GENERAL

CONTENTS

[1] FEATURES G-1
[2] TRACTOR IDENTIFICATION G-2
[3] GENERAL PRECAUTIONS G-3
[4] HANDLING PRECAUTIONS FOR ELECTRICAL PARTS AND WIRING G-3
(1) Wiring G-4
(2) Battery G-5
(3) Fuse G-6
(4) Connector G-6
(5) Handling of Circuit Tester G-7
[5] LUBRICANTS, FUEL AND COOLING WATER G-8
[6] TIGHTENING TORQUES G-9
(1) General Use Screws, Bolts and Nuts G-9
(2) Stud Bolts G-10
(3) Hydraulic Hoses Fitting G-10
[7] MAINTENANCE G-11
[8] CHECK AND MAINTENANCE G-12
(1) Daily Check G-12
(2) Check Points of Initial 50 Hours G-13
(3) Check Points of Every 50 Hours G-17
(4) Check Points of Every 100 Hours G-20
(5) Check Points of Every 200 Hours G-23
(6) Check Points of Every 300 Hours G-24
(7) Check Point of Every 400 Hours G-25
(8) Check Point of Every 800 Hours G-25
(9) Check Point of Every 1 Year G-26
(10) Check Point of Every 2 Years G-26
(11) Others G-27
[9] SPECIAL TOOLS G-29
(1) Special Tools for Engine G-29
(2) Special Tools for Tractor G-36
[10] TIRES G-41
(1) Tire Pressure G-41
(2) Tread G-41
(3) Tire Liquid Injection G-42
[11] IMPLEMENT LIMITATIONS G-45

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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.**

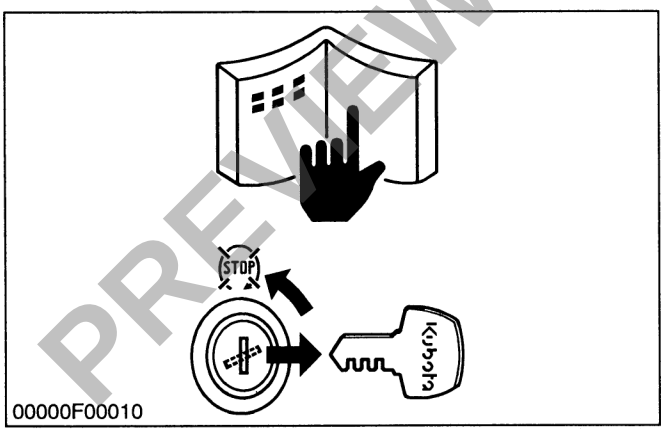
⚠ **WARNING : Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**

⚠ **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.**

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BEFORE SERVICING AND REPAIRING

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

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SPECIFICATIONS

Model			B21
PTO power			10.0 kW (13.5 HP)
Engine	Maker		KUBOTA
	Model		D1005-ETLB
	Type		Indirect Injection. Vertical, water-cooled, 4-cycle diesel
	Number of cylinders		3
	Bore and stroke		76 × 73.6 mm (2.99 × 2.90 in.)
	Total displacement		1001 cm^3 (61.1 cu.in.)
	Engine net power (DIN)		15.7 kW (21.0 HP)
	Rated revolution (min^{-1})		43.3 r/s (2600 rpm)
	Maximum torque		59 N·m (44 ft-lbs)
	Battery		12 V, RC : 79 min, CCA : 433 A
	Starting system		Electric starting with cell starter 12 V, 1.0 kW
	Lubricating system		Forced lubrication by trochoidal pump
	Cooling system		Pressurized radiator, forced circulation with water pump
	Fuel		Diesel fuel No. 2-D [above –10 °C (14 °F)], Diesel fuel No. 1 [below –10 °C (14 °F)]
Capacities	Fuel tank		24 L (6.3 U.S.gals, 5.3 Imp.gals)
	Engine crankcase (with filter)		3.0 L (3.2 U.S.qts, 2.6 Imp.qts)
	Engine coolant		3.4 L (3.6 U.S.qts, 2.6 Imp.qts)
	Transmission case		27.5 L (7.26 U.S.gals, 6.05 Imp.gals)
	Front axle case		3.7 L (3.9 U.S.qts, 3.3 Imp.qts)
Dimensions	Overall length (without 3P)		2495 mm (98.2 in.)
	Overall width		1365 mm (53.7 in.)
	Overall height (with ROPS / FOPS)		2260 mm (89.0 in.)
	Overall height (top of steering wheel)		1370 mm (53.9 in.)
	Wheel base		1535 mm (60.4 in.)
	Minimum ground clearance		305 mm (12.0 in.)
	Tread	Front	960 mm (37.8 in.)
		Rear	1050 mm (41.3 in.)
Weight (with ROPS, FOPS, main frame and front loader)			1296 kg (2858 lbs)
Clutch			Dry single plate
Travelling system	Tires	Front	23 × 8.50 -14R4
		Rear	12.4-16 R4
	Steering		Integral type power steering
	Transmission		Main-hydrostatic transmission, range-gear shift (3 forward and 3 reverse)
	Brake		Wet disk type
	Min. turning radius (without brake)		2.85 m (9.4 feet)
	Differential		Bevel gear
Hydraulic system	Hydraulic control system		Position Control
	Pump capacity		32 L/min (8.5 U.S.GPM, 7.0 Imp.GPM)
	Three point hitch		SAE Category I
	Max. lift force (24 in, behind lift points)		460 kg (1014 lbs)
PTO system		PTO shaft	SAE 1-3/8, 6 splines
		Revolution	540 min^{-1} (rpm) at 2584 engine min^{-1} (rpm)

Note : * Manufacture's estimate the company reserves the right to change the specifications without notice.

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[7] MAINTENANCE

No.	Item		Period	Indication on hour meter																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	Engine oil		Change	★	☆		☆		☆		☆		☆		☆		☆		☆			G-13
2	Engine oil filter		Replace	★			☆				☆				☆				☆			G-13
3	Transmission fluid		Change	★					☆						☆							G-15
4	Hydraulic oil filter		Replace	★			☆				☆				☆				☆			G-14
5	Hydraulic oil filter for HST		Replace	★			☆				☆				☆				☆			G-14
6	Oil strainer for HST		Clean	★					☆						☆							G-15
7	Front axle case oil		Change						☆						☆							G-25
8	Front axle pivot		Adjust								☆								☆			G-25
9	Engine start system		Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			G-18
10	Greasing		–	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			G-17
11	Wheel bolt torque		Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			G-19
12	Battery condition		Check	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆			G-19
13	Air cleaner element [Double type]	Primary element	Clean		☆		☆		☆		☆		☆		☆		☆		☆			G-21
			Replace																	☆		G-21
		Secondary element	Replace																	☆		G-21
14	Fuel filter element		Clean		☆		☆		☆		☆		☆		☆		☆		☆			G-21
			Replace								☆								☆			G-25
15	Fan belt		Adjust		☆		☆		☆		☆		☆		☆		☆		☆			G-22
16	Clutch		Adjust	★	☆		☆		☆		☆		☆		☆		☆		☆			G-16
17	Brake		Adjust		☆		☆		☆		☆		☆		☆		☆		☆			G-22
18	Fuel line		Check		☆		☆		☆		☆		☆		☆		☆		☆			G-23
			Replace																		☆	G-23
19	Radistor hose and clamp		Check				☆				☆				☆				☆			G-24
			Replace																		☆	G-24
20	Toe-in		Adjust				☆				☆				☆				☆			G-24
21	Engine valve clearance		Adjust																☆			G-25
22	Cooling system		Flush																		☆	G-26
23	Coolant		Change																		☆	G-26
24	Fuel system		Bleed																	Service as required		G-27
25	Fuse		Replace																			G-28
26	Light bulb		Replace																			G-28

IMPORTANT :

The jobs indicated by ★ must be done after the first 50 hours of operation.

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

**** Consult your local KUBOTA dealer for this service.**

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TROUBLESHOOTING

Symptom	Probable Cause	Solution	Reference Page
Engine Does Not Start	• No fuel	Replenish fuel	–
	• Air in the fuel system	Bleed	G-27
	• Water in the fuel system	Change fuel and repair or replace fuel system	–
	• Fuel pipe clogged	Clean	–
	• Fuel filter clogged	Change	G-21, 25
	• Excessively high viscosity of fuel or engine oil at low temperature	Use specified fuel or engine oil	G-8
	• Fuel with low cetane number	Use specified fuel	G-8
	• Fuel leak due to loose injection pipe retaining nut	Tighten retaining nut	1-S23
	• Incorrect injection timing	Adjust	1-S55
	• Fuel camshaft worn	Replace	1-S28
	• Injection nozzle clogged	Clean	1-S24, S58
	• Injection pump malfunctioning	Repair or replace	1-S28, S56
	• Seizure of crankshaft, camshaft, piston, cylinder or bearing	Repair or replace	–
	• Compression leak from cylinder	Replace head gasket, tighten cylinder head screw, glow plug and nozzle holder	1-S20, S23 1-S24
	• Improper valve timing	Correct or replace timing gear	1-S30
	• Piston ring and cylinder worn	Replace	1-S45, S50 1-S51
	• Excessive valve clearance	Adjust	1-S22
(Starter Does Not Run)	• Battery discharged	Charge	9-S5, S6
	• Starter malfunctioning	Repair or replace	9-S11 to S13
	• Main switch malfunctioning	Repair or replace	9-S7, S8
	• Safety switches malfunctioning	Adjust or replace	9-S10
	• Wiring disconnected	Connect	–
Engine Revolution Is Not Smooth	• Fuel filter clogged or dirty	Change	G-21, 25
	• Air cleaner clogged	Clean or replace	G-21, 26
	• Fuel leak due to loose injection pipe retaining nut	Tighten retaining nut	1-S23
	• Injection pump malfunctioning	Repair or replace	1-S28, S56
	• Incorrect nozzle injection pressure	Adjust	1-S57
	• Injection nozzle stuck or clogged	Repair or replace	1-S24, S58
	• Governor malfunctioning	Repair	1-S29, S30
Either White or Blue Exhaust Gas Is Observed	• Excessive engine oil	Reduce to specified level	1-S11
	• Piston ring and cylinder worn or stuck	Repair or replace	1-S45, S50 1-S51
	• Incorrect injection timing	Adjust	1-S55
	• Deficient compression	Adjust top clearance	1-S20

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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-9.)

Item		N·m	kgf·m	ft-lbs
Canopy mounting bolt and nut		33.9 to 40.7	3.5 to 4.2	25.0 to 30.0
Upper frame mounting bolt and nut, Front		38.2 to 41.2	3.9 to 4.2	28.1 to 30.4
Upper frame mounting bolt and nut, Rear		62.8 to 72.6	6.4 to 7.4	46.3 to 53.5
Front frame mounting bolt and nut		122 to 146	12.4 to 14.9	90.0 to 108
Connecting bar mounting bolt and nut		122 to 146	12.4 to 14.9	90.0 to 108
Brace mounting bolt and nut		150 to 160	15.3 to 16.3	110 to 118
Loader side frame mounting screw, bolt and nut		150 to 160	15.3 to 16.3	110 to 118
Frame mounting bolt and nut		176 to 212	18.0 to 21.6	130 to 156
Rear wheel mounting screw and nut		196 to 226	20.0 to 23.1	145 to 167
Main frame connecting rod mounting screw		61 to 73	6.2 to 7.4	45 to 54
Main frame connecting plate mounting bolt and nut		108 to 118	11.0 to 12.0	79.7 to 87.0
Main frame support mounting screw, bolt and nut		108 to 118	11.0 to 12.0	79.7 to 87.0
Main frame mounting screw		150 to 160	15.3 to 16.3	110 to 118
Steering wheel mounting nut		29.4 to 49.0	3.0 to 5.0	21.7 to 36.2
Drag link slotted nut		48.1 to 55.8	4.9 to 5.7	35.5 to 41.2
Front axle frame mounting screw and nut		60.8 to 70.5	6.2 to 7.2	44.9 to 52.1
Front axle frame reamer stud bolt		24.5 to 31.4	2.5 to 3.2	18.1 to 23.1
Delivery pipe nut		34.3 to 44.1	3.5 to 4.5	25.3 to 32.5
Clutch housing and engine mounting	M8	17.7 to 20.6	1.8 to 2.1	13.0 to 15.2
screw, bolt and nut	M10	48.1 to 55.8	4.9 to 5.7	35.5 to 41.2
Flow priority valve mounting screw		17.7 to 20.6	1.8 to 2.1	13.0 to 15.2
Clutch cover mounting screw		23.5 to 27.5	2.4 to 2.8	17.4 to 20.3
Fan cover mounting screw		3.9 to 5.9	0.4 to 0.6	2.9 to 4.3

	Item	Size × Pitch	N·m	kgf·m	ft-lbs
	Cylinder head cover cap nut	M7 × 1.0	6.9 to 8.8	0.7 to 0.9	5.1 to 6.5
	Injection pipe retaining nut	M12 × 1.5	24.5 to 34.3	2.5 to 3.5	18.1 to 25.3
	Nozzle holder assembly	M20 × 1.5	49.0 to 68.6	5.0 to 7.0	36.2 to 50.6
	Nozzle holder	–	34.3 to 39.2	3.5 to 4.0	25.3 to 28.9
	Overflow pipe assembly retaining nut	M12 × 1.5	19.6 to 24.5	2.0 to 2.5	14.5 to 18.1
	Glow plug	M8 × 1.0	7.8 to 14.7	0.8 to 1.5	5.8 to 10.8
*	Rocker arm bracket nut	M7 × 1.0	21.6 to 26.5	2.2 to 2.7	15.9 to 19.5
*	Cylinder head screw	M10 × 1.25	63.7 to 68.6	6.5 to 7.0	47.0 to 50.6
*	Crankshaft screw	M14 × 1.5	235.4 to 245.2	24.0 to 25.0	173.6 to 180.8
*	Connecting rod screw	M8 × 1.0	41.2 to 46.1	4.2 to 4.7	30.3 to 33.9
*	Flywheel screw	M10 × 1.25	53.9 to 58.8	5.5 to 6.0	39.8 to 43.4
*	Main bearing case screw 1	M8 × 1.25	29.4 to 34.3	3.0 to 3.5	21.7 to 25.3
*	Main bearing case screw 2	M9 × 1.25	49.0 to 53.9	5.0 to 5.5	36.2 to 39.8
	Bearing case cover screw	M6 × 1.0	9.8 to 11.3	1.00 to 1.15	7.2 to 8.3
*	Idle gear shaft 1 mounting screw	M6 × 1.0	9.8 to 11.3	1.00 to 1.15	7.2 to 8.3
*	Oil pressure switch	PT 1/8	14.7 to 19.6	1.5 to 2.0	10.8 to 14.5
	Idle adjust screw cap nut	M6 × 1.0	7.8 to 9.8	0.8 to 1.0	5.8 to 7.2
	Fuel limit cap nut	M6 × 1.0	7.8 to 9.8	0.8 to 1.0	5.8 to 7.2

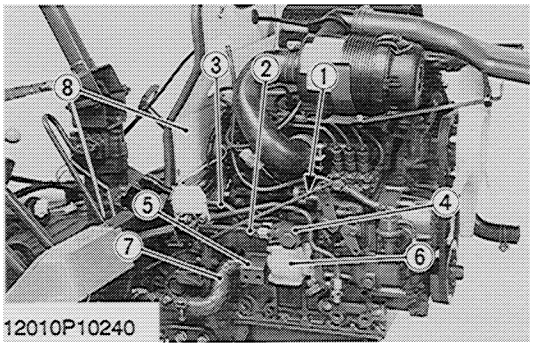
■ **NOTE**

- **For * marked screws, bolts and nuts on the table, apply engine oil to their threads and seats before tightening.**
- **The letter "M" in size × Pitch means that the screw, bolt or nut dimension stands for metric. The size is the nominal outside diameter in mm of the threads. The pitch is the nominal distance in mm between two threads.**

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Hydraulic Pipes and Others

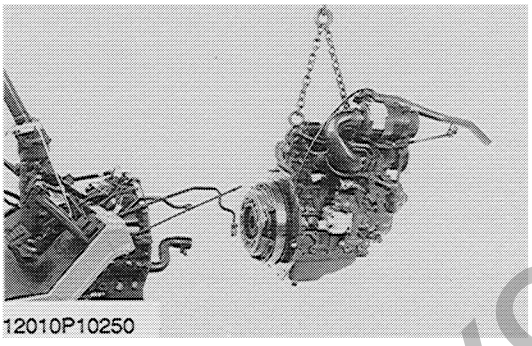
1. Remove the accelerator rod (1).
2. Remove the power steering delivery pipe (2).
3. Disconnect the hydraulic delivery pipe (3) at the flow proprity valve (4).
4. Remove the fuel filter bracket (5).
5. Loosen the clamp and disconnect the suction hose (7) at the hydraulic pump (6).
6. Remove the shutter plate (8).

(When reassembling)

Tightening torque	Delivery pipe nut	34.3 to 44.1 N·m 3.5 to 4.5 kgf·m 25.3 to 32.5 ft-lbs

(1) Accelerator Rod
(2) Power Steering Delivery Pipe
(3) Hydraulic Delivery Pipe
(4) Flow Priority Valve
(5) Fuel Filter Bracket
(6) Hydraulic Pump
(7) Suction Hose
(8) Shutter Plate

12010S10290



Separataing the Engine from Clutch Housing

1. Disconnect the glow plug lead wire and thermo sensor lead wire. And then disconnect the 2P connector for alternator and starter motor lead wire.
2. Remove the starter.
3. Hoist the engine by the chain at the engine hook.
4. Remove the engine mounting screws and nuts, and separate the engine from the clutch housing.

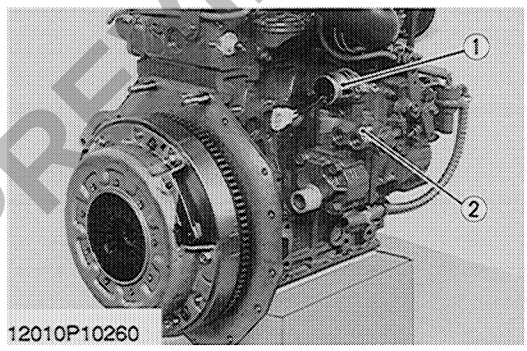
(When reassembling)

- Apply liquid gasket (Three Bond 1208D or equivalent) to joint face of the engine and clutch housing.

Tightening torque	Engine and starter mounting screw, bolt and nut	17.7 to 20.6 N·m 1.8 to 2.1 kgf·m 13.0 to 15.2 ft-lbs
	Engine mounting M10 nut	48.1 to 55.8 N·m 4.9 to 5.7 kgf·m 35.5 to 41.2 ft-lbs

12010S10300

(7) Separating Outer Parts



Engine Stop Solenoid and Flow Priority Valve

1. Remove the engine stop solenoid (1).
2. Remove the flow priority valve (2).

(When reassembling)

- Apply a thin coat of liquid gasket (Three Bond 1215 or equivalent) to both surface of the solenoid's cover packing.

Tightening torque	Flow priority valve mounting screw	17.7 to 20.6 N·m 1.8 to 2.1 kgf·m 13.0 to 15.2 ft-lbs

(1) Engine Stop Solenoid
(2) Flow Priority Valve

12010S10310

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MECHANISM

CONTENTS

[1] HYDRAULIC CIRCUIT 8-M1
[2] STRUCTURE 8-M2
[3] HYDRAULIC PUMP 8-M3
[4] FLOW PRIORITY VALVE 8-M3
[5] POSITION CONTROL VALVE 8-M4
[6] HYDRAULIC BLOCK 8-M7
[7] FEEDBACK LINKAGE FOR POSITION CONTROL 8-M9
[8] HYDRAULIC CYLINDER 8-M10

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MECHANISM

CONTENTS

[1] WIRING DIAGRAM AND ELECTRICAL CIRCUIT 9-M1
[2] STARTING SYSTEM 9-M3
(1) Starter 9-M4
(2) Glow Plug 9-M5
(3) Safety Switch 9-M5
[3] ENGINE KEY SWITCH SHUT-OFF SYSTEM 9-M6
(1) Fuel Cut Off Solenoid 9-M6
[4] CHARGING SYSTEM 9-M7
(1) Alternator 9-M7
(2) IC Regulator 9-M8
[5] LIGHTING SYSTEM 9-M9
(1) Head Light 9-M9
(2) Hazard Light 9-M10
[6] EASY CHECKER 9-M10
(1) Indication Items 9-M10
(2) Engine Oil Pressure Alarm 9-M11
[7] GAUGE 9-M11
(1) Fuel Quantity 9-M12
(2) Coolant Temperature 9-M12
[8] OPC(OPERATOR PRESENCE CONTROL)SYSTEM (IF EQUIPED) 9-M13
(1) Wiring Diagram 9-M13
(2) System Outline And Electrical Circuit 9-M14

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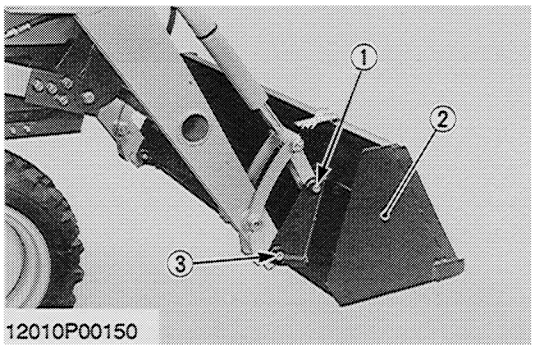
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[2] DISASSEMBLING THE FRONT LOADER

■ IMPORTANT

- **When reassembling the pins, bushings and inner rings, apply slight coat of grease to them.**
- **When tightening the hydraulic hoses, refer to "Hydraulic Hoses Fittings and Flare Pipes" (Page F-S5).**
- **After installing the pins, lock jam nuts to mounting bolt at position where the mounting bolt may still be rotated.**

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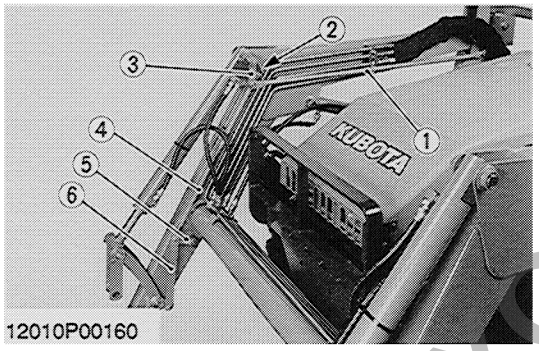
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Bucket

1. Remove the pin 2 (3) and pin 3 (1).
2. Remove the bucket (2).

(1) Pin 3
(2) Bucket
(3) Pin 2

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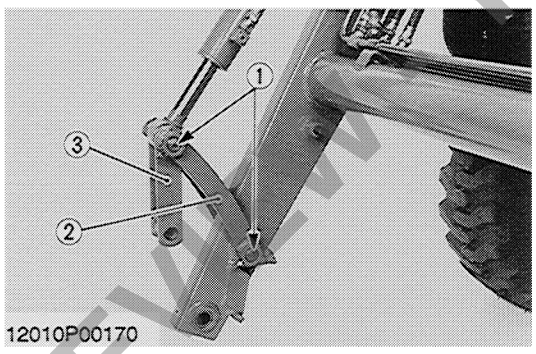
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Feedback Linkage (Self-leveling Link)

1. Remove the rod 1 (1) and rod 2 (4).
2. Remove the link 5 (3), link 6 (2), link 7 (5) and link 8 (6).

(1) Connecting Rod 1
(2) Link 6
(3) Link 5
(4) Connecting Rod 2
(5) Link 7
(6) Link 8

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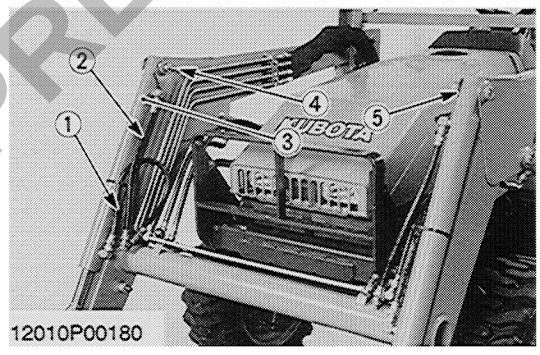
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Bucket Links

1. Remove the pin 7 (1), and remove the link 1 (2) and link 2 (3).

(1) Pin 7
(2) Link 1
(3) Link 2

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12010P00180

Bucket Cylinder

1. Disconnect the hydraulic hoses 10 (2) and hydraulic hoses 11 (1) at the hydraulic tube.
2. Remove the pin 6 (4) and pin 1 (5), and remove the bucket cylinder (3).

(When reassembling)

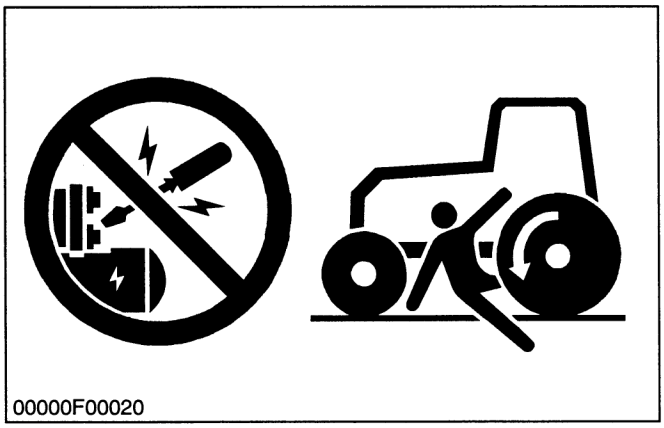
- When attaching hydraulic cylinders, be careful of the direction of grease fittings.

(1) Hydraulic Hose 11
(2) Hydraulic Hose 10
(3) Bucket Cylinder
(4) Pin 6
(5) Pin 1

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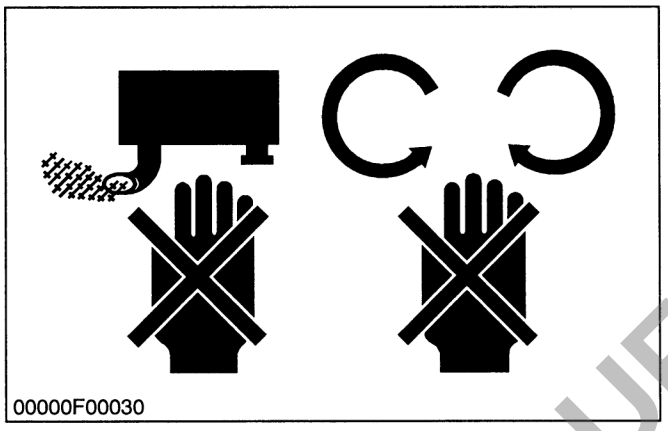
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SAFETY STARTING

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

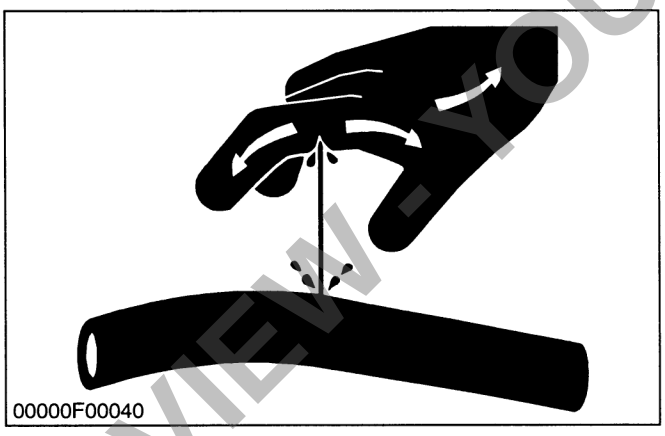
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SAFETY WORKING

(1) Do not work on the machine while under the influence of alcohol, medication, or other substances or while fatigued.
(2) Wear close fitting clothing and safety equipment appropriate to the job.
(3) Use tools appropriate to the work. Makeshift tools, parts, and procedures are not recommended.
(4) When servicing is performed together by two or more persons, take care to perform all work safely.
(5) Do not work under the machine that is supported solely by a jack. Always support the machine by safety stands.
(6) Do not touch the rotating or hot parts while the engine is running.
(7) 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.
(8) 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.

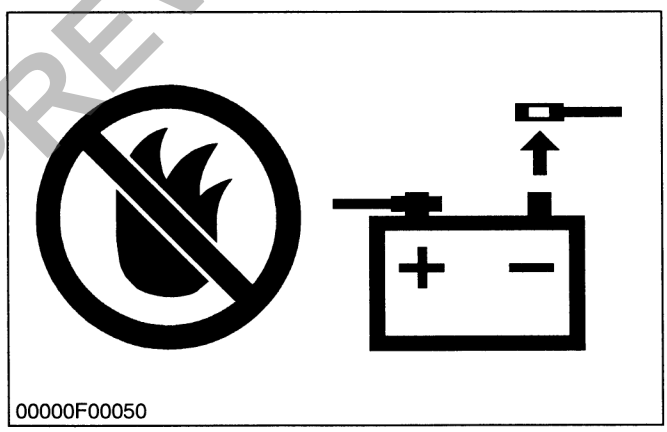
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AVOID FIRES

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

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Fig. 1

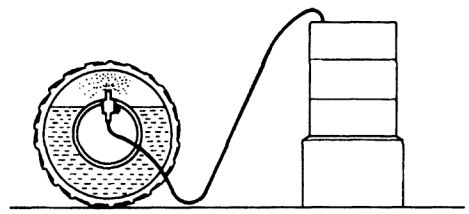


Fig. 2

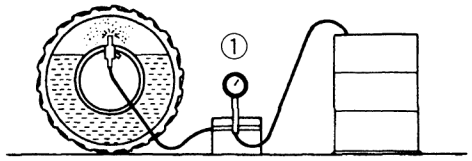
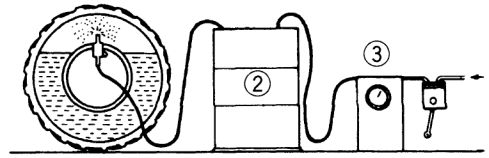
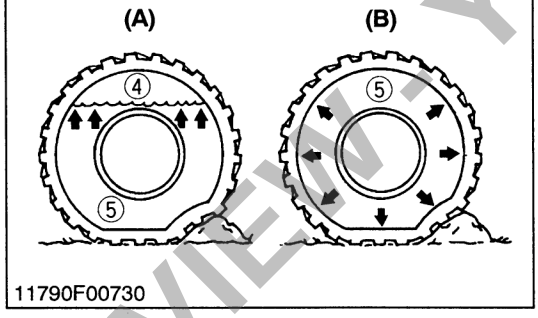


Fig. 3



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Injection

CAUTION

- **When a calcium chloride solution is used, cool it before pouring it into the tire.**
- **Do not fill tires with water or solution more than 75 % of full capacity (to the valve stem level).**

The following four ways can be used to inject water or a calcium chloride solution into tires.

1. Gravity injection (Fig. 1)
2. Pump injection (Fig. 2)
3. Pressure tank injection (Fig. 3)
4. Injection directly from tap (only when water is being used).

NOTE

- **Once injection is completed, reset the air valve, and pump air into the tire to the specified pressure.**

✻ Weight of Calcium Chloride Solution Filling 75 % of Full Capacity of a Tire

Tire sizes	12.4 - 16
Slush free at – 10 °C (14 °F) Solid at – 30 °C (– 22 °F) [Approx. 1 kg (2 lbs.) $CaCl_2$ per 4 L (1 gal.) of water]	85 kg (187 lbs.)
Slush free at – 24 °C (– 11 °F) Solid at – 47 °C (– 53 °F) [Approx. 1.5 kg (3.5 lbs.) $CaCl_2$ per 4 L (1 gal.) of water]	89 kg (196 lbs.)
Slush free at – 47 °C (– 53 °F) Solid at – 52 °C (– 62 °F) [Approx. 2.25 kg (5 lbs.) $CaCl_2$ per 4 L (1 gal.) of water]	94 kg (207 lbs.)

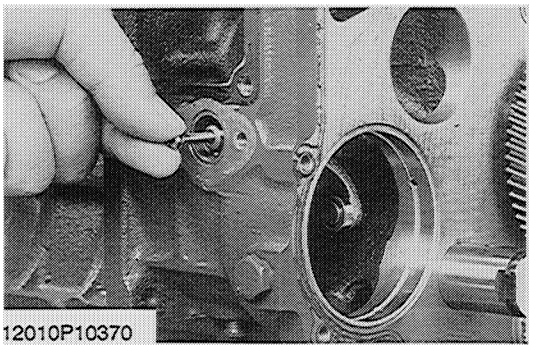
(1) Pump
(2) Pressure Tank
(3) Compressor
(4) Air
(5) Water

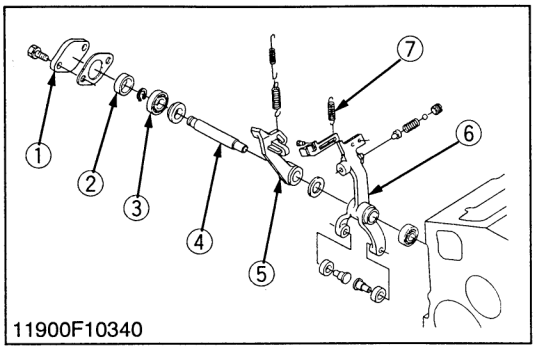
(A) Correct – 75 % Air Compresses Like A Cushion
(B) Incorrect – 100 % Full Water Can Not Be Compressed

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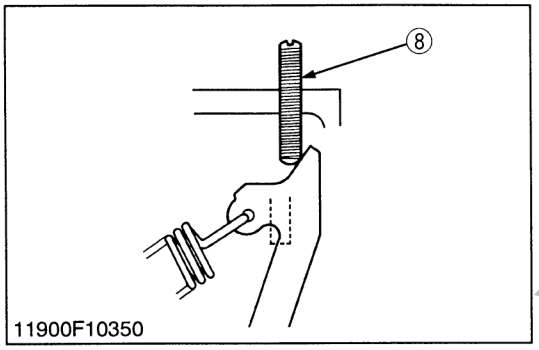
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Fork Lever

1. Remove the start spring (7).
2. Remove the fork lever shaft cover (1).
3. Pull out the fork lever shaft (4), and remove the spacer (2), bearing (3), fork levers 1 (6) and 2 (5).

(When reassembling)

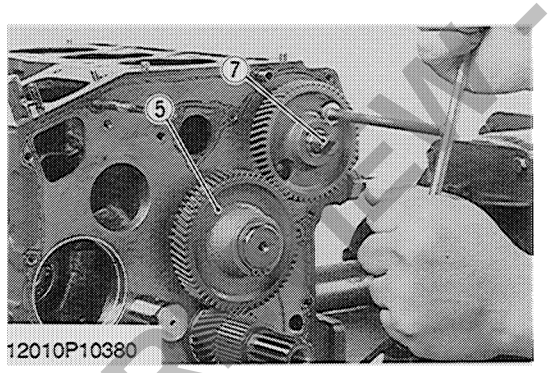
- Apply a liquid gasket (Three Bond 1215 or equivalent) to the both sides of the fork lever shaft cover, and fit the fork lever shaft cover with the **"UP"** mark facing upwards.
- Securely fit the start spring.

■ IMPORTANT

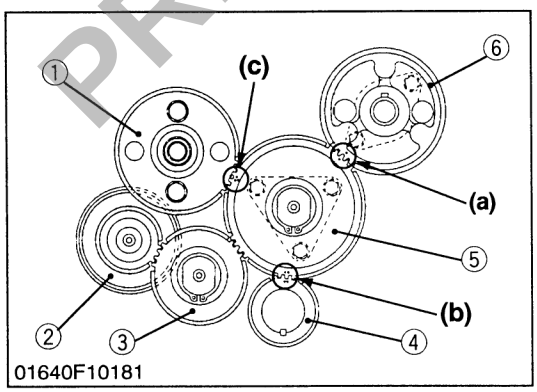
- **Install the fork lever 2 (5) to position it on the right side of the maximum output limit bolt (8) as shown in the figure.**

(1) Fork Lever Shaft Cover
(2) Spacer
(3) Bearing
(4) Fork Lever Shaft
(5) Fork Lever 2
(6) Fork Lever 1
(7) Start Spring
(8) Maximum Output Limit Bolt

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Camshaft and Idle Gear 1

1. Remove the external snap ring, and then remove the idle gear 1 (5).
2. Remove the camshaft stopper mounting screw, and pull out the camshaft (7).

(When reassembling)

- When installing the idle gear 1, be sure to align the alignment marks **(a)**, **(b)**, **(c)** on the gears.
- Securely fit the external snap ring and stopper.

(1) Injection Pump Gear
(2) Governor Gear
(3) Idle Gear 2
(4) Crank Gear
(5) Idle Gear 1
(6) Cam Gear
(7) Camshaft
(a) Alignment Mark (Idle Gear 1 and Cam Gear)
(b) Alignment Mark (Idle Gear 1 and Crank Gear)
(c) Alignment Mark (Idle Gear 1 and Injection Pump Gear)

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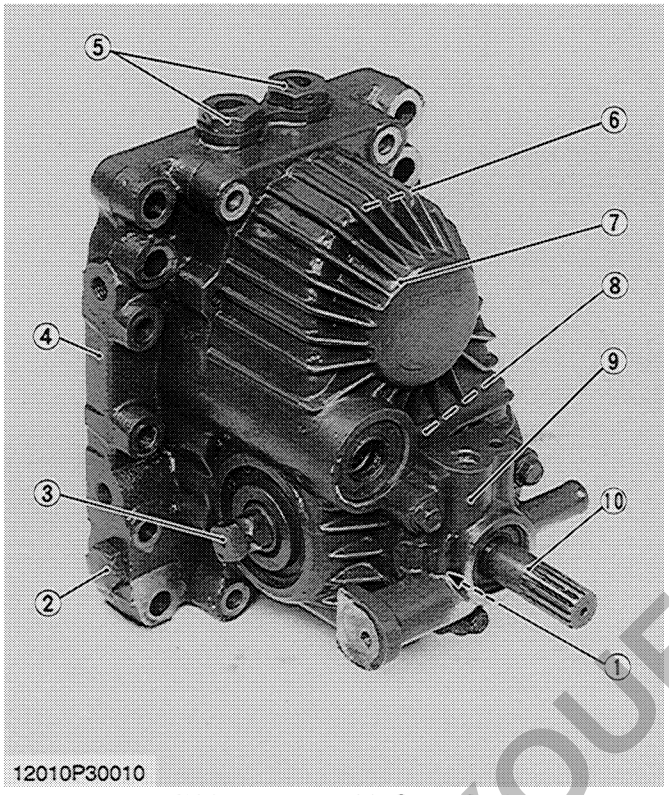
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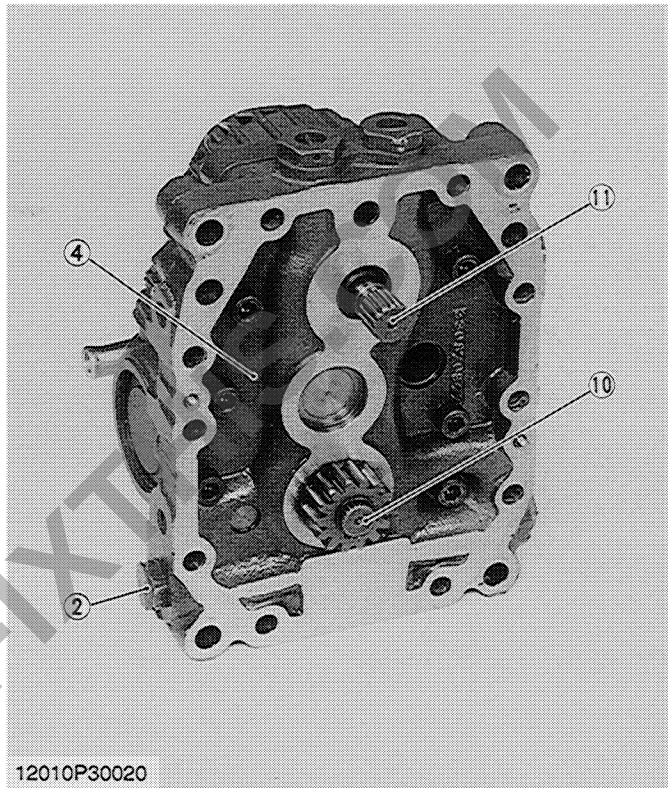
[2] TRAVELLING SYSTEM

(1) Hydrostatic Transmission

(1)-1 Structure



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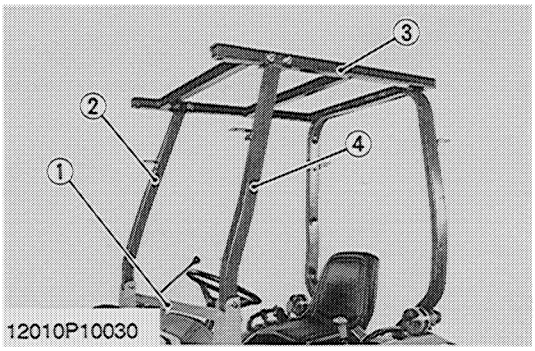
(1) Charge Relief Valve
(2) Check and High Pressure Relief Valve
(3) Turnion Shaft
(4) Center Section
(5) Neutral Valve
(6) Fixed Displacement Piston Motor
(7) Housing
(8) Variable Displacement Piston Pump
(9) Charge Pump
(10) Input Shaft (Pump Shaft)
(11) Output Shaft

Hydrostatic transmission is composed of variable displacement piston pump, fixed displacement piston motor, charge pump and valve system.

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Upper Frame, Front Frame and Connecting Bar

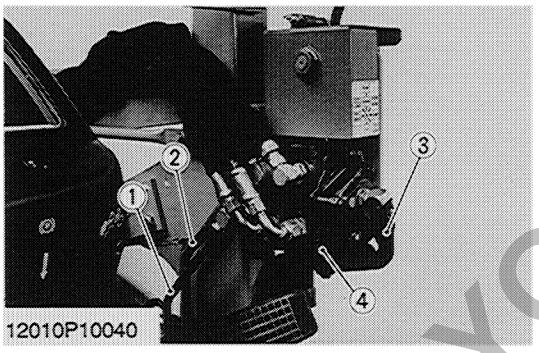
1. Remove the upper frame (3).
2. Remove the front frames (2) and (4).
3. Remove the conneceting bar (1).

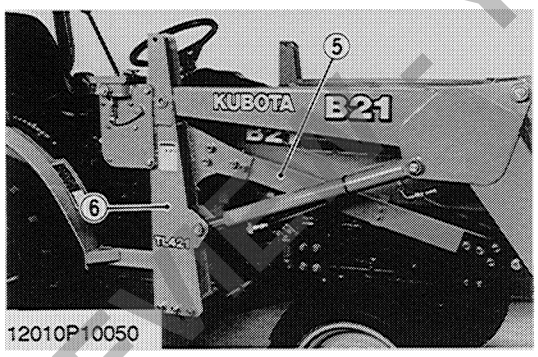
(When reassembling)

Tightening torque	Upper frame mounting bolt and nut (Front side)	38.2 to 41.2 N·m 3.9 to 4.2 kgf·m 28.1 to 30.4 ft-lbs
	Upper frame mounting bolt and nut (Rear side)	62.8 to 72.6 N·m 6.4 to 7.4 kgf·m 46.3 to 53.5 ft-lbs
	Front frame mounting bolt and nut	122 to 146 N·m 12.4 to 14.9 kgf·m 90.0 to 108 ft-lbs
	Connecting bar mounting bolt and nut	122 to 146 N·m 12.4 to 14.9 kgf·m 90.0 to 108 ft-lbs

(1) Connecting Bar
(2) Front Frame RH
(3) Upper Frame
(4) Front Frame LH

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Front Loader Assembly

1. Disconnect the three pipes (1), (2) and (3) from the control valve (4).
2. Remove the braces (5) both side.
3. Remove the loader side frame (6) mounting screws, bolts and nuts.
4. Separate the front loader assembly from tractor.

■ NOTE

- **Do not start the engine after disconnecting the pipes to prevent oil leakage.**
- **Place protective caps on the remaining exposed pipe ends and pipe joint.**

(When reassembling)

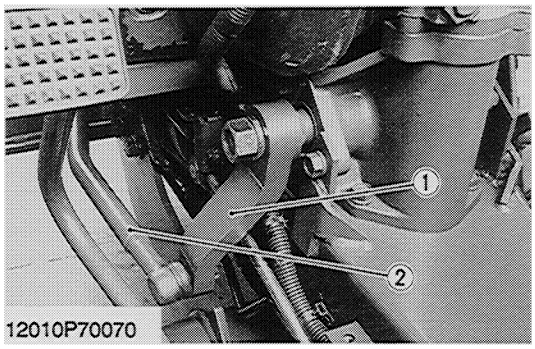
Tightening torque	Brace mounting bolt and nut	150 to 160 N·m 15.3 to 16.3 kgf·m 110 to 118 ft-lbs
	Loader side frame mounting screw, bolt and nut	150 to 160 N·m 15.3 to 16.3 kgf·m 110 to 118 ft-lbs

(1) Return Pipe
(2) Delivery Pipe
(3) Carry-over Pipe
(4) Control Valve
(5) Brace
(6) Loader Side Frame

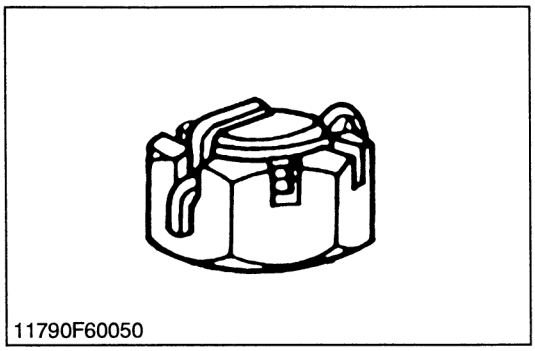
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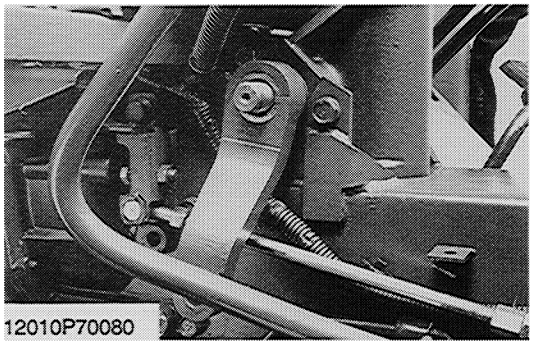
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Drag Link and Pitman Arm

1. Remove the slotted nut and disconnect the drag link (2)from the pitman arm (1).
2. Remove the pitman arm mounting nut and remove the pitman arm with pitman arm puller (Code No: 07909-39011).

(When reassembling)

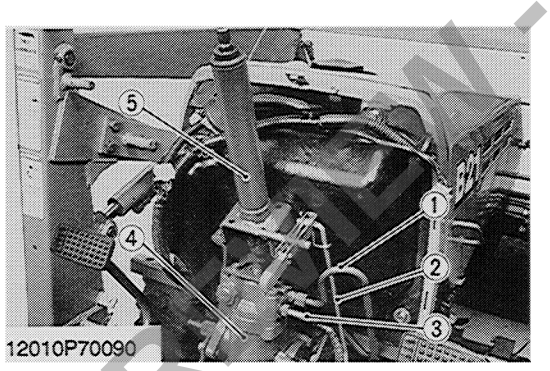
■ IMPORTANT

- **After tightening the slotted nut to the specified torque, install the cotter pin as shown in the figure.**
- **Install the pitman arm to the sector gear shaft so that their marks align.**

Tightening torque	Slotted nut	48.1 to 55.8 N·m 4.9 to 5.7 kgf·m 35.5 to 41.2 ft-lbs
	Pitman arm mounting nut	117.7 to 147.1 N·m 12.0 to 15.0 kgf·m 86.8 to 108 ft-lbs

(1) Pitman Arm (2) Drag Link

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Power Steering Assembly

1. Remove the power steering delivery pipe (1) and return pipe (3).
2. Disconnect the parking brake rod (2).
3. Remove the steering post (5) and universal joint.
4. Remove the power steering assembly (4) from the center frame.

(When reassembling)

Tightening torque	Power steering delivery pipe	34.0 to 39.0 N·m 3.5 to 4.0 kgf·m 25.3 to 28.9 ft-lbs
	Power steering return pipe	29.4 to 39.2 N·m 3.0 to 4.0 kgf·m 21.7 to 28.9 ft-lbs
	Power steering assembly mounting screw	77.5 to 90.1 N·m 7.9 to 9.2 kgf·m 57.2 to 66.5 ft-lbs

(1) Power Steering Delivery Pipe
(2) Parking Brake Rod
(3) Power Steering Return Pipe
(4) Power Steering Assembly
(5) Steering Post

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LIGHTING SYSTEM (Continued)

Symptom	Probable Cause	Solution	Reference Page
Hazard Light Does Not Light	• Fuse blown (10 A) • Bulb blown • Wiring harness disconnected or improperly connected (between main switch **AC** terminal and hazard unit between hazard unit and combination switch **B2** terminal, between combination switch **R** or **L** terminal and hazard lights) • Hazard unit defective • Combination switch defective	Replace Replace Repair or Replace Replace Replace	– – 9-S21 9-S21 9-S20
Hazard Indicator Lamp Does Not Light	• Bulb blown • Wiring harness disconnected or improperly connected (between combination switch **R** or **L** terminal and panel board)	Replace Repair or Replace	– 9-S21
Hazard Light Does Not Flicker	• Hazard unit defective	Replace	9-S21

EASY CHECKER

Oil Pressure Lamp Lights Up When Engine Is Running	• Engine oil pressure too low • Engine oil insufficient • Oil pressure switch defective • Short circuit between oil pressure switch lead and chassis • Circuit in panel board defective	Repair engine Replenish Replace Repair Replace	– G-8 – 9-S23 9-S23
Oil Pressure Lamp Does Not Light When Main Switch Is Turned ON and Engine Is Not Running	• Bulb blown • Oil pressure switch defective • Wiring harness disconnected or improperly connected (between panel board and oil pressure switch) • Circuit in panel board defective	Replace Replace Repair or Replace Replace	– – 9-S23 9-S23

GAUGES

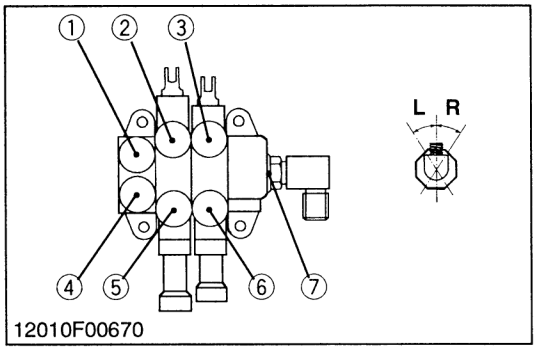
Fuel Gauge Does Not Function	• Fuel gauge defective • Fuel level sensor defective • Wiring harness disconnected or improperly connected (between panel board and fuel level sensor) • Circuit in panel board defective	Replace Replace Repair or Replace Replace	9-S25 9-S24 9-S24 –
Coolant Temperature Gauge Does Not Function	• Coolant temperature gauge defective • Coolant temperature sensor defective • Wiring harness disconnected or improperly connected (between panel board and coolant temperature sensor) • Circuit in panel board defective	Replace Replace Repair or Replace Replace	9-S25 9-S25 9-S25 –

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DISASSEMBLING AND ASSEMBLING



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Adapter and Elbow

1. Remove the adapters and elbows from the control valve.

(When reassembling)

- Use care not to damage the O-ring.

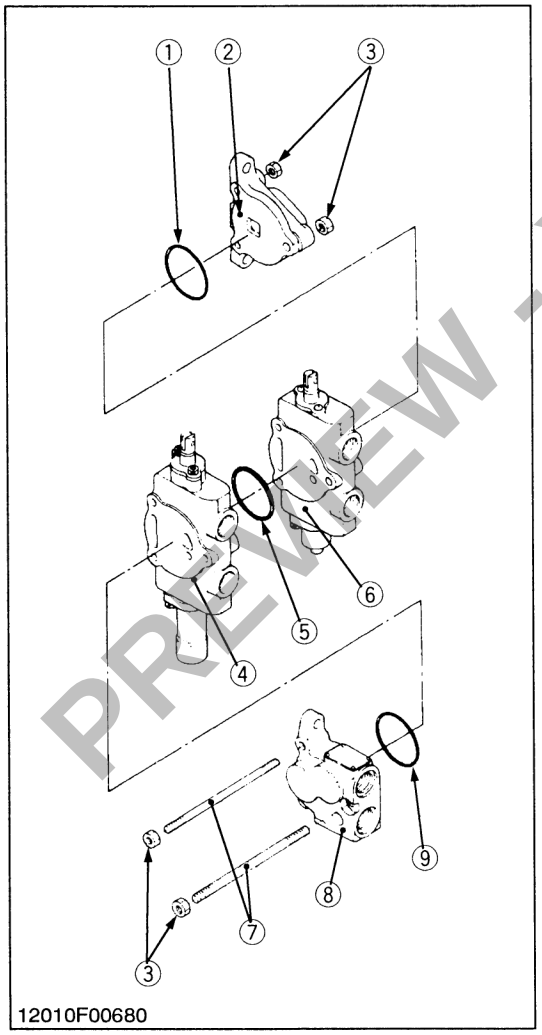
Tightening torque	Adapter and elbow	47 to 54 N·m 4.8 to 5.5 kgf·m 35 to 40 ft-lbs

- Install the elbow angle as indicated table below.

	Angle of elbow
P port	L 134° to 136°
B1 port	L 46° to 48°
B2 port	L 46° to 48°
T port	L 134° to 136°
PB port	R 161° to 163°

(1) **P** Port
(2) **B1** Port
(3) **B2** Port
(4) **T** Port
(5) **A1** Port
(6) **A2** Port
(7) **PB** Port

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Separation of Section

1. Unscrew the nuts (3), and separate each section.

(When reassembling)

- Use care not to damage the O-rings (1), (5) and (9).

Tightening torque	Mounting nut Tie rod : 9.5 mm DIA : 3/8 in. DIA	45 N·m 4.6 kgf·m 33 ft-lbs
	Mounting nut Tie rod : 7.9 mm DIA : 5/16 in. DIA	19 N·m 1.9 kgf·m 14 ft-lbs

(1) O-ring
(2) Outlet Section
(3) Nut
(4) Boom Control Valve
(5) O-ring
(6) Bucket Control Valve
(7) Tie Rod
(8) Inlet Section
(9) O-ring

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