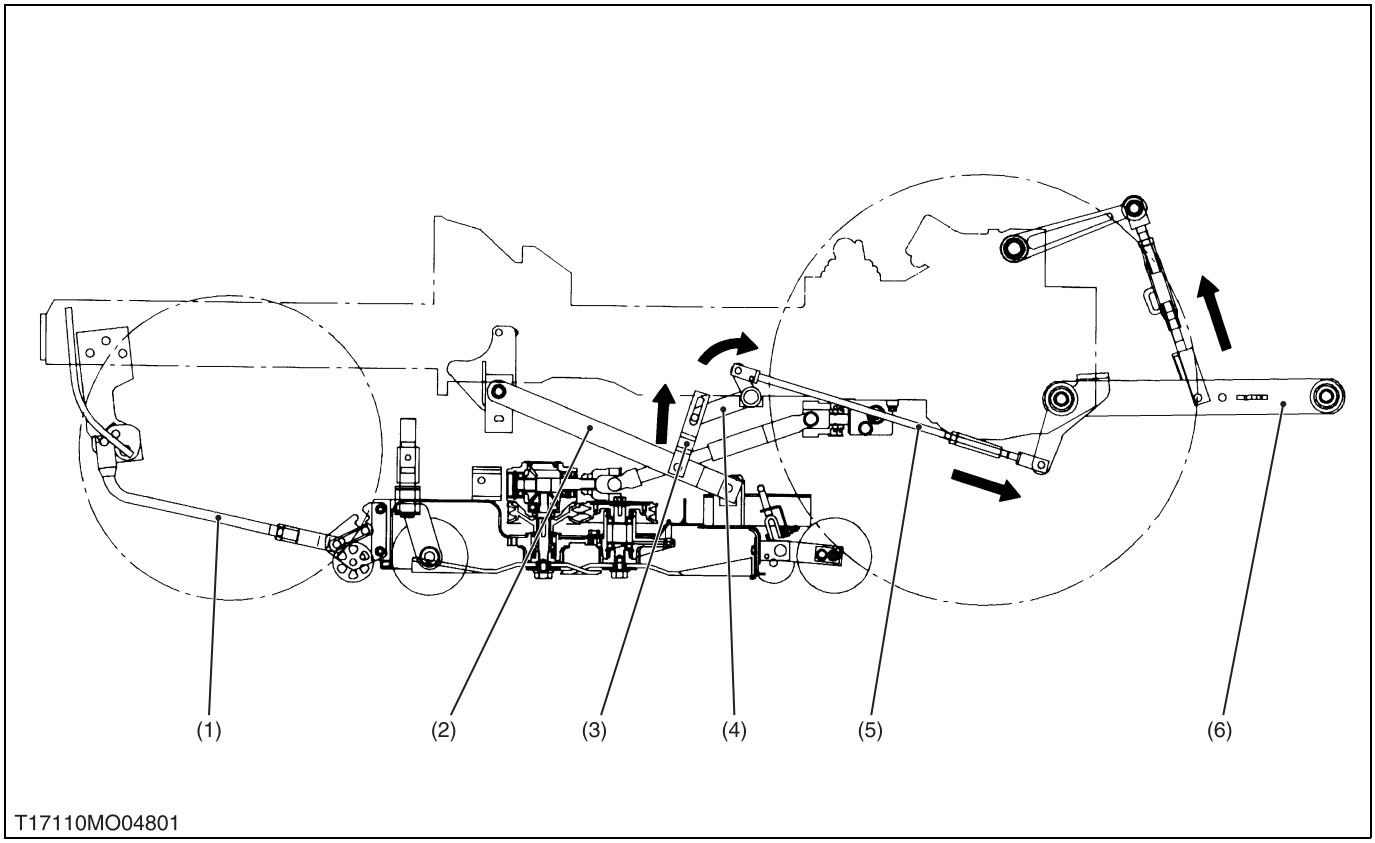
Therefore, lift arms (4) round and the mower is lifted by the lift links (3) and rear links.

As this link system is a parallel linkage, the mower can be kept parallel at every position.

CAUTION

- **Never operate mower in transport position.**

[2] 3-POINTS HITCH LIFT TYPE



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(1) Front Link
(2) Rear Link
(3) Lift Link
(4) Lift Arm
(5) Connecting Rod
(6) Lower Link

The lifting of mower is performed by the hydraulic system installed on the tractor.

For avoiding danger, the mower should be kept lifting when traveling. When the position control lever is moved to **"LIFT"** position, the lower links (6) are risen by the oil pressure of hydraulic system, and the connecting rods (5) are pulled rearward.

Therefore, lift arms (4) round and the mower is lifted by the lift links (3) and rear links.

As this link system is a parallel linkage, the mower can be kept parallel at every position.

CAUTION

- **Never operate mower in transport position.**

SERVICING

CONTENTS

1. TROUBLESHOOTING

Symptom	Probable Cause	Solution	Reference Page
Blade Does Not Turn	• Mid-PTO system malfunctioning • Broken mower belt	Check transmission Replace mower belt	– S-4
Blade Speed Is Slow	• Loosen mower belt • Clogged grass • Flattened out or worn cup washer	Replace mower belt or tension spring Remove grass Replace cup washer	S-4 – S-7, 11
Cutting Is Poor	• Worn or broken mower blade • Loosen mower blade screw • Cutting height improper	Sharpen or replace mower blade Retighten mower blade screw Adjust cutting height	S-4 S-7, 11 S-5, 6
Mower Is Not Lifted	• Broken linkage system • Trouble of hydraulic system	Replace linkage system Check hydraulic system	– –

W1014322

2. SERVICING SPECIFICATIONS

Item		Factory Specification	Allowable Limit
Pinion Shaft (without Mower Belt)	Turning Force	Less than 117.7 N 12.0 kgf 26.5 lbs	–
	Turning Torque	Less than 1.47 N·m 0.15 kgf·m 1.08 ft-lbs	–
Bevel Gears in Gear Box	Backlash RCK54-24B-EC RCK60-24B-EC	0.10 to 0.20 mm 0.0039 to 0.0079 in.	0.40 mm 0.0157 in.
	Backlash RCK60-27B-EC RC60-24BR RC60-27BR	0.13 to 0.25 mm 0.0051 to 0.0098 in.	0.40 mm 0.0157 in.

W1013874

3. TIGHTENING TORQUES

Tightening torques of screws, bolts and nuts on the table below are especially specified.
(For general use screws, bolts and nuts: See page G-4.)

Item	N·m	kgf·m	ft-lbs
Mower blade screw	98.1 to 117.7	10.0 to 12.0	72.3 to 86.8
Gear box mounting screw			
Standard type / Reamer type	77.6 to 90.2	8.0 to 9.2	57.1 to 66.5
Center pulley holder screw			
Standard type / Reamer type	77.6 to 90.2	8.0 to 9.2	57.1 to 66.5
Outer pulley mounting nut	166.7 to 186.3	17.0 to 19.0	123.0 to 137.4
Pulley holder mounting screw	77.4 to 90.2	7.9 to 9.2	57.1 to 66.5

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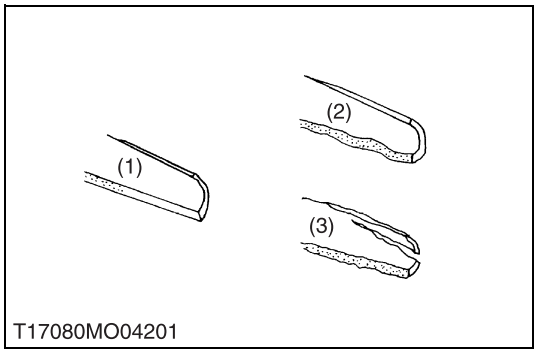
4. CHECKING, DISASSEMBLING AND SERVICING

[1] CHECKING AND ADJUSTING



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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**

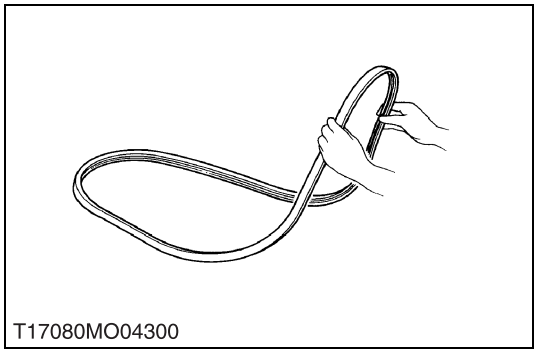
- **Never forget to set the dust cover (RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC), friction plate (center blade of RC60-24BR), two cup washers and spline boss, when reassembling the mower blades. (See page S-7, 11.)**

■ **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

W1011041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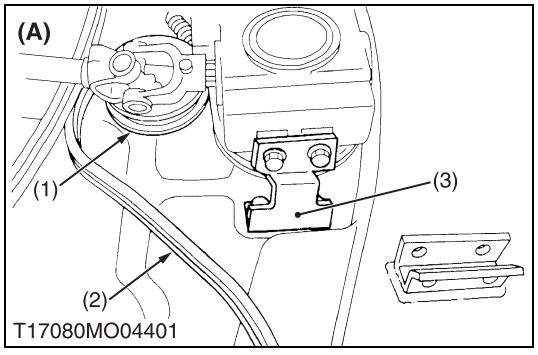
Checking Mower Belt

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 the gear box.
4. Remove the right hand stay (3) which mounts the gear box to the mower deck. (RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC)
   Remove the left hand stay (4) which mounts the gear box to the mower deck. (RC60-24BR, RC60-27BR)
5. Remove the mower belt (2) from the tension pulley (1). Slip the mower belt over the top of the gear box.
6. To install a new belt, reverse the above procedure.
7. Be sure to adjust the tension spring length (RC60-24BR, RC60-27BR). Refer with page S-13.



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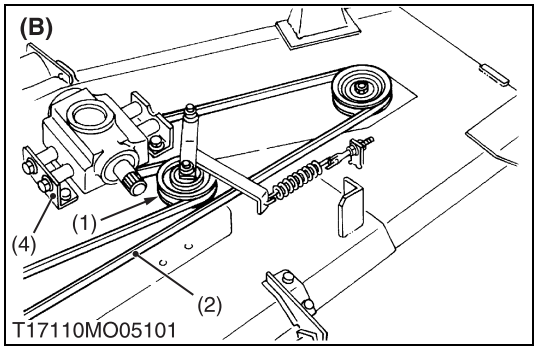


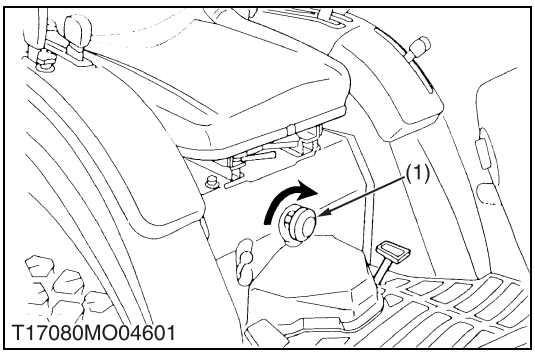
T17110MO05101

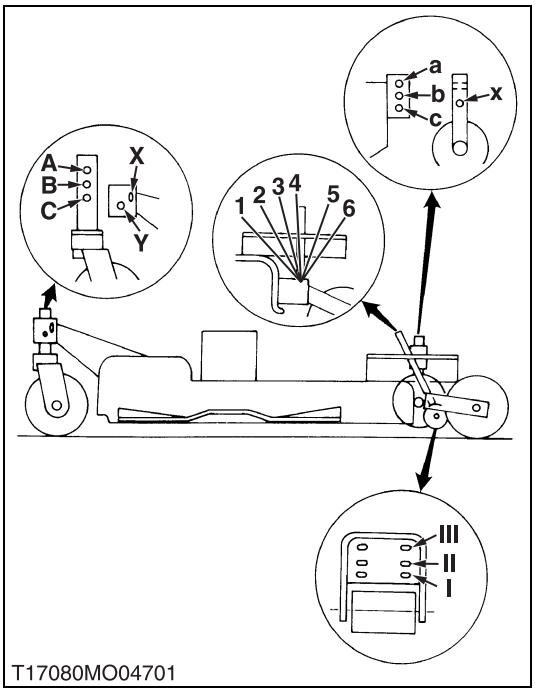
Tightening torque	Gear box mounting screw (Standard type / Reamer type)	77.6 to 90.2 N·m 8.0 to 9.2 kgf·m 57.1 to 66.5 ft-lbs
	Center pulley holder screw (Standard type / Reamer type)	77.6 to 90.2 N·m 8.0 to 9.2 kgf·m 57.1 to 66.5 ft-lbs

(1) Tension Pulley
(2) Mower Belt
(3) Gear Box Stay (Right)
(4) Gear Box Stay (Left)

(A) RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC
(B) RC60-24BR, RCK60-27BR

W1011180





Adjusting Cutting Height (Side Discharge Mower)

1. The cutting height can be adjusted from 38 mm to 102 mm (from 1.5 in. to 4.0 in.).
2. To adjust the cutting height, lift the mower slightly and close the 3-point lowering speed knob (1).
3. Adjust the cutting height with the front gauge wheels, rear gauge wheel, anti-scalp wheel and anti-scalp rollers as shown in the table below.
   The recommend cutting height is approx. 50 mm (2.0 in.).

[RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC]

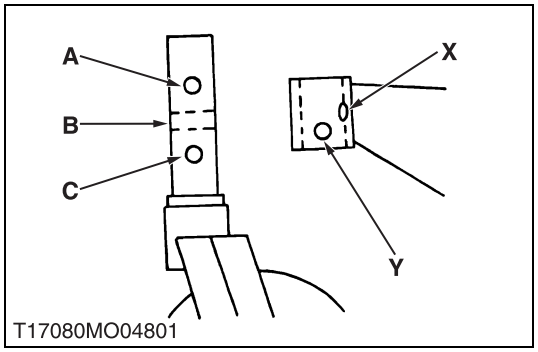
Cutting height	Front gauge wheel	Rear gauge wheel	Anti-scalp wheel	Anti-scalp roller
35 mm (1.5 in.)	C-X	1	a-x	I
51 mm (2.0 in.)	C-Y	2		
64 mm (2.5 in.)	B-X	3	b-x	II
76 mm (3.0 in.)	B-Y	4		
89 mm (3.5 in.)	A-X	5	c-x	III
102 mm (4.0 in.)	A-Y	6		

■ **IMPORTANT**

- **After adjusting the cutting height, open the 3-point lowering speed knob (1) and adjust the lowering speed of the mower.**

(1) 3-point Lowering Speed Knob

W1011439



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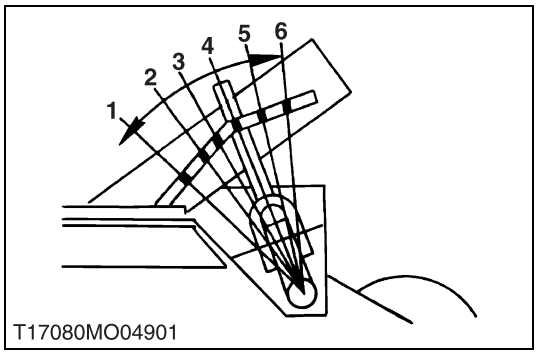

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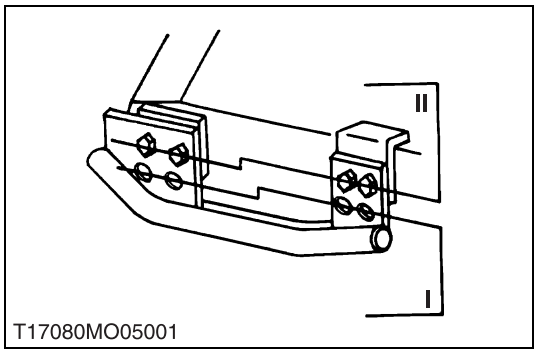


T17080MO05001

Adjusting Cutting Height (Rear Discharge Mower)

1. The cutting height can be adjusted from 25 mm to 89 mm (from 1.0 in. to 3.5 in.).
2. To adjust the cutting height, lift the mower slightly and close the 3-point lowering speed knob.
3. To adjust the cutting height, set the front gauge wheels, anti-scalp skids and rear gauge wheels as shown in the table below. The recommended cutting height is approx. 50 mm (2.0 in.).

[RC60-24BR, RC60-27BR]

Cutting height	Front gauge wheel	Rear gauge wheel	Anti-scalp skid
25 mm (1.0 in.)	C-X	1	I
38 mm (1.5 in.)	C-Y	2	
50 mm (2.0 in.)	B-X	3	II
64 mm (2.5 in.)	B-Y	4	
76 mm (3.0 in.)	A-X	5	
89 mm (3.5 in.)	A-Y	6	

■ **IMPORTANT**

- **After adjusting the cutting height, open the 3-point lowering speed knob and adjust the lowering speed of the mower.**

W1012112

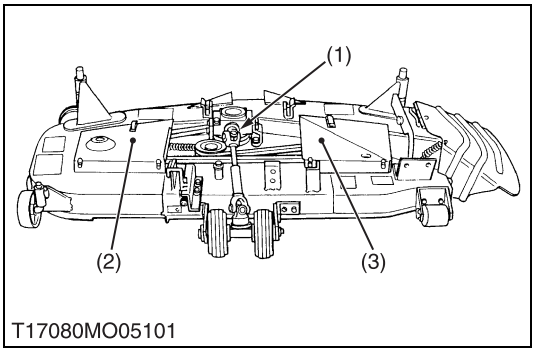
Adjusting Front Link and Connecting Rod

1. See page G-20, 21.

W1012485

[2] DISASSEMBLING AND ASSEMBLING

(1) RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC (Side Discharge Mower)



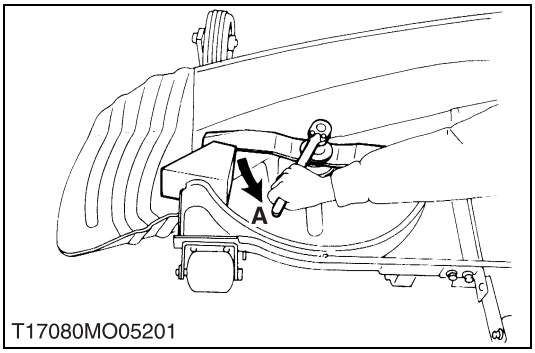
T17080MO05101

Universal Joint and Belt Covers

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

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

W1012580



T17080MO05201

Mower Blades (Center Blade and Outer Blades)

1. Turn over the mower.
2. Unscrew the mower blade screw (5), and remove the spline boss (4), two cup washers (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 loosing or tightening the blade screw.**

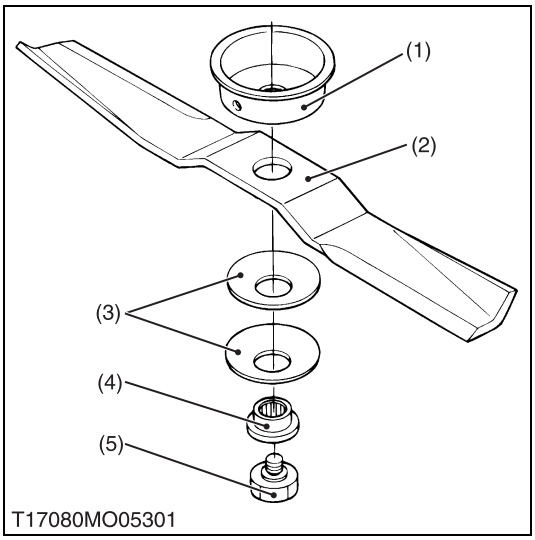
(When reassembling)

- Be sure to assemble the two cup washers between the mower blade and spline boss.

■ **IMPORTANT**

- **Make sure the cup washer is not flattened out or worn, causing blade to slip easily.**
  Replace two cup washers if either is damaged.

Tightening torque	Mower blade screw	98.1 to 117.7 N·m 10.0 to 12.0 kgf·m 72.3 to 86.8 ft-lbs

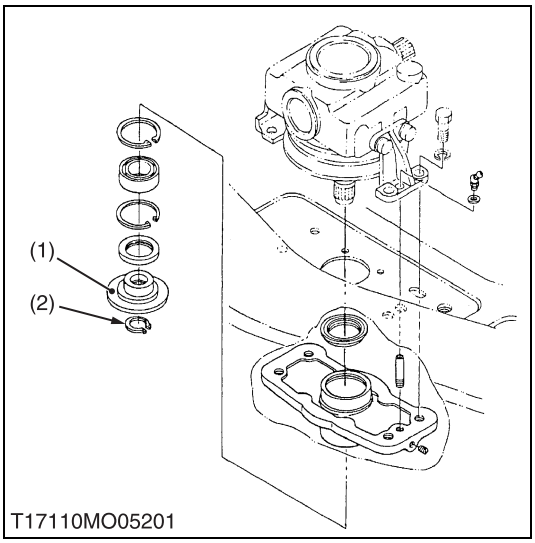


T17080MO05301

(1) Dust Cover
(2) Mower Blade
(3) Cup Washer
(4) Spline Boss
(5) Mower Blade Screw

A : Loosen

W1012667



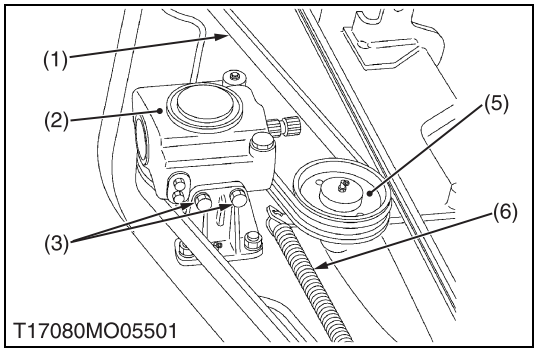
T17110MO05201

Blade Boss

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

(1) Blade Boss
(2) External Snap Ring

W1012871



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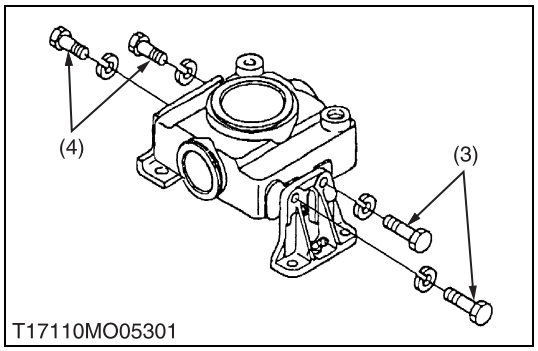

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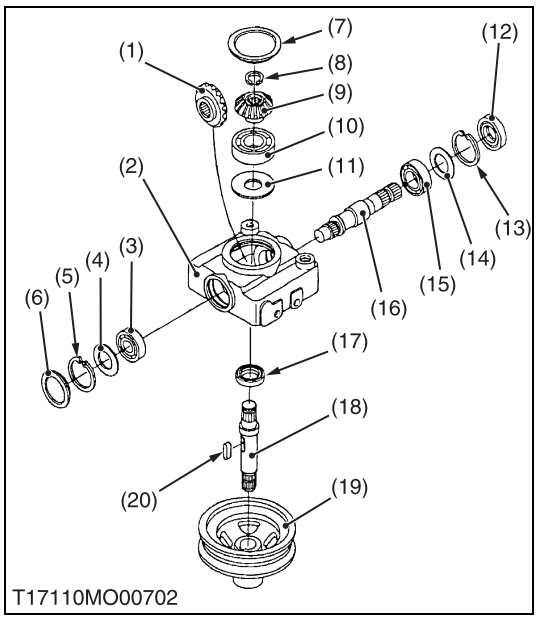


T17110MO00702

Gear Box and Mower Belt

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

(When reassembling)

- Install the reamer screws (3) at their original positions as shown in the figure.

Tightening torque	Gear box mounting screw	77.6 to 90.2 N·m 8.0 to 9.2 kgf·m 57.1 to 66.5 ft-lbs

(1) Mower Belt
(2) Gear Box
(3) Gear Box Mounting Screw (Reamer Screw)
(4) Gear Box Mounting Screw
(5) Tension Pulley
(6) Tension Spring

W1012961

Disassembling Gear Box

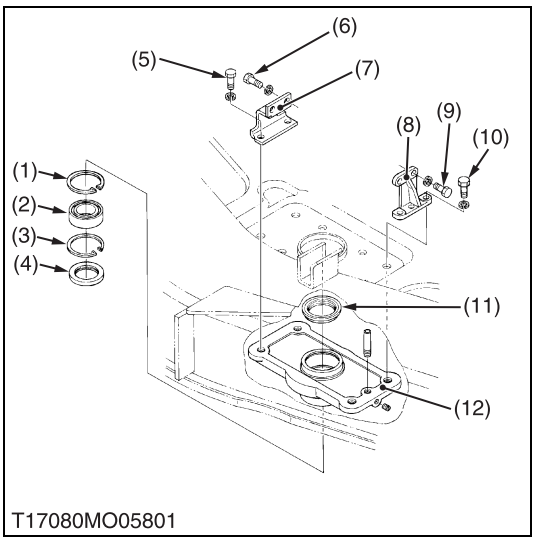
1. Unscrew the drain plug, and drain gear box oil.
2. Remove the center pulley (19) with a puller, and remove the feather key (20) on the bevel gear shaft (18).
3. Remove the gear box caps (6), (7).
4. Remove the oil seal (12), internal snap ring (13) and shim (14).
5. Tap out the pinion shaft (16) with the ball bearing (15), and remove the bevel gear (1).
6. Remove the internal snap ring (5), shim (4) and ball bearing (3).
7. Remove the external snap ring (8), and draw out the bevel gear shaft (18).
8. Remove the bevel gear (9), ball bearing (10), shim (11) and oil seal (17).

(When reassembling)

- Replace the oil seals (12), (17) and gear box caps (6), (7) with new ones.
- Check the backlash and turning torque.
  If not proper, adjust with the shims (5), (11), (14).
  (See page S-16, 17)

(1) 19T Bevel Gear (RCK60-24B-EC, RCK60-27B-EC)
21T Bevel Gear (RCK54-24B-EC)
(2) Gear Box
(3) Ball Bearing
(4) Shim
(5) Internal Snap Ring
(6) Gear Box Cap
(7) Gear Box Cap
(8) External Snap Ring
(9) 16T Bevel Gear
(10) Ball Bearing
(11) Shim
(12) Oil Seal
(13) Internal Snap Ring
(14) Shim
(15) Ball Bearing
(16) Pinion Shaft
(17) Oil Seal
(18) Bevel Gear Shaft
(19) Center Pulley
(20) Feather Key

W1013296



T17080MO05801

Center Pulley Holder

1. Unscrew the center pulley holder screws (5) and reamer screws (10).
2. Remove the upper oil seal (11) and lower oil seal (4).
3. Remove the internal snap ring (3) and ball bearing (2).

(When reassembling)

- Replace the oil seals (4), (11) with new ones.
- Install the reamer screws (10) at their original positions as shown in the figure.

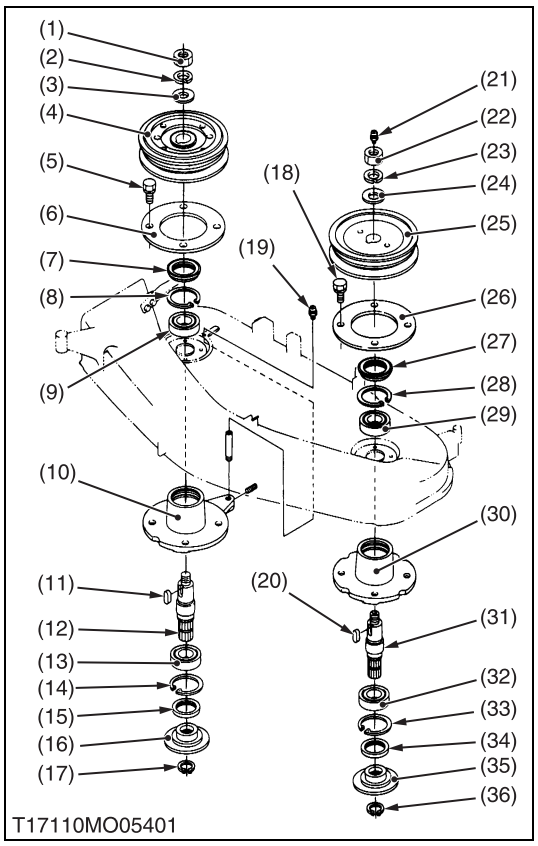
■ **NOTE**

- **When reassembling the center pulley holder (12), gear box and gear box stays (7), (8), screw the all screws by hand temporary.**
- **Tighten the screws in the order as below, to prevent the incline the gear box.**
- **Tighten the reamer screws (9) to the gear box first, then tighten the reamer screws (10) to the center pulley holder (12) with specified torque.**
- **Tighten the gear box screws (6) to the gear box, then tighten the center pulley holder screws (5) with specified torque.**
- **See page S-8 for tightening torque of gear box screw.**

Tightening torque	Center pulley holder screw (Standard type / Reamer type)	77.6 to 90.2 N·m 8.0 to 9.2 kgf·m 57.1 to 65.1 ft-lbs

(1) Internal Snap Ring
(2) Ball Bearing
(3) Internal Snap Ring
(4) Oil Seal
(5) Center Pulley Holder Screw
(6) Gear Box Screw
(7) Gear Box Stay RH
(8) Gear Box Stay LH
(9) Gear Box Reamer Screw
(10) Center Pulley Holder Reamer Screw
(11) Oil Seal
(12) Center Pulley Holder

W1013720



Outer Pulley and Blade Shaft

1. Unscrew the outer pulley mounting nut (22), and remove the outer pulley (25) and feather key (20).
2. Unscrew the pulley holder mounting screws (18), and separate the left pulley holder (30) and plate (26) from the mower deck.
3. Remove the external snap ring (36) on the left blade shaft (31).
4. Remove the spline boss (35) and oil seal (34).
5. Remove the internal snap ring (33) and tap out the left blade shaft (31) with the ball bearings (29), (32), taking care not to damage the grease nipple (21).
6. Remove the oil seal (27) and internal snap ring (28).
7. Remove the ball bearings (29), (32) from the blade shaft (31).
8. Remove the right pulley holder (10) and blade shaft (12) as above.

(When reassembling)

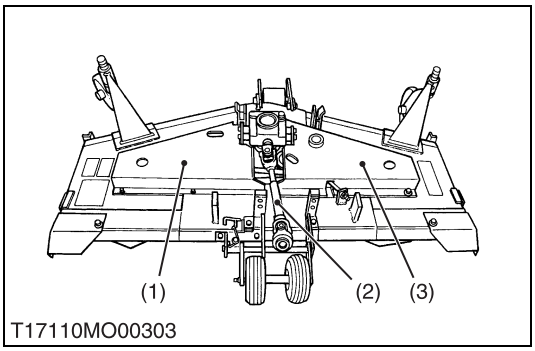
- Replace the oil seals (34), (27), (15) and (7) with new ones.

Tightening torque	Outer pulley mounting nut	166.7 to 186.3 N·m 17.0 to 19.0 kgf·m 123.0 to 137.4 ft-lbs
	Pulley holder mounting screw	77.4 to 90.2 N·m 7.9 to 9.2 kgf·m 57.1 to 66.5 ft-lbs

(1) Outer Pulley Mounting Nut
(2) Spring Washer
(3) Plain Washer
(4) Outer Pulley (Right)
(5) Pulley Holder Mounting Screw
(6) Plate
(7) Oil Seal
(8) Internal Snap Ring
(9) Ball Bearing
(10) Pulley Holder (Left)
(11) Feather Key
(12) Blade Shaft (Right)
(13) Ball Bearing
(14) Internal Snap Ring
(15) Oil Seal
(16) Spline Boss
(17) External Snap Ring
(18) Pulley Holder Mounting Screw
(19) Grease Nipple
(20) Feather Key
(21) Grease Nipple
(22) Outer Pulley Mounting Nut
(23) Spring Washer
(24) Plain Washer
(25) Outer Pulley (Left)
(26) Plate
(27) Oil Seal
(28) Internal Snap Ring
(29) Ball Bearing
(30) Pulley Holder (Left)
(31) Blade Shaft (Left)
(32) Ball Bearing
(33) Internal Snap Ring
(34) Oil Seal
(35) Spline Boss
(36) External Snap Ring

W1013387

(2) RC60-24BR, RC60-27BR (Rear Discharge Mower)



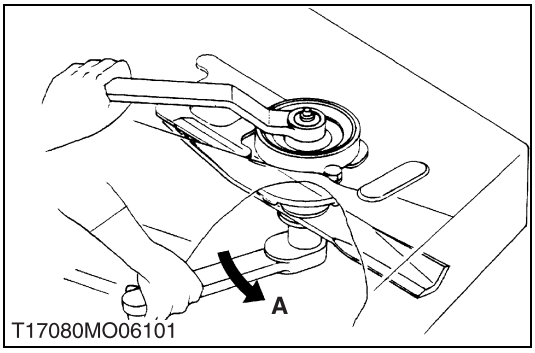
T17110MO00303

Universal Joint and Belt Covers

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

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

W1015130



T17080MO06101

Mower Blades (Center Blade and Outer Blades)

1. Unscrew the mower blade screw (4), and remove the spline boss (3) for RC60-27BR, lock washer (5) for RC60-24BR, two cup washers (2) and mower blade (1).

■ **NOTE**

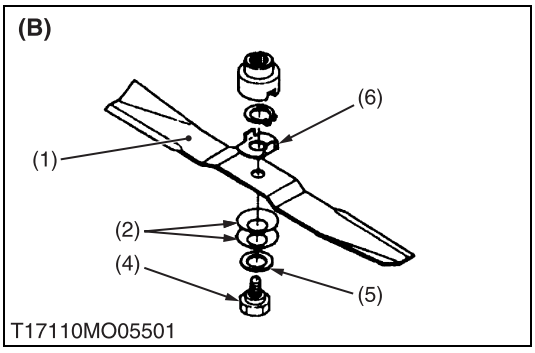
- **The mower blade screw has left-hand threads. Turn it counterclockwise to loosen (A).**
- **Wedge a block of wood between the mower blade and mower deck or use a box wrench over the pulley nut to prevent the blade shaft from rotating while removing the mower blade screw.**
- **The friction plate (6) adapts to center blade of RC60-24BR only.**

(When reassembling)

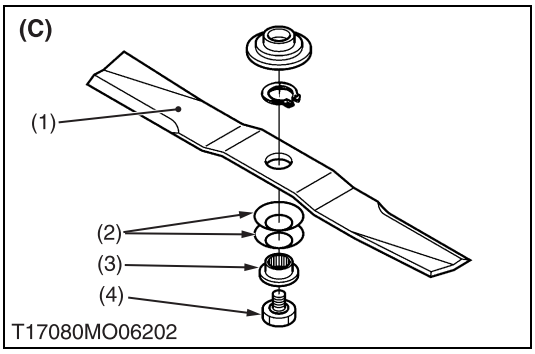
- Be sure to assemble two cup washers between the mower blade and spline boss.
- Be sure to assemble the friction plate (6) that adapt to center blade of RC60-24BR only.

■ **IMPORTANT**

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



T17110MO05501



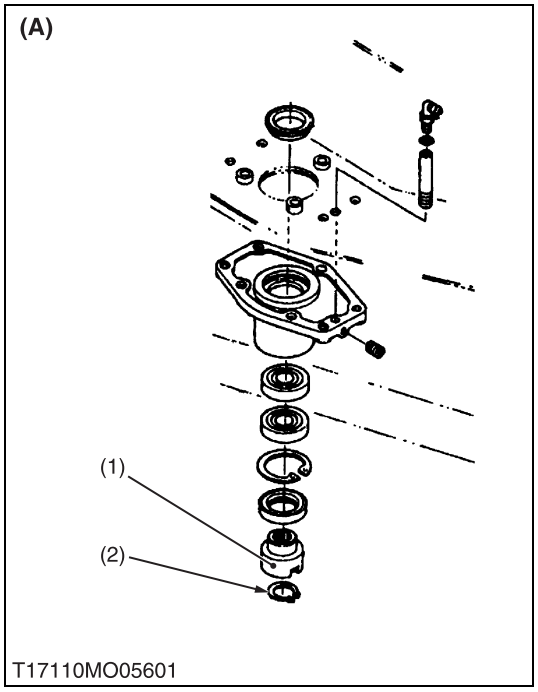
T17080MO06202

Tightening torque	Mower blade screw	98.1 to 117.7 N·m 10.0 to 12.0 kgf·m 72.3 to 86.8 ft-lbs

(1) Mower Blade
(2) Cup Washer
(3) Spline Boss
(4) Mower Blade Screw
(5) Lock Washer
(6) Friction Plate

(B) RC60-24BR
(C) RC60-27BR

W1015217



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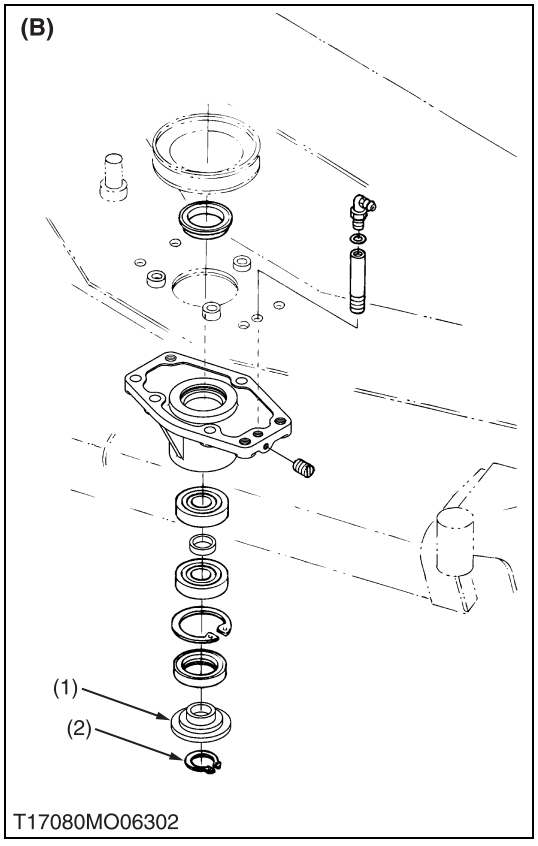


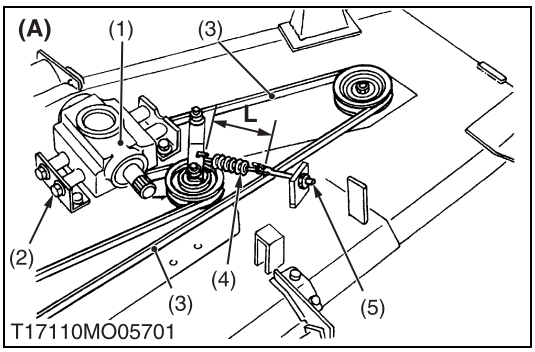
T17080MO06302

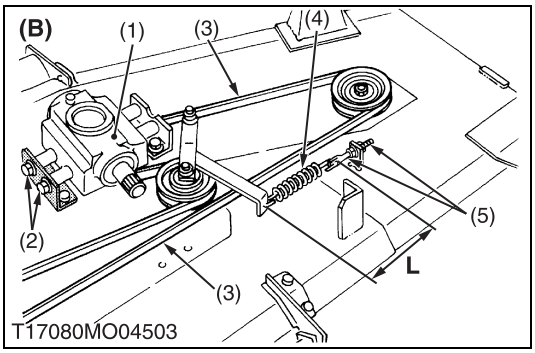
Blade Boss

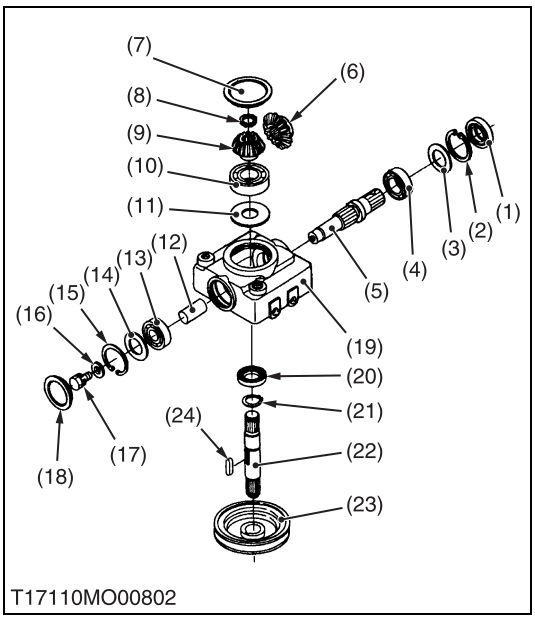
1. Remove the external snap ring (2).
2. Remove the blade boss (1).

(1) Blade Boss
(2) External Snap Ring
(A) RC60-24BR
(B) RC60-27BR

W1015526







Gear Box and Mower Belt

1. Loosen the belt tension adjusting nuts (5), and remove the tension spring (4).
2. Unscrew the gear box mounting screws (2), and remove the mower belt (3).
3. Pull out the gear box (1) upward.

(When reassembling)

Tightening torque	Gear box mounting screw	77.6 to 90.2 N·m 8.0 to 9.2 kgf·m 57.1 to 66.5 ft-lbs

Tension spring length (**L**)	Factory spec.	RC60-24BR	160.0 mm 6.3 in.
		RC60-27BR	245.0 mm 9.7 in.

(1) Gear Box
(2) Gear Box Mounting Screw
(3) Mower Belt
(4) Tension Spring
(5) Belt Tension Adjusting Nut

(A) RC60-24BR
(B) RC60-27BR

W1015617

Disassembling Gear Box

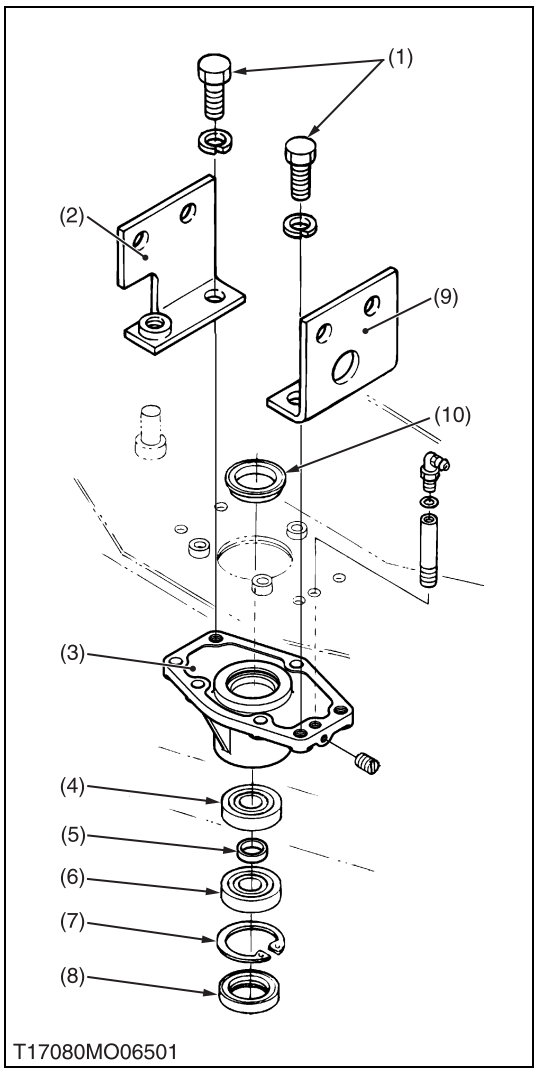
1. Unscrew the drain plug, and drain the gear box oil.
2. Remove the center pulley (23) with a puller, and remove the feather key (24) on the bevel gear shaft.
3. Remove the gear box caps (7), (18).
4. Remove the oil seal (1), external snap ring (2) and shim (3).
5. Remove the screw (17), washer (16) and tap out the pinion shaft (5) with ball bearing (4).
6. Remove the 19T bevel gear (6) and pinion shaft collar (12).
7. Remove the internal snap ring (15) and shims (14).
8. Remove the ball bearing (13).
9. Remove the external snap ring (8), and draw out the bevel gear shaft (22).
10. Remove the 16T bevel gear (9) with ball bearing (10).

(When reassembling)

- Replace the oil seals (1), (20) and gear box caps (7), (18) with new ones.
- Check the backlash and turning torque.
  If not proper, adjust with the shims (3), (11) and (14). (See page S-16, 17)

(1) Oil Seal
(2) Internal Snap Ring
(3) Shim
(4) Ball Bearing
(5) Pinion Shaft
(6) 19T Bevel Gear
(7) Gear Box Cap
(8) External Snap Ring
(9) 16T Bevel Gear
(10) Ball Bearing
(11) Shim
(12) Pinion Shaft Collar
(13) Ball Bearing
(14) Shim
(15) Internal Snap Ring
(16) Washer
(17) Screw
(18) Gear Box Cap
(19) Gear Box
(20) Oil Seal
(20) External Snap Ring
(21) Bevel Gear Shaft
(23) Center Pulley
(24) Feather Key

W1018511



T17080MO06501

Center Pulley Holder

1. Unscrew the center pulley holder screws (1), and remove the center pulley holder from the mower deck.
2. Remove the upper oil seal (10) and lower oil seal (8).
3. Remove the internal snap ring (7), ball bearings (4), (6) and collar (5).

■ **NOTE**

- **The collar (5) adapts to RC60-27BR only.**

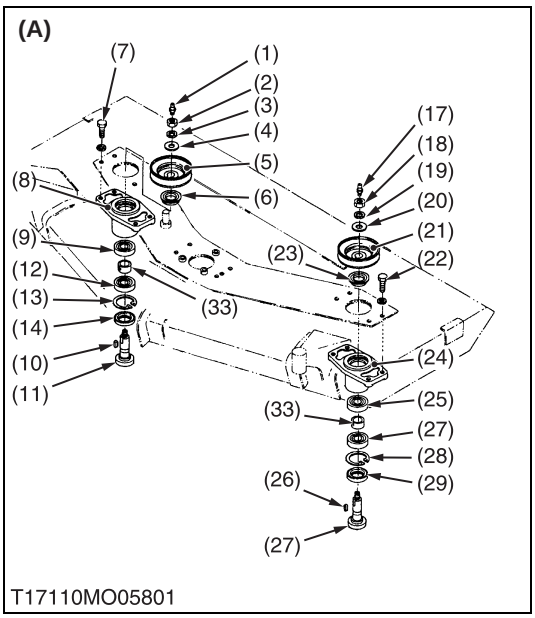
(When reassembling)

- Replace the oil seals (8), (10) with new ones.

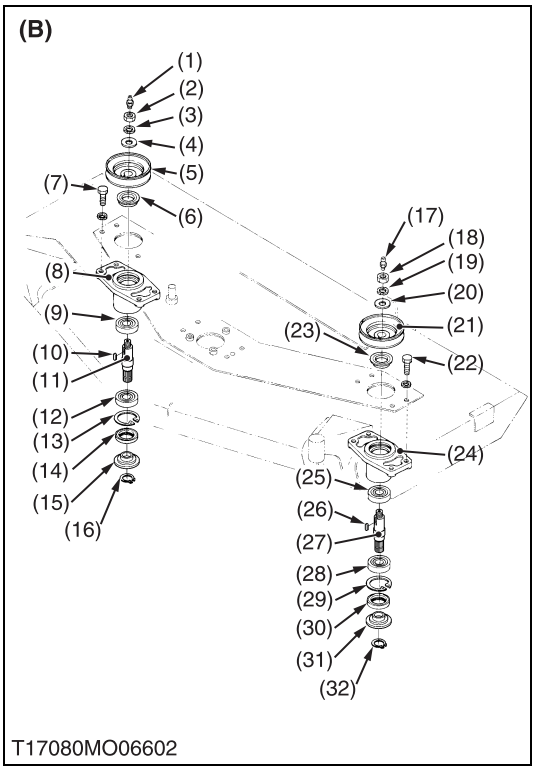
Tightening torque	Center pulley holder screw	77.6 to 90.2 N·m 8.0 to 9.2 kgf·m 57.1 to 66.5 ft-lbs

(1) Center Pulley Holder Screw
(2) Gear Box Stay RH
(3) Center Pulley Holder
(4) Ball Bearing
(5) Collar
(6) Ball Bearing
(7) Internal Snap Ring
(8) Oil Seal
(9) Gear Box Stay LH
(10) Oil Seal

W1019050



T17110MO05801



T17080MO06602

Outer Pulley and Blade Shaft

1. Unscrew the outer pulley mounting nut (18), and remove the outer pulley (21) and feather key (26).
2. Unscrew the pulley holder mounting screws (22), and separate the left pulley holder (24) from the mower deck.
3. Remove the external snap ring (32) on the left blade shaft (27).
4. Remove the blade boss (31) and oil seal (30).
5. Remove the internal snap ring (29) and tap out the left blade shaft (27) with ball bearings (25), (28), taking care not to damage the grease nipple (17).
6. Remove the oil seal (23).
7. Remove the ball bearings (25), (28) from the blade shaft (27).
8. Remove the right pulley holder (8) and blade shaft (11) as above.

■ **NOTE**

- **The collar (33) adapts to RC60-24BR only.**

(When reassembling)

- Replace the oil seals (30), (23), (14), (6) with new ones.

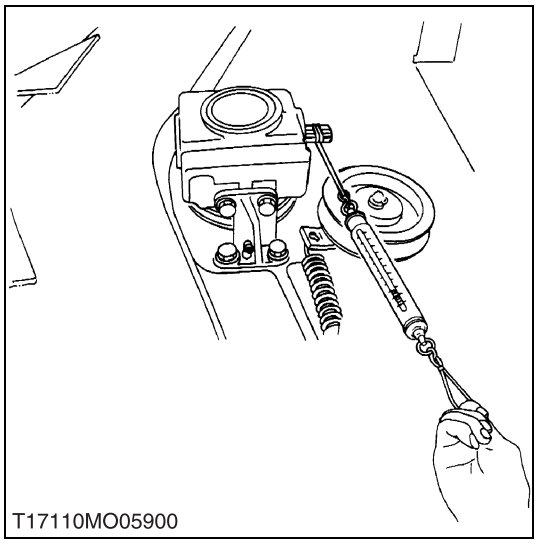
Tightening torque	Outer pulley mounting nut	166.7 to 186.3 N·m 17.0 to 19.0 kgf·m 123.0 to 137.4 ft-lbs
	Pulley holder mounting screw	77.4 to 90.2 N·m 7.9 to 9.2 kgf·m 57.1 to 66.5 ft-lbs

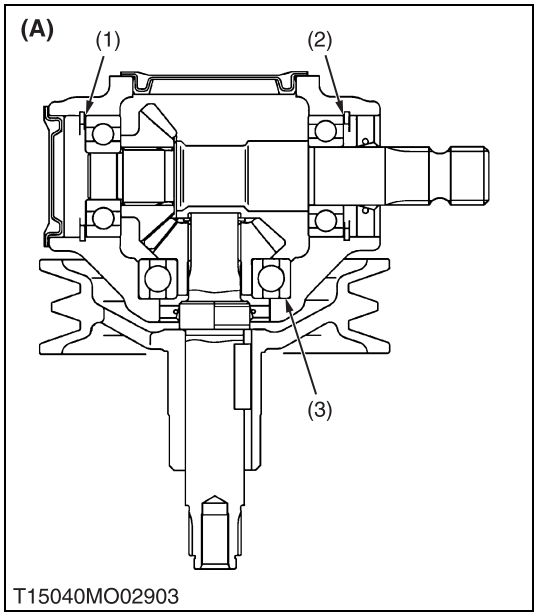
(1) Grease Nipple
(2) Outer Pulley Mounting Nut
(3) Spring Washer
(4) Plain Washer
(5) Outer Pulley (Right)
(6) Oil Seal
(7) Pulley Holder Mounting Screw
(8) Pulley Holder (Right)
(9) Ball Bearing
(10) Feather Key
(11) Blade Shaft (Right)
(12) Ball Bearing
(13) Internal Snap Ring
(14) Oil Seal
(15) Blade Boss
(16) External Snap Ring
(17) Grease Nipple
(18) Outer Pulley Mounting Nut
(19) Spring Washer
(20) Plain Washer
(21) Outer Pulley (Left)
(22) Pulley Holder Mounting Screw
(23) Oil Seal
(24) Pulley Holder (Left)
(25) Ball Bearing
(26) Feather Key
(27) Blade Shaft (Left)
(28) Ball Bearing
(29) Internal Snap Ring
(30) Oil Seal
(31) Blade Boss
(32) External Snap Ring
(33) Collar

(A) RC60-24BR
(B) RC60-27BR

W1019310

[3] SERVICING


T17110MO05900



T15040MO02903

Turning Torque of Pinion Shaft

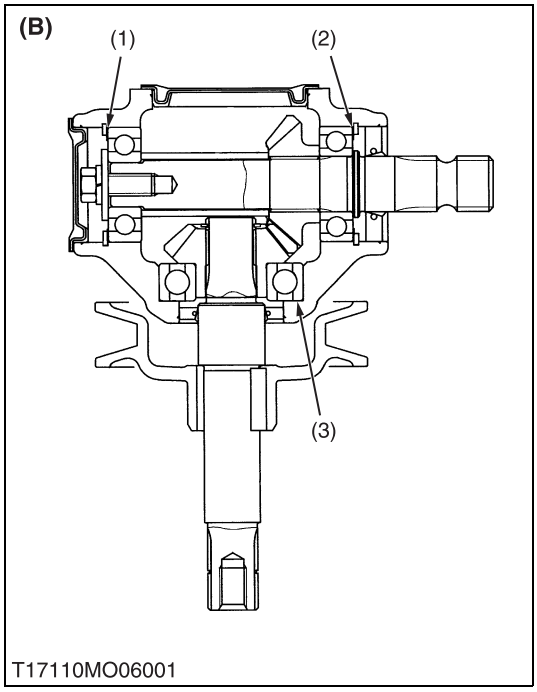
1. Remove the mower belt, and reassemble the gear box to the mower deck.
2. Wind a string around the pinion shaft and set a spring balance (or push-pull gauge) to the tip of the string, and then slowly pull the spring balance horizontally to measure the turning force.
3. If the measurement exceeds the factory specification, check the bearing and gears and adjust the adjusting shims (1), (2), (3).

Turning force	Factory spec.	Less than 117.7 N 12.0 kgf 26.5 lbs

Turning torque	Factory spec.	Less than 1.47 N·m 0.15 kgf·m 1.08 ft-lbs

(Reference)

- Thickness of adjusting shims (1), (2) : 0.2 mm (0.0079 in.)
  0.3 mm (0.0118 in.)
- Thickness of adjusting shims (3) : 0.1 mm (0.0039 in.)
  0.2 mm (0.0079 in.)

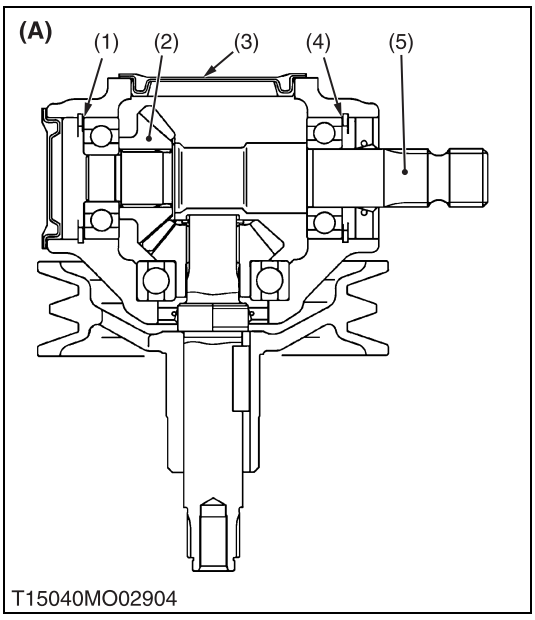


T17110MO06001

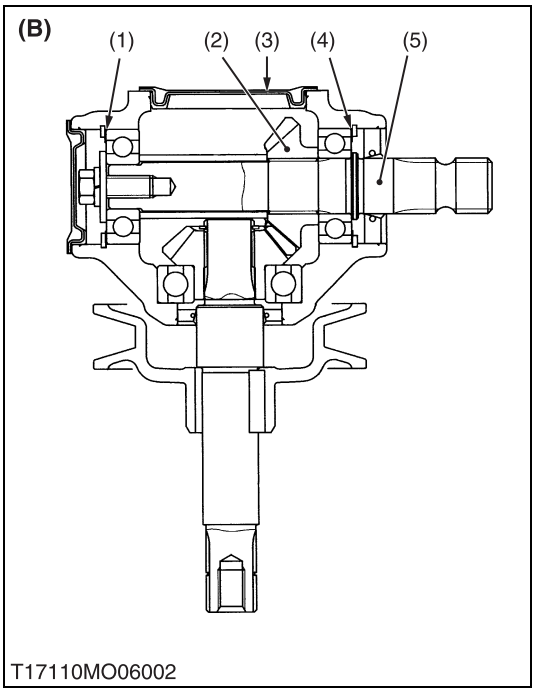
(1) Adjusting Shim
(2) Adjusting Shim
(3) Adjusting Shim

(A) RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC
(B) RC60-24BR, RC60-27BR

W1019836



T15040MO02904



T17110MO06002

Backlash between Bevel Gears

1. Remove the gear box cap (3).
2. Place fuses the 19T bevel gear (2) on the pinion shaft (5).
3. Turn the pinion shaft.
4. Take out the fuses, and measure the thickness of fuses with an outside micrometer. (Backlash equal thickness of fuse)
5. If the backlash exceeds the allowable limit, adjust with shims (1), (4), (6).

Backlash between bevel gears	Factory spec.	RCK54-24B-EC RCK60-24B-EC	0.10 to 0.20 mm 0.0039 to 0.0079 in.
		RCK60-27B-EC RC60-24BR RC60-27BR	0.13 to 0.25 mm 0.0051 to 0.0098 in.
	Allowable limit		0.40 mm 0.0157 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.)

(1) Shim
(2) 19T Bevel Gear
(3) Gear Box Cap
(4) Shim
(5) Pinion Shaft
(6) Shim

(A) RCK54-24B-EC, RCK60-24B-EC, RCK60-27B-EC
(B) RC60-24BR, RC60-27BR

W1020126

EDITOR:
KUBOTA FARM & INDUSTRIAL MACHINERY SERVICE, LTD.
64, ISHIZU-KITAMACHI, SAKAI-KU, SAKAI-CITY, OSAKA, 590-0823, JAPAN
PHONE : (81)72-241-1129
FAX : (81)72-245-2484
E-mail : ksos-pub@kubota.co.jp

KUBOTA Corporation

Printed in Japan 2006. 11, S, EI, EI, e Code No.9Y011-17110
2001. 02, S, EI, EI, e