

Product: Kubota L35 TL720 BT900 Service Manual

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WSM

WORKSHOP MANUAL
**TRACTOR, FRONT LOADER,
BACKHOE**

L35 TL720 BT900

Kubota

KiSC issued 03, 2006 A

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TO THE READER

This Workshop Manual has been prepared to provide servicing personnel with information on the mechanism, service and maintenance of KUBOTA Tractor L35, KUBOTA Front Loader TL720 and KUBOTA Backhoe BT900. It is divided into two parts, "Mechanism" and "Servicing" for each section.

■ Mechanism

Information on the construction and function are included. This part 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.

February '94

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SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and decals 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.

SAFETY SERVICING AND REPAIRING

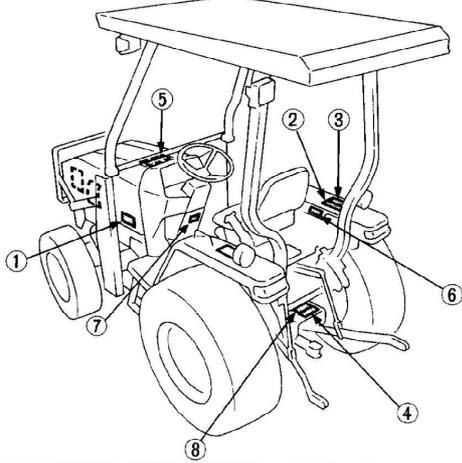
- (1) Before working on the machine :
 - Park the machine on a firm and level ground, and set the parking brake.
 - Lower the implement or mower to the ground.
 - Stop the engine, and remove the key.
 - Disconnect the battery's ground cable.
 - Clean the work area and machine.
- (2) Do not work on the machine while under the influence of alcohol, medication, or other substances or while fatigued.
- (3) Do not wear a necktie, scarf, necklace, loose or bulky clothing when you work near machine tools or moving parts.
- (4) Use tools appropriate to the work. Makeshift tools, parts, and procedures will not make good repairs.
- (5) When servicing is performed together by two or more persons, take care to perform all work safely.
- (6) Do not work under the machine that is supported solely by a jack. Always support the machine by safety stands.

- (7) If the engine must be running to do same work, make sure the area is well ventilated. Never run the engine in a closed area. The exhaust gas contains poisonous carbon monoxide.**
- (8) Do not touch the rotating or hot parts while the engine is running.**
- (9) Fuel is extremely flammable and explosive under certain conditions. Do not smoke or allow flames or sparks in your working area.**
- (10) To avoid sparks from an accidental short circuit, always disconnect the battery's ground cable first and connect it last.**
- (11) 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.**
- (12) Battery gas can explode. Keep sparks and open flame away from the top of battery, especially when charging the battery.**
- (13) Never remove the radiator cap while the engine is running, or immediately after stopping. Otherwise, hot water will spout out from radiator. Wait for more than ten minutes to cool the radiator, before removing the cap.**
- (14) 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.**
- (15) Do not start the engine by shorting across starter terminals.**
- (16) Unauthorized modifications to the machine may impair the function and / or safety and affect machine life.**
- (17) Do not alter or remove any part of machine safety system.**
- (18) Keep a first aid kit and fire extinguisher handy at all times.**
- (19) Be sure to chock the wheels to prevent accident during servicing the machine.**

SAFETY DECALS

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

<p>① Part No. TA040-4965-2</p>	<div style="border: 1px solid black; padding: 5px;">  <p style="text-align: center;">⚠ DANGER TA040-49652 ©</p> <p>TO AVOID POSSIBLE INJURY OR DEATH FROM A MACHINE RUNAWAY.</p> <ol style="list-style-type: none"> Do not start engine by shorting across starter terminals or bypassing the safety start switch. Machine may start in gear and move if normal starting circuitry is bypassed. Start engine only from operator's seat with transmission and PTO OFF. Never start engine while standing on the ground. </div>	<p>⑥ Part No. 32751-4921-1</p>
<p>② Part No. TA040-4932-2</p>	<div style="border: 1px solid black; padding: 5px;">  <p style="text-align: center;">⚠ WARNING</p> <p>TO AVOID PERSONAL INJURY OR DEATH FROM ROLL-OVER:</p> <ol style="list-style-type: none"> Kubota recommends the use of a Roll-Over Protective Structures (ROPS) and seat belt in almost all applications. Remove the ROPS only when it substantially interferes with operation or itself presents a safety risk. (Examples include work in orchards and vineyards.) ALWAYS REINSTALL IT BEFORE USING THE TRACTOR IN OTHER APPLICATIONS. Never use just the seat belt or just the ROPS. They must be used together. For further details, consult your Operator's Manual or your local dealer. <p style="text-align: right; font-size: small;">TA040-49322 ©</p> </div>	<p>⑦ Part No. 35080-6528-2</p>
<p>③ Part No. TA040-4933-2</p>	<div style="border: 1px solid black; padding: 5px;">  <p style="text-align: center;">⚠ WARNING</p> <p>BEFORE DISMOUNTING TRACTOR: 1. PARK ON LEVEL GROUND WHENEVER POSSIBLE.</p> <ol style="list-style-type: none"> If parking on a gradient, position tractor at right angles to the slope. ALWAYS SET PARKING BRAKE. Leaving transmission in gear with the engine stopped will not prevent tractor from rolling. LOWER ALL IMPLEMENTS TO THE GROUND. Failure to comply to this warning may allow the wheels to slip, and could cause injury or death. LOCK SHUTTLE SHIFT LEVER IN NEUTRAL POSITION AND STOP THE ENGINE. <p style="text-align: right; font-size: small;">TA040-49332 ©</p> </div>	<p>⑧ Part No. TA040-4935-1</p>
<p>④ Part No. TA040-4959-2</p>	<div style="border: 1px solid black; padding: 5px;">  <p style="text-align: center;">⚠ WARNING TA040-49592 ©</p> <p>TO AVOID PERSONAL INJURY.</p> <ol style="list-style-type: none"> Keep PTO shield in place at all times. Before using PTO, set drawbar at 14in. (356mm) from drawbar pin hole to the end of PTO shaft. Do not operate the PTO at speeds faster than the speed recommended by the implement manufacturer. </div>	<p>⑤ Part No. TA040-4956-1</p> <p>Diesel fuel only</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p style="text-align: right; font-size: x-small;">TA040-49561 ©</p>



B164F198

⑨ Part No. 35260-3491-3

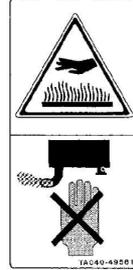
CAUTION

35260-3491 3 ⑩

TO AVOID PERSONAL INJURY:

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

⑫ Part No. TA040-4958-1
Do not touch hot surface like muffler, etc.



⑬ Part No. 32751-4958-1
Stay clear of engine fan and fan belt.



⑩ Part No. TA040-3015-1

DANGER EXPLOSIVE GASES

Cigarettes, flames or sparks could cause battery to explode. Always shield eyes and face from battery. Do not charge or use booster cables or adjust post connections without proper instruction and training.

KEEP VENT CAPS TIGHT AND LEVEL

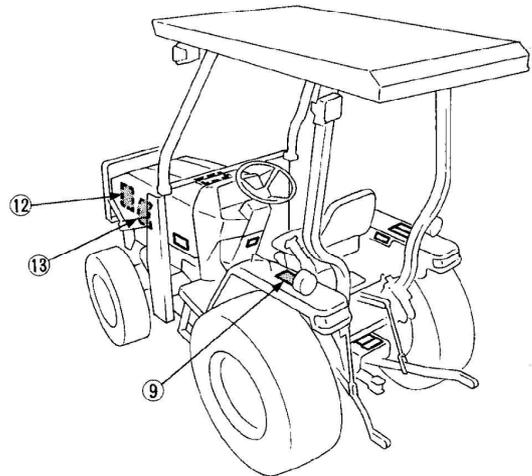
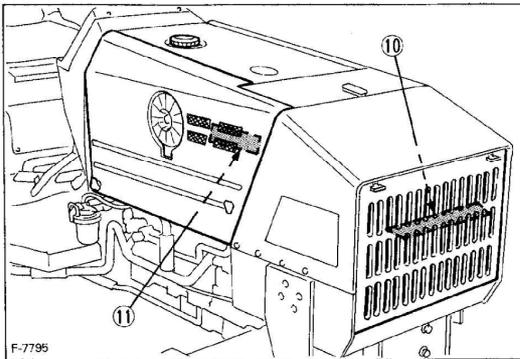
POISON CAUSES SEVERE BURNS

Contains sulfuric acid. Avoid contact with skin, eyes or clothing. In event of accident flush with water and call a physician immediately.

KEEP OUT OF REACH OF CHILDREN

⑪ Part No. 32751-4957-1

Stay clear of engine fan and fan belt.



CARE OF DANGER, WARNING AND CAUTION LABELS

- (1) Keep danger, warning and caution labels clean and free from obstructing material.
- (2) Clean danger, warning and caution labels with soap and water, dry with a soft cloth.
- (3) Replace damaged or missing danger, warning and caution labels with new labels from your local KUBOTA dealer.
- (4) If a component with danger, warning and caution label (s) affixed is replaced with new part, make sure new label (s) is (are) attached in the same location (s) as the replaced component.
- (5) Mount new danger, warning and caution labels by applying on a clean dry surface and pressing any bubbles to outside edge.

B164F199

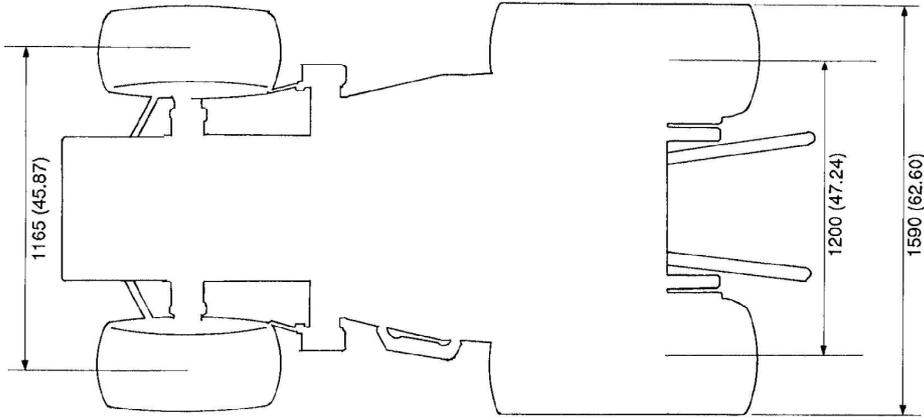
SPECIFICATIONS

Model		L35
Maximum PTO power		19.4 kW (26 HP)
Engine NET power		24.2 kW (32.5 HP)
Engine	Model	D1703
	Type	Indirect injection, Vertical, Water-Cooled, 4-cycle diesel
	Number of cylinders	3
	Bore and stroke	87 x 92.4 mm (3.42 x 3.63 in.)
	Total displacement	1647 cm ³ (100.5 cu.in.)
	Rated revolution	45 r/s (2700 rpm)
	Combustion chamber	Spherical type (E-TVCS)
	Fuel injection pump	Bosh type mini pump (PFR3M)
	Governor	Centrifugal ball mechanical governor
	Injection nozzle	Throttle type
	Injection timing	Before T.D.C. 0.314 rad (18°)
	Injection order	1-2-3
	Injection pressure	13.73 MPa (140 kgf/cm ² , 1991 psi)
	Compression ratio	23 : 1
	Lubricating system	Forced lubrication by trochoidal pump
	Cooling system	Pressurized radiator, Forced circulation with water pump
	Starting system	Electric starting with cell starter (12 V, 1.2 kW)
	Alternator	12 V, 360 W (30 AMPS)
	Battery	490- Cold cranking Amps at -18 °C (-0.4 °F)
	Fuel	Diesel fuel No. 1 [below - 10 °C (14 °F)] Diesel fuel No. 2 [above -10 °C (14 °F)]
Lubricating oil	CC or CD (API grade)	
Weight (Dry)	176 kg (388 lbs)	
Capacities	Fuel tank	35 ℓ (9.2 U.S.gals., 7.7 Imp.gals.)
	Engine crankcase	4.8 ℓ (5.1 U.S.qts., 4.2 Imp.qts.)
	Engine coolant	7 ℓ (7.4 U.S.qts., 6.2 Imp.qts.)
	Transmission case	39 ℓ (41.2 U.S.qts., 34.3 Imp.qts.)
	Front axle case	5.5 ℓ (5.8 U.S.qts., 4.8 Imp.qts.)
Dimensions	Overall length (without 3P)	2720 mm (107.1 in.)
	Overall length (with 3P)	3015 mm (118.7 in.)
	Overall width (minimum tread)	1590 mm (62.6 in.)
	Overall height (Top of ROPS)	2400 mm (94.5 in.)
	Overall height (Top of steering wheel)	1460 mm (77.5 in.)
	Wheel base	1700 mm (66.9 in.)

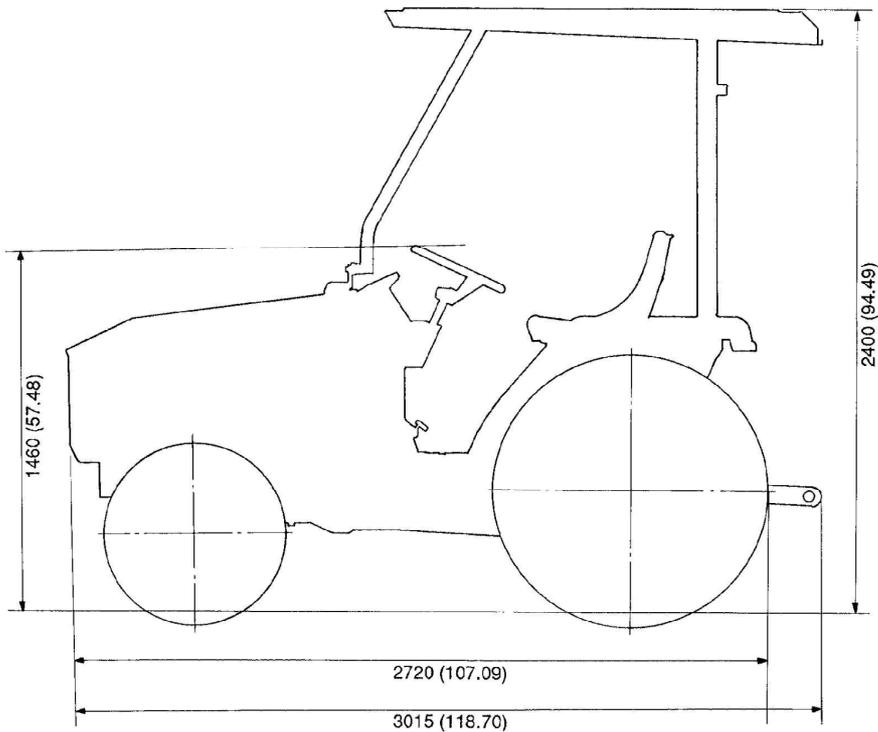
Model		L35	
Dimensions	Min. ground clearance		325 mm (12.8 in.)
	Tread (Std. tires)	Front	1165 mm (45.86 in.)
		Rear	1200 mm (47.24 in.)
Traveling system	Tire size (Std. tires)	Front	27 x 10.50 - 15
		Rear	15 - 19.5
	Clutch		Dry type single stage With single plate
	Steering		Hydrostatic power steering
	Transmission		Glide shift transmission, 8 for ward and 8 reverse speeds
	Brake	Traveling	Wet disc type
		Parking	Connected with the traveling brake
Differential		Bevel gear	
Hydraulic system	Hydraulic control system		Position control
	Pump capacity (at rated revolution engine)		Front Pump 42.2 ℓ / min (11.1 GPM). Power steering Pump 23.3 ℓ/min (6.12GPM)
	Three point hitch		Category 1
	Max. lifting force (24 in. behind lower link end)		1050 kg (2315 lbs)
Rear PTO	PTO shaft		SAE 1-3/8 6-splines
	Revolution		1 Speed 9 r/s (540 rpm) /engine 37 r/s (2219 rpm)
Min. turning radius (with brake)			2.47 m (8.1 ft)
Traction system			Fixed Hitch
Weight (with ROPS)			1450 kg (3197 lbs)
Traveling speed	Forward	1st km/h (mph)	1.4 (0.9)
		2nd km/h (mph)	2.0 (1.3)
		3rd km/h (mph)	3.3 (2.0)
		4th km/h (mph)	4.9 (3.0)
		5th km/h (mph)	6.9 (4.3)
		6th km/h (mph)	9.7 (6.0)
		7th km/h (mph)	15.8 (9.8)
		8th km/h (mph)	23.3 (14.5)
	Reverse	1st km/h (mph)	1.3 (0.8)
		2nd km/h (mph)	1.9 (1.1)
		3rd km/h (mph)	3.0 (1.9)
		4th km/h (mph)	4.4 (2.8)
		5th km/h (mph)	6.3 (3.9)
		6th km/h (mph)	8.9 (5.5)
		7th km/h (mph)	14.5 (9.0)
8th km/h (mph)	21.4 (13.3)		

DIMENSIONS

Unit : mm (in.)



B164F058



B164F059

G GENERAL

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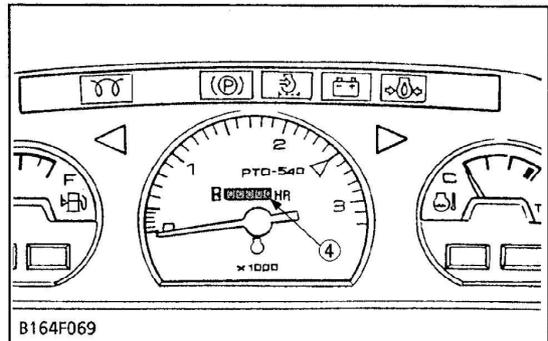
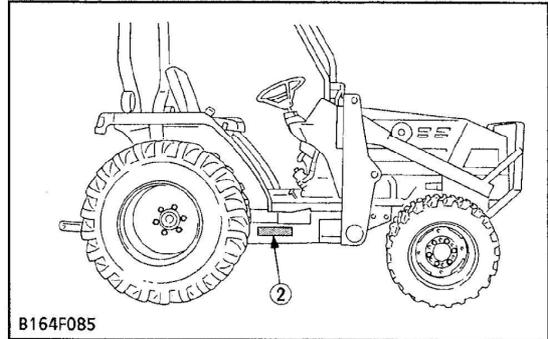
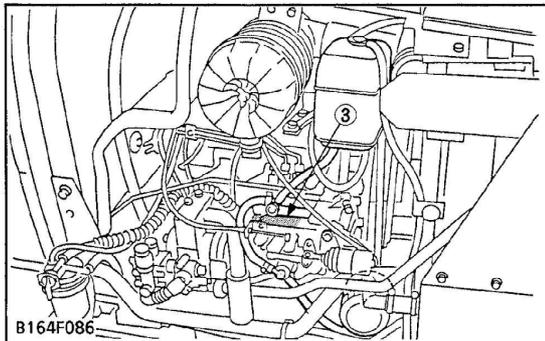
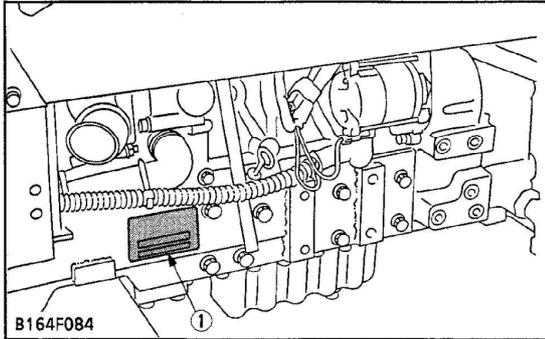
[1] FEATURES

B164P029

- | | |
|---|---|
| (1) Low Noise And Vibration From The KUBOTA E-TVCS Diesel Engine | (7) The Backhoe Quickly Attached or Detached |
| (2) Clutchless Operation of The GST Transmission | (8) The Powerfull Stabilizers Contribute To Stable Backhoe Operations |
| (3) The Hard-Nose Slanted Hood And The Enclosed Muffler | (9) The Automatic self-Leveling Loader And Single Lever Operation |
| (4) The Full Flat Deck And The Hanging -Type Pedals | (10) The 3-Pint Hitch And The PTO Fitted As Standard Features |
| (5) The "One-Touch" Reversible High-Back Deluxe Seat | (11) Industrial Tire |
| (6) 2-Pump Hydraulic System With The Exclusive Hydraulic Pump For Loader And Backhoe Operations | (12) 4 Post ROPS |

[2] TRACTOR IDENTIFICATION

When contacting your local KUBOTA distributor, always specify engine serial number, tractor serial number and hourmeter reading.

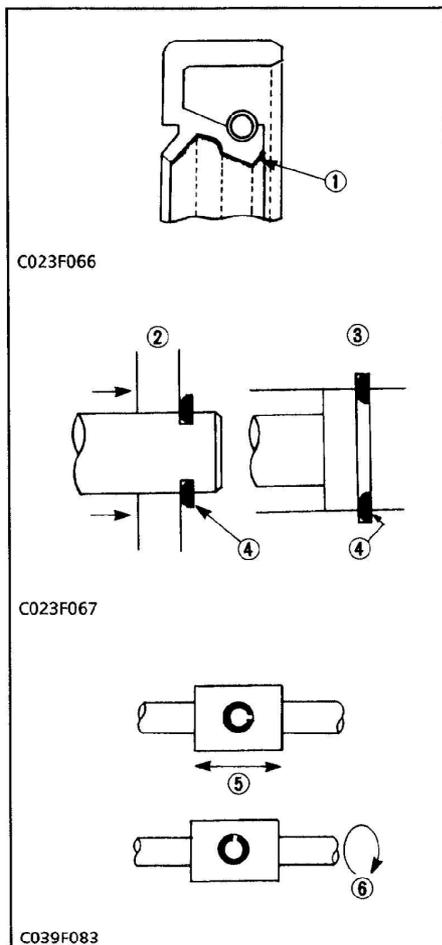


(1) Identification Plate

(2) Tractor Serial Number

(3) Engine Serial Number

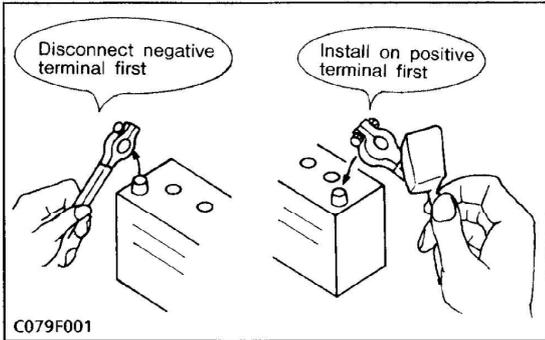
(4) Hour Meter

[3] GENERAL PRECAUTIONS

- During disassembly, carefully arrange removed parts in a clean area to prevent confusion later. 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.
- Before disassembling or servicing electrical wires, always disconnect the ground cable from the battery first.
- Remove oil and dirt from parts before measuring.
- Use only KUBOTA genuine parts for parts replacement to maintain tractor performance and to assure safety.
- Gaskets and O-rings must be replaced during reassembly. Apply grease to new O-rings or oil seals before assembling. See the figure left side.
- 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 left side.
- When inserting spring pins, their splits must face the direction from which a force is applied. See the figure left side.
- To prevent damage to the hydraulic system, use only specified fluid or equivalent.

- (1) Grease
- (2) External Snap Ring
- (3) Internal Snap Ring
- (4) Sharp Edge against the Direction of Force
- (5) Axial Force
- (6) Rotating Movement

[4] HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING

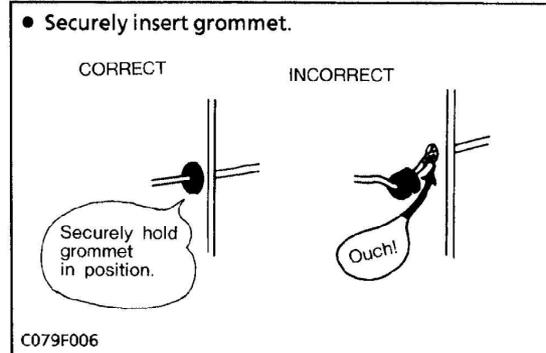
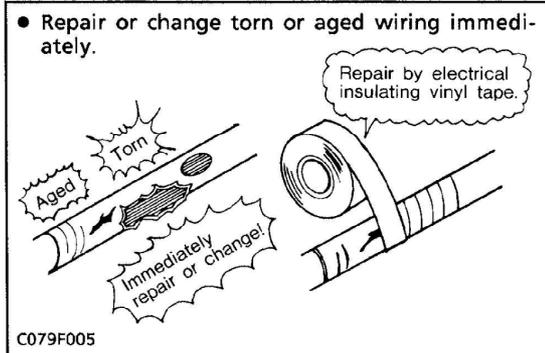
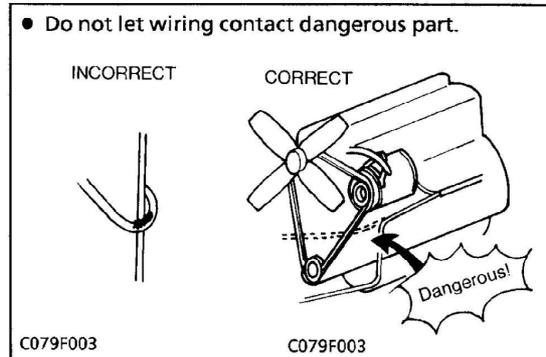
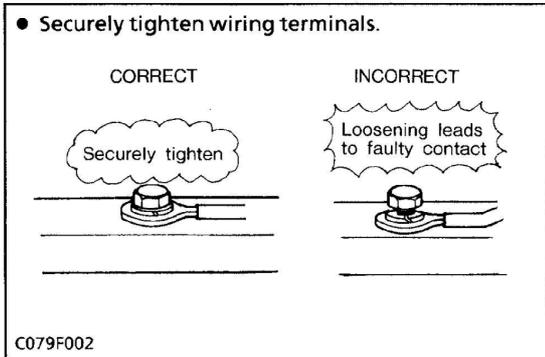


To ensure safety and prevent damage to the machine and surrounding equipment, heed the following precautions in handling electrical parts and wiring.

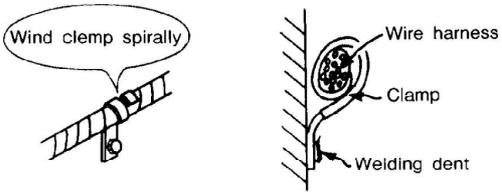
■ **IMPORTANT**

- Check electrical wiring for damage and loosened connection every year. To this end, educate the customer to do his or her own check and at the same time recommend the dealer to perform periodic check for a fee.
- Do not attempt to modify or remodel any electrical parts and wiring.
- When removing the battery cord, disconnect the negative wire first. When installing the battery cord, connect the positive wire first.

■ **Wiring**



- Securely clamp, being careful not to damage wiring.



C079F007

C079F008

- Clamp wiring so that there is no twist, unnecessary sag, or excessive tension, except for movable part, where sag may be required.

CORRECT



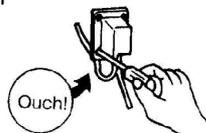
INCORRECT



C079F009

- In installing a part, take care not to get wiring caught by it.

INCORRECT



C079F010

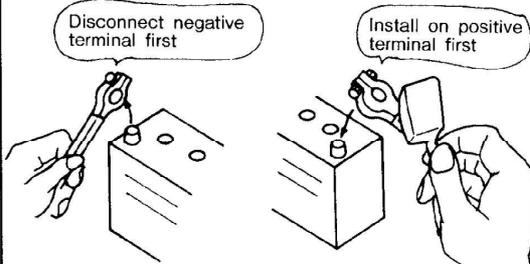
- After installing wiring, check protection of terminals and clamped condition of wiring, only then connect battery.



C079F011

Battery

Take care not to confuse positive and negative terminals.



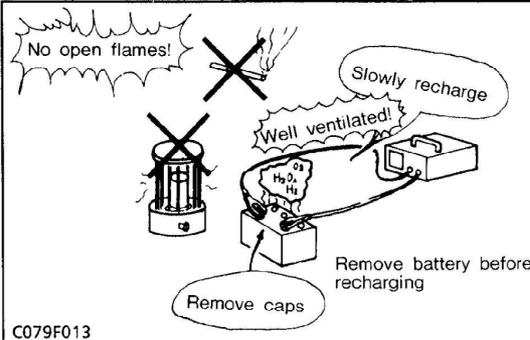
C079F001

- When removing battery cord, disconnect negative wire first. When installing battery cord, check for polarity and connect positive wire first.
- Do not install any battery with capacity other than is specified (Ah).
- After connecting cord to battery terminals, apply grease to them and securely install terminal covers on them.
- Do not allow dirt and dust to collect on battery.

CAUTION

- Take care not to let battery liquid spill on your skin and clothes. If contaminated, wash it off with water immediately.
- Before recharging the battery, remove it from the machine.
- Before recharging, remove cell caps.
- Do recharging in a well-ventilated place where there is no open flame nearby, as hydrogen gas and oxygen are formed.

No open flames!



C079F013

■ Fuse

- Use fuses with specified capacity.
- Never use steel or copper wire in place of fuse.

Use fuse with specified capacity

Neither too large or small capacity fuse is acceptable!

Do not substitute copper or steel wire!

C079F014

- Do not install working light, radio set, etc. on machine which is not provided with reserve power supply.
- Do not install accessories if fuse capacity of reserve power supply is exceeded.

Use reserve power supply for working light

It is dangerous to modify or remodel as you please.

C079F015

■ Connector

- For connector with lock, push lock to separate.

Unlock

Push lock to remove

C079F016

- In separating connectors, do not pull wire harnesses.

CORRECT

Hold connector bodies to separate

INCORRECT

Ouch!

Getting torn off!

C079F017

- Use sandpaper to remove rust from terminals.
- Repair deformed terminal. Make certain there is no terminal being exposed or displaced.

Use sandpaper to remove rust from terminals.

No bending!

No displaced or exposed terminal

C079F018

C079F019

- Make certain that there is no female connector being too open.

CORRECT

INCORRECT

CORRECT

INCORRECT

C079F020

C079F021

- Make certain plastic cover is large enough to cover whole connector.

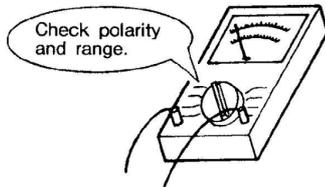
CORRECT

Plastic cover large enough to cover entire connector

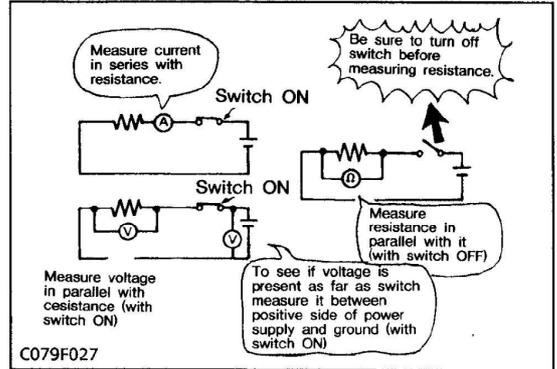
C079F028

■ Handling of Circuit Testers

- Use tester correctly following manual provided with tester.
- Check for polarity and range.



C079F026



C079F027

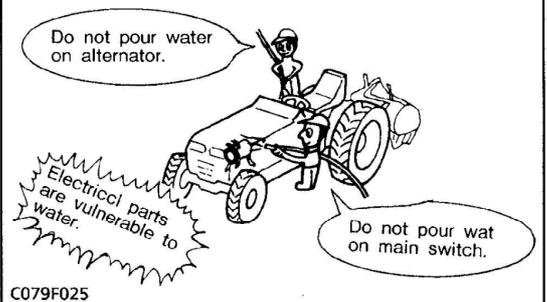
■ Handling of Parts

- Do not throw or drop electrical parts and wire harnesses.



C079F023

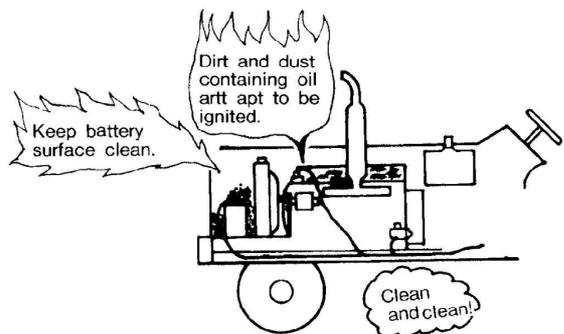
- Do not pour water on electrical parts such as main switch and alternator.



C079F025

■ Oil, Dust and Dirt

- If flammable material such as fuel, or lubricant spills, wipe it off with dry piece of cloth. Do not approach it with an open flame.
- Replace fuel pipe that is aged.
- Remove dirt and dust accumulated on heated part, wire harness, battery, etc.



C079F024

[5] LUBRICANTS, FUEL AND COOLING WATER

Place	Capacity	Lubricants, fuel and cooling water
	L35	
Fuel tank	35 ℓ 9.2 U.S.gals. 7.7 Imp.gals.	No.2-D diesel fuel No.1-D diesel fuel if temperature is below - 10 °C (14 °F)
Cooling system	7.0 ℓ 7.4 U.S.qts. 6.2 Imp.qts.	Fresh clean water with anti-freeze
Engine crankcase	4.8 ℓ 5.1 U.S.qts. 4.2 Imp.qts.	Engine oil : API Service CC or CD Below 0 °C (32 °F)SAE10W, 10W-30 or 10W-40 0 to 25 °C (32 to 77 °F) SAE20, 10W-30 or 10W-40 Above 25 °C (77 °F) SAE30, 10W-30 or 10W-40
Transmission case	39 ℓ 41.2 U.S.qts. 34.3 Imp.qts.	KUBOTA SUPER UDT fluid *
Front axle case	5.5 ℓ 5.8 U.S.qts. 4.8 Imp. qts.	KUBOTA SUPER UDT fluid * or SAE 80, 90 gear oil

Greasing	No. of greasing point	Capacity	Type of grease
Steering lever	1	Until grease overflows	SAE multi-purpose type grease
Top link	2		
Lift rod	1		
Shift guide	1		
Seat adjuster	2	Moderate amount	
Reversible seat	2		
Battery terminal	2		

* : KUBOTA original transmission hydraulic fluid

[6] 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		
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
M 6 (6 mm, 0.24 in.)	7.84 to 9.31	0.80 to 0.95	5.79 to 6.87	7.84 to 8.83	0.80 to 0.90	5.79 to 6.51	9.80 to 11.2	1.00 to 1.15	7.24 to 8.32	7.84 to 8.83	0.80 to 0.90	5.79 to 6.51	12.3 to 14.2	1.25 to 1.45	9.05 to 10.5
M 8 (8 mm, 0.31 in.)	17.7 to 20.5	1.8 to 2.1	13.0 to 15.2	16.7 to 19.6	1.7 to 2.0	12.3 to 14.5	23.6 to 27.4	2.4 to 2.8	17.4 to 20.2	17.7 to 20.6	1.8 to 2.1	13.0 to 15.2	29.4 to 34.3	3.0 to 3.5	21.7 to 25.3
M10 (10 mm, 0.39 in.)	39.2 to 45.0	4.0 to 4.6	29.0 to 33.2	31.4 to 34.3	3.2 to 3.5	23.1 to 25.3	48.1 to 55.8	4.9 to 5.7	35.5 to 41.2	39.2 to 44.1	4.0 to 4.5	28.9 to 32.5	60.8 to 70.5	6.2 to 7.2	44.9 to 52.1
M12 (12 mm, 0.47 in.)	62.8 to 72.5	6.4 to 7.4	46.3 to 53.5				77.5 to 90.1	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 86.8
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 (16mm, 0.63 in.)	167 to 191	17.0 to 19.5	123 to 141				196 to 225	20.0 to 23.0	145 to 166				260 to 303	26.5 to 31.0	192 to 224
M18 (18 mm, 0.71 in.)	245 to 284	25.0 to 29.0	181 to 210				275 to 318	28.0 to 32.5	203 to 235				343 to 401	35.0 to 41.0	254 to 297
M20 (20mm, 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				490 to 568	50.0 to 58.0	362 to 420

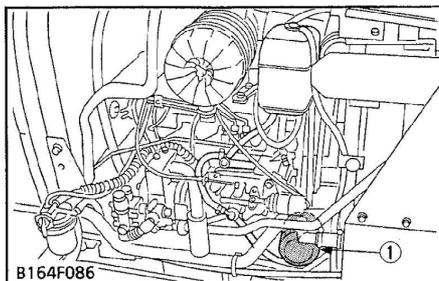
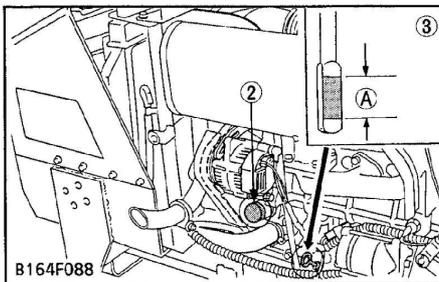
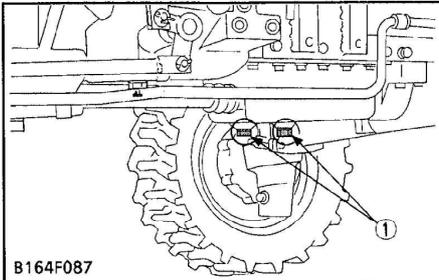
[7] MAINTENANCE CHECK LIST

No.	Check point	Indication on hour meter (Change or check every interval shown below)																After purchase		Reference page
		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	1 year	2 years	
1	Greasing	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			G-14	
2	Engine starting system checking	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			G-15	
3	Wheel bolt torque checking	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			G-16	
4	Battery condition checking	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			G-16	
5	Engine oil changing	⊙	○		○		○		○		○		○		○				G-12	
6	Air cleaner element cleaning ★		○		○		○		○		○		○		○				G-17	
7	Fuel filter element cleaning		○		○		○		○		○		○		○				G-17	
8	Fan belt tension adjustment		○		○		○		○		○		○		○				G-18	
9	Clutch pedal free travel adjustment		○		○		○		○		○		○		○				G-18	
10	Brake pedal free travel adjustment		○		○		○		○		○		○		○				G-18	
11	Engine oil filter cartridge replacement	⊙			○				○				○				○		G-12	
12	Hydraulic oil filter cartridge replacement	⊙			○				○				○				○		G-12	
13	Radiator hose and clamp checking				○				○				○				○		G-19	
14	Power steering oil line checking				○				○				○				○		G-20	
15	Fuel line checking				○				○				○				○		G-20	
16	Toe-in adjustment				○				○				○				○		G-19	
17	Transmission fluid changing	⊙							○								○		G-13	
18	Front axle case oil changing	⊙							○								○		G-13	
19	Front axle pivot adjustment	⊙							○								○		G-13	
20	Fuel filter element replacement								○								○		G-20	
21	Engine valve clearance adjustment																○		G-21	
22	Air cleaner element replacement																○		G-22	
23	Radiator hose and clamp replacement																	○	G-22	
24	Power steering oil line replacement																	○	G-22	
25	Fuel line replacement																	○	G-23	
26	Engine cooling system cleaning																	○	G-23	
27	Coolant changing																	○	G-24	

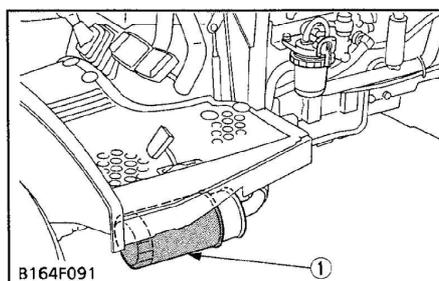
Note : The jobs indicated by ⊙ must be done by all means 50 hours after the break-in respectively.

The jobs indicated by ☆ service as required.

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

(2) Check Points of Initial 50 Hours

(1) Engine Oil Filter Cartridge



(1) Hydraulic Oil Filter Cartridge

Changing Engine Oil

1. Start and warm up the engine for approx. 5 minutes.
2. Place an oil pan underneath the engine.
3. To drain the used oil, remove the drain plugs (1) at the bottom of the engine and drain the oil completely.
4. Screw in the drain plug.
5. Fill new oil up to upper line on the dipstick.

IMPORTANT

- When using an oil of different manufacture or viscosity from the previous one, remove all of the old oil. Never mix two different types of oil.
- Use the proper SAE Engine Oil according to ambient temperatures. Refer to "LUBRICANTS, FUEL AND COOLING WATER". (See page G-8.)

[A] Oil level is acceptable within this range.

- (1) Drain Plug (3) Dipstick
(2) Oil Inlet Plug

Replacing Engine Oil Filter Cartridge

1. Remove the engine oil filter cartridge (1).
2. When installing, apply the clean engine oil slightly to the rubber gasket.
3. Tighten the filter cartridge (1) quickly until it contacts the mounting surface. Tighten filter cartridge (1) by hand an additional 1/2 turn only.
4. After the new cartridge has been replaced the engine oil level normally decreases a little. Add engine oil to proper level. Check for oil leaks around filter gasket.

IMPORTANT

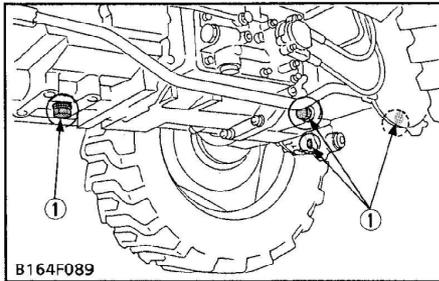
- To prevent serious damage to the engine, replacement oil filter cartridge must be highly efficient. Use only a genuine KUBOTA filter.

Replacing Hydraulic Oil Filter Cartridge

1. Remove the hydraulic oil filter cartridge (1).
2. When installing, apply the clean transmission oil slightly to the rubber gasket.
3. Tighten the hydraulic oil filter cartridge (1) quickly until it contacts the mounting surface. Tighten hydraulic oil filter cartridge (1) by hand an additional 1/2 turn only.
4. After the new cartridge has been replaced, the transmission fluid level normally decreases a little. Add KUBOTA SUPER UDT fluid to proper level. Check for oil leaks around filter gasket.

IMPORTANT

- To prevent serious damage to the hydraulic system, replacement oil filter cartridge must be highly efficient. Use only a genuine KUBOTA filter.



Changing Transmission Fluid

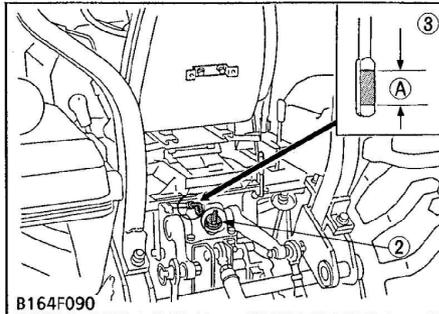
1. Place the oil pans underneath the transmission case.
2. Remove the four drain plugs (1) to drain transmission fluid.
3. Screw in the drain plugs (1).
4. Remove the oil filling plug (2).
5. Fill new transmission fluid up to the upper line on the dipstick (3).
6. Reinstall the oil filling plug (2).
7. After running the engine for few minutes, stop it and check the oil level again. If low, add new fluid.

■ IMPORTANT

- Use only KUBOTA SUPER UDT fluid. Use of other oils may damage the transmission or hydraulic system. Refer to "LUBRICANTS, FUEL AND COOLING WATER". (See page G-8.)
- Never work the tractor immediately after changing the transmission fluid. Keeping the engine at medium speed for a few minutes to prevents damage to the transmission.

[A] Oil level is acceptable within this range.

- (1) Drain Plug (3) Dipstick
(2) Filling Plug



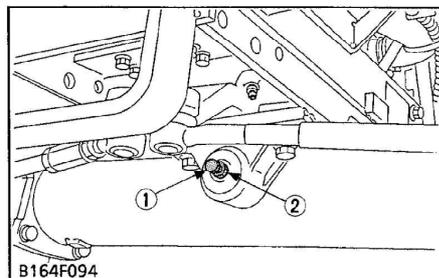
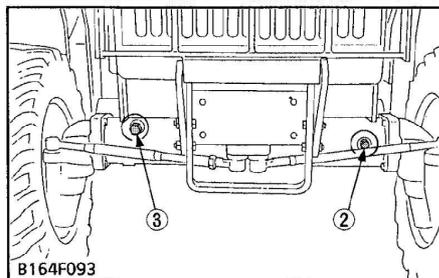
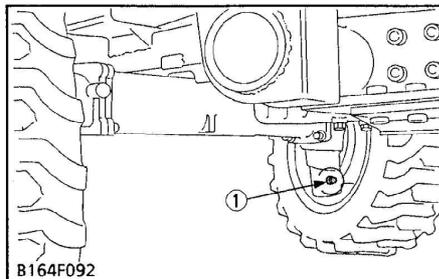
Changing Front Axle Case Oil

1. Place the oil pans underneath the front axle case.
2. Remove the drain plug (1) both sides and filling port plug (3) to drain the oil.
3. After draining, reinstall the drain plugs (1).
4. Remove the oil level check plug (2).
5. Fill new oil up to the check plug (2) port.
6. After filling, reinstall the check plug (2) and filling port plug (3).

■ IMPORTANT

- Use KUBOTA SUPER UDT fluid or SAE 80, 90 gear oil. Refer to "LUBRICANTS, FUEL AND COOLING WATER". (See page G-8.)

- (1) Drain Plug (3) Filling Port Plug
(2) Check Plug



Adjusting Front Axle Pivot

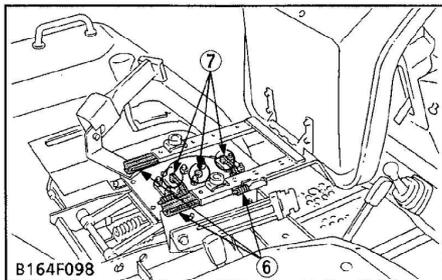
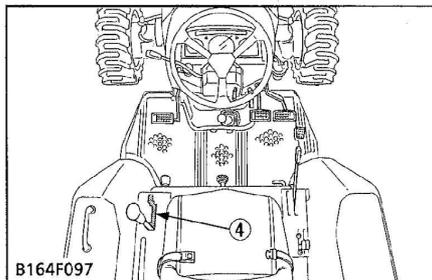
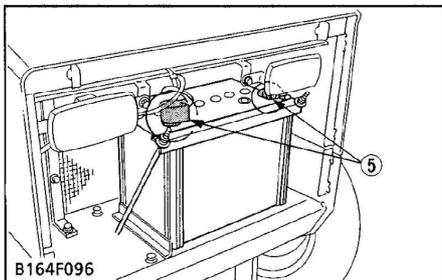
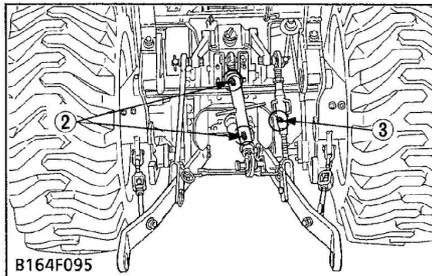
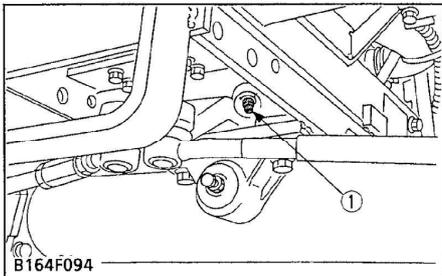
1. Loosen the lock nut (2), tighten the adjusting screw (1) all the way, and then loosen the adjusting screw (1) by 1/6 turn.
2. Retighten the lock nut (2).

- (1) Adjusting Screw (2) Lock Nut

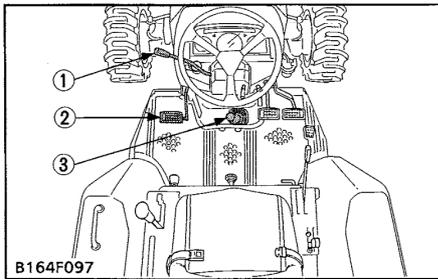
(3) Check Points of Every 50 Hours

Greasing

1. Apply grease to the following points.



- (1) Steering Lever Grease Nipple
- (2) Top Link Grease Nipple
- (3) Lift Rod Grease Nipple
- (4) Main Gear Shift Lever
- (5) Battery Terminals
- (6) Seat Adjuster
- (7) Reversible Seat



B164F097

- (1) Shuttle Shift Lever (3) PTO Shift Lever
(2) Clutch Pedal

Checking Engine Starting System

⚠ CAUTION

- Do not allow anyone near the tractor while testing.
- If the tractor does not pass the test do not operate the tractor.

■ Preparation

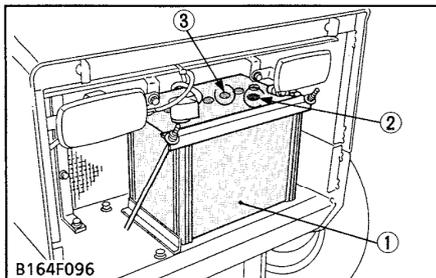
1. Place the all control levers in the "NEUTRAL" position.
2. Set the parking brake and stop the engine.

■ Test 1 : Limit Switch of Built-in PTO Shift Lever

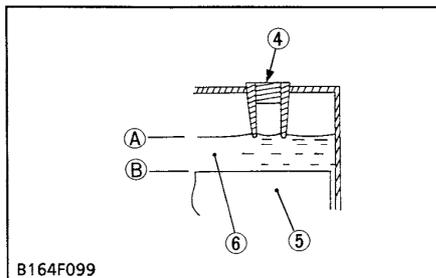
1. Sit on operator's seat.
2. Engage the PTO shift lever (3).
3. Depress the clutch pedal (2) fully.
4. Shift the shuttle shift lever (1) to the neutral position.
5. Pull out the engine stop knob and turn the key to "START" position.
6. The engine must not crank.
7. If crank, repair or replace the PTO limit switch or starter relay.

■ Test 2 : Limit Switch of Built-in Shuttle Shift Lever

1. Sit on operator's seat.
2. Shift the shuttle shift lever (1) to the forward or reverse position.
3. Depress the clutch pedal (2) fully.
4. Disengage the PTO shift lever (3).
5. Pull out the engine stop knob and turn the key to "START" position.
6. The engine must not crank.
7. If crank, repair or replace the shuttle limit switch or starter relay.



B164F096



B164F099

- [A] Highest Level [B] Lowest Level

- (1) Battery (4) Vent Well
(2) Indicator (5) Separator
(3) Vent Plug (6) Electrolyte

Checking Battery Condition

⚠ CAUTION

- Never remove the vent plugs (3) while the engine is running.
- Keep electrolyte away from eyes, hands and clothes. If you are spattered with it, wash it away completely with water immediately and get medical attention.
- Wear eye protection and rubber gloves when working around battery.

■ NOTE

- The original battery is maintenance free type battery, but need some servicing.

■ How to Read the Indicator

- If the indicator (2) is blue color. Specific gravity of electrolyte and quantity of electrolyte are both in good condition.

- If the indicator (2) is white color

Need inspection :

- ① Add only distilled water if the electrolyte level is low. (Proper level is shown in the figure left) You can start work again if the indicator display turns to blue. Change battery if the indicator display remains white.
- ② Change battery if the electrolyte level is normal.

Tractor Model	Battery Type	Volts (V)	Capacity at 5 H.R. (A.H.)
L35	75D26R-MF	12	52

Tractor Model	Reserve Capacity (min)	Cold Cranking Amps	Normal Charging Rate (A)
L35	123	490	5.2

Table 1

Battery Charging

CAUTION

- When the battery is being activated, hydrogen and oxygen gases in the battery are extremely explosive. Keep open sparks and flames away from the battery at all times, especially when charging the battery.
- When charging battery, remove battery vent plugs.
- When disconnecting the cable from the battery, start with the negative terminal first. When connecting the cable to the battery, start with the positive terminal first.
- Never check battery charge by placing a metal object across the posts. Use a voltmeter or hydrometer.

1. Make sure each electrolyte level is to the bottom of vent wells, if necessary add distilled water in a well-ventilated area.
2. The water in the electrolyte evaporates during recharging. Liquid shortage damages the battery. Excessive liquid spills over and damages the tractor body.
3. To slow charge the battery, connect the battery positive terminal to the charger positive terminal and the negative to the negative, then recharge in the standard fashion.
4. A boost charge is only for emergencies. It will partially charges the battery at a high rate and in a short time. When using a boost-charged battery, it is necessary to recharge the battery as early as possible. Failure to do this will shorten the battery's service life.
5. When the specific gravity of electrolyte become between 1.27 and 1.29 charge has completed.
6. When exchanging an old battery into new one, use battery of equal specification shown in table 1.

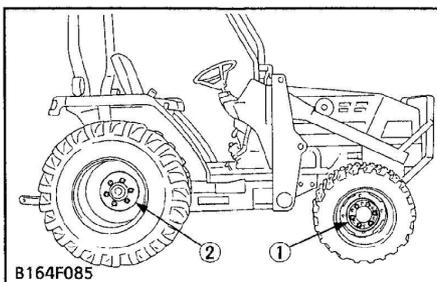
Direction for Storage

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

Checking Wheel Mounting Screws and Nuts Tightening Torque

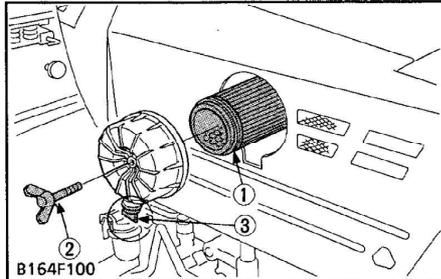
CAUTION

- Never operate tractor with a loose rim, wheel, or axle.
1. Check the tightening torque of wheel mounting screws and nuts all.



Tightening torque	Front wheel mounting lug nuts	137 N-m 14 kgf-m 100 ft-lbs
	Rear wheel mounting screws and nuts	215 N-m 22 kgf-m 160 ft-lbs

(1) Front Wheel Mounting Lug Nuts (2) Rear Wheel Mounting Screws and Nuts

(4) Check Points of Every 100 Hours

(1) Air Cleaner Element (3) Evacuator Valve
(2) Wing Bolt

Changing Engine Oil

1. See page G-12.

Cleaning Air Cleaner Element

1. Remove the air cleaner element (1).
2. When dry dust adheres to the element, blow compressed air from the inside turning the element. Pressure of compressed air must be under 686 kPa (7 kgf/cm², 99 psi).
3. When carbon or oil adheres to the element, soak the element in detergent for 15 minutes then wash it several times in water, rinse with clean water and dry it naturally. After element is fully dried, inspect inside of the element with a light and check if it is damaged or not. (Referring to the instructions on the label attached to the element.)

NOTE

- Every year or every 6 times of cleaning, replace the air cleaner element (1).

IMPORTANT

- The air cleaner uses a dry element, never apply oil.
- Do not run the engine with filter element removed.
- Make sure the wing nut or bolt with rubber dust seal for the element is tight enough. If it is loose, dust and dirt may be sucked in, wearing down the cylinder and piston rings earlier and thereby resulting in poor power output.

Evacuator Valve

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

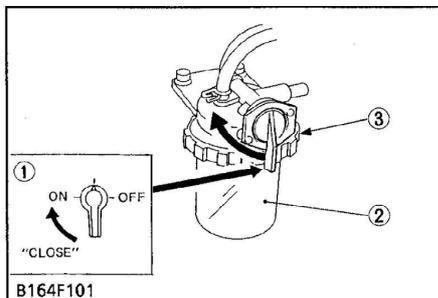
Cleaning Fuel Filter Element and Filter Bowl

1. Close the fuel filter cock (1).
2. Unscrew the retainer ring (3) and remove the filter bowl (2), and rinse the inside with kerosene.
3. Take out the element (5) and dip it in the kerosene to rinse.
4. After cleaning, reassemble the fuel filter, keeping out dust and dirt.
5. Bleed the fuel system. (See page G-24.)

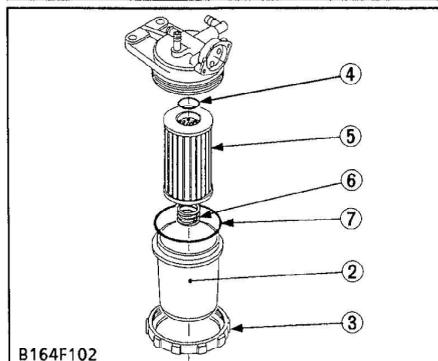
IMPORTANT

- This job should not be done in the field, but in a clean place.
- If dust and dirt enter the fuel, the fuel pump and injection nozzles are subject to quick wear. To prevent this, be sure to clean the fuel filter bowl periodically.

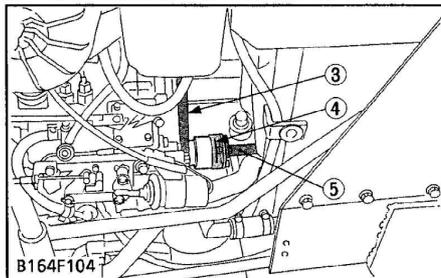
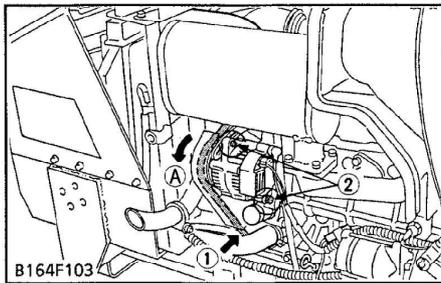
- | | |
|----------------------|--------------------|
| (1) Fuel Filter Cock | (5) Filter Element |
| (2) Filter Bowl | (6) Spring |
| (3) Retainer Ring | (7) O-ring |
| (4) O-ring | |



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Adjusting Fan Belt Tension

⚠ CAUTION

- Be sure to stop the engine before checking fan belt tension.
- 1. Stop the engine and remove the key.
- 2. Apply moderate thumb pressure to belt between pulleys.
- 3. If tension is incorrect, loosen the alternator mounting bolts (2), and using a lever placed between the alternator and the engine block, pull the alternator out until the deflection of the belt falls within the factory specifications.
- 4. Replace fan belt if it is damaged.

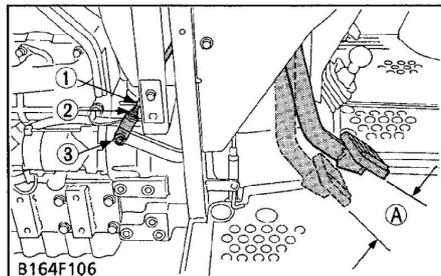
Fan belt tension	Factory spec.	A deflection of between 7 to 9 mm (0.28 to 0.34 in.) when the belt is pressed in the middle of the span
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■ NOTE

- L35 has a front mount hydraulic pump. When replacing the fan belt (3), remove spacer (4) on the crankshaft pulley. And then, the fan belt can be moved past between the drive shaft (5) and the crankshaft pulley.

[A] To Tighten the Fan Belt

- (1) Check Part of Belt Tension
- (2) Alternator Mounting Bolt
- (3) Fan Belt
- (4) Spacer
- (5) Drive Shaft (Hydraulic Pump)



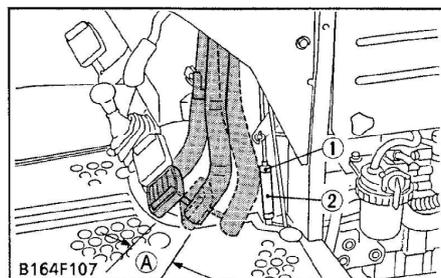
Adjusting Clutch Pedal Free Travel

1. Stop the engine and remove the key.
2. Slightly depress the clutch pedal and measure free travel (A) at top of pedal stroke.
3. If adjustment is needed, loosen the lock nut (2), remove the clevis pin (3) and adjust the clutch rod (1) length within the factory specifications.
4. Retighten the lock nut (2) and split the cotter pin.

Clutch pedal free travel	Factory spec.	20 to 30 mm (0.8 to 1.2 in.) on the pedal
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[A] Free Travel

- (1) Clutch Rod
- (2) Lock Nut
- (3) Clevis Pin



Adjusting Brake Pedal Free Travel

1. Stop the engine and remove the key, and then release the parking brake.
2. Slightly depress the brake pedals and measure free travel (A) at top of pedal stroke.
3. If adjustment is needed, loosen the lock nut (1) and turn the turnbuckle (2) to adjust the rod length within the factory specifications.
4. Retighten the lock nut (1).

Brake pedal free travel	Factory spec.	15 to 20 mm (0.6 to 0.8 in.) on the pedal Keep the free travel in the right and left brake pedals equal
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[A] Free Travel

- (1) Lock Nut
- (2) Turnbuckle

(5) Check Points of Every 200 Hours

Replacing Engine Oil Filter Cartridge

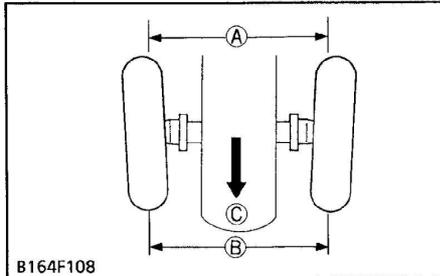
1. See page G-12.

Replacing Hydraulic Oil Filter Cartridge

1. See page G-12.

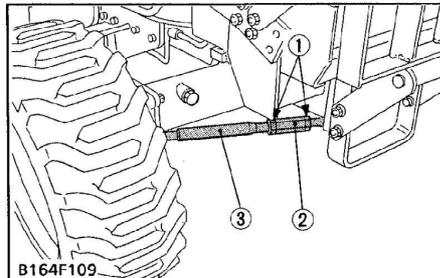
Adjusting Toe-in

1. Park the tractor on the flat place.
2. Inflate the tires to the specified pressure.
3. Turn the front wheels straight ahead.
4. Measure the distance between the centers of front wheels at front and rear.
5. If the measurement is not within the factory specifications, adjust by changing the tie-rod length.



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Toe-in (A - B)	Factory spec.	2 to 8 mm 0.1 to 0.3 in.
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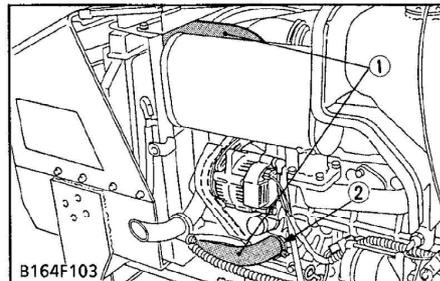


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Adjustment

1. Loosen the lock nuts (1).
2. Turn the turnbuckle (2) to adjust the toe-in.
3. Tighten the lock nuts (1).

- (1) Lock Nuts (3) Tie-rod
(2) Turnbuckle

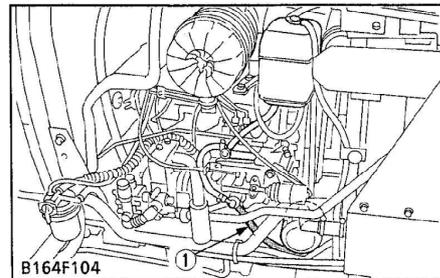


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Checking Radiator Hose and Clamp

1. Check the radiator hoses (1) and their clamps (2).
2. If water leaks, retighten or replace them.

- (1) Radiator Hoses (2) Clamps



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