WSM

WORKSHOP MANUAL
TRACTOR

M4900,M5700

Kubota

KiSC issued 10, 2018 A

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GENERAL

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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.**

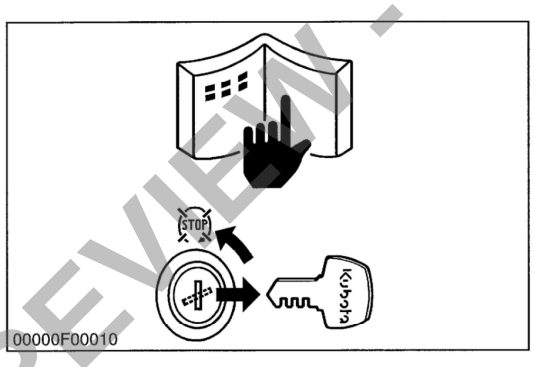
⚠ **WARNING : Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**

⚠ **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

[ROPS TYPE]

Model			M4900		M5700	
			2WD	4WD	2WD	4WD
Engine	Model		F2803-ELA		F2803-EA	
	Type		Vertical, water-cooled, 4-cycle diesel engine			
	Number of cylinders		5			
	Total displacement		2746 cm^3 (167.6 cu.in.)			
	Bore and stroke		87 × 92.4 mm (3.4 × 3.6 in.)			
	Net power		37.7 kW (50.5 HP, 51.3 PS)*		42.5 kW (57 HP, 57.8 PS)*	
	PTO power (factory observed)		33.6 kw (45 HP, 45.7 PS)*/ 2600 min^{-1} (rpm)		38.8 kw (52 HP, 52.8 PS)*/ 2800 min^{-1} (rpm)	
	Maximum torque		171 N·m (17.4 kgf·m, 126.1 ft-lbs.)/ 1400 to 1600 min^{-1} (rpm)		183 N·m (18.7 kgf·m, 135.0 ft-lbs.)/ 1400 to 1600 min^{-1} (rpm)	
	Battery		12 V, CCA 615 A			
	Fuel		Diesel fuel No.1 [below –10 °C (14 °F)] Diesel fuel No. 2 [above –10 °C (14 °F)]			
	Fuel tank capacity		65 L (17.2 U.S.gal., 14.4 Imp.gal)			
	Engine crankcase capacity		8.0 L (8.5 U.S.qts., 14.4 Imp.qts)			
	Engine coolant capacity		7.3 L (7.7 U.S.qts., 6.4 Imp.qts)			
Dimensions	Overall length		3495 mm (137.6 in.)	3405 mm (1341 in.)	3495 mm (137.6 in.)	3405 mm (134.1 in.)
	Overall width (Minimum tread)		1706 mm (67.2 in.)		1850 mm (72.8 in.)	
	Overall height (with ROPS)		2357 mm (93.0 in.)		2375 mm (93.5 in.)	
	Wheel base		2000 mm (78.7 in.)			
	Tread	Front	1420 to 1820 mm (55.9 to 71.7 in.)	1330 mm (52.4 in.) 1430 mm (56.3 in.)	1420 to 1820 mm (55.9 to 71.7 in.)	1330 mm (52.4 in.) 1430 mm (56.3 in.)
		Rear	1320 to 1720 mm (52.0 to 67.7 in.)		1420 to 1720 mm (55.9 to 67.7 in.)	
	Minimum ground clearance		430 mm (16.9 in.) (BRACKET DRAWBAR)		460 mm (18.1 in.) (BRACKET DRAWBAR)	
Weight (with ROPS)			1700 kg (3748 lbs.)	1800 kg (3968 lbs.)	1750 kg (3858 lbs.)	1850 kg (4078 lbs.)
Travelling system	Standard tire size	Front	6.5-16	9.5-22	7.5-16	9.5-22
		Rear	14.9-28		16.9-28	
	Clutch		Dry, Single plate			
	Steering		Full hydrostatic power steering			
	Transmission		Shuttle synchromesh, 8F/8R (with creep speed 12F/12R)			
	Brake	Travelling	Wet type, multiple discs (mechanical)			
		Parking	Connected with the travelling brake			
	Differential		Bevel gears (with differential lock)			
Hydraulic system	Hydraulic control system		Position, draft and mix control			
	Pump-up capacity		41.6 L (44.0 U.S.qts., 36.6 Imp.qts.)/min.			
	Three point hitch		Category I & II			
	Maximum lifting force		1900 kg (4200 lbs.) at lower link end 1500 kg (3307 lbs.) at 610 mm (24 in.) behind lifting point			
	System pressure		19.1 MPa (195 kgf/cm^2, 2773 psi)			
PTO	Independent clutch		Wet type, multiple discs			
	Live PTO	Direction of turning	Clockwise, viewed from tractor rear			
		PTO speed	540 min^{-1} (rpm) at 2307 engine min^{-1} (rpm) 540E min^{-1} (rpm) at 1828 engine min^{-1} (rpm)			
Traction system			Swinging drawbar, adjustable in direction			

NOTE : * Manufacturer's estimate The company reserves the right to change the specifications without notice.

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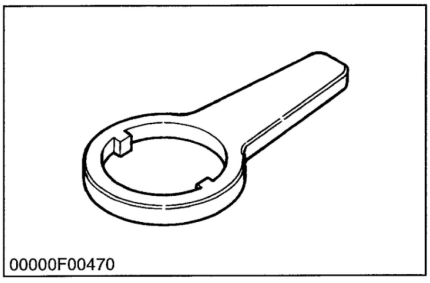
[7] MAINTENANCE

No.	Item		Period	Service Interval										After purchase		Important		Reference page
				50	50	100	200	300	400	600	800	1500	3000	1 year	2 years			
1	Engine oil		Change	★		☆												G-13
2	Engine oil filter		Replace	★			☆											G-13
3	Hydraulic oil filter		Replace	★				☆										G-14
4	Transmission fluid		Change	★						☆								G-14
5	Front axle case oil		Change	★						☆								G-15
6	Clutch		Adjust	★		☆												G-15
7	Water separator (CAB)		Clean	★					☆									G-15
8	Engine start system		Check		☆													G-16
9	Wheel bolt torque		Check		☆													G-16
10	Greasing		–			☆												G-17
11	Battery condition		Check			☆												G-17
12	Air cleaner element [Double type]	Primary element	Clean			☆										*	@	G-18
			Replace											☆		**		G-18
		Secondary element	Replace											☆				G-18
13	Fuel filter element		Clean			☆												G-18
			Replace						☆								@	G-23
14	Fan belt		Adjust			☆												G-19
15	Brake		Adjust			☆												G-19
16	Parking brake (cable)		Adjust			☆												G-19
			Replace												☆			G-29
17	Radiator hose and clamp		Check				☆											G-20
			Replace												☆			G-20
18	Power steering oil line		Check				☆											G-20
			Replace												☆			G-20
19	Fuel line		Check				☆										@	G-20
			Replace												☆			G-20
20	Toe-in		Adjust				☆											G-21
21	Intake air line		Check				☆										@	G-21
			Replace												☆	***		G-21
22	Inner air filter		Clean				☆											G-22
23	Fresh air filter		Clean				☆											G-22
24	Air conditioner condenser		Clean				☆											G-22
25	Air conditioner drive belt		Adjust				☆											G-23
26	Greasing (2WD front wheel hub)		–						☆									G-23
27	Fuel filter (CAB)		Replace						☆								@	G-23
28	Front axle pivot		Adjust							☆								G-24
29	Engine valve clearance		Adjust								☆							1-S19
30	Fuel injection nozzle injection pressure		Check									☆					@	1-S56
31	Injection pump		Check										☆				@	1-S54
32	Air conditioner pipes and hoses		Check											☆				G-26
33	CAB isolation cushion		Check											☆				G-26

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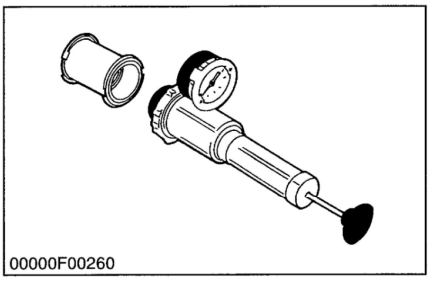
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Rear Axle Nut Wrench 85

Code No : 07916-52541
Application : Use for removing and installing a rear axle nut.

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Radiator Tester

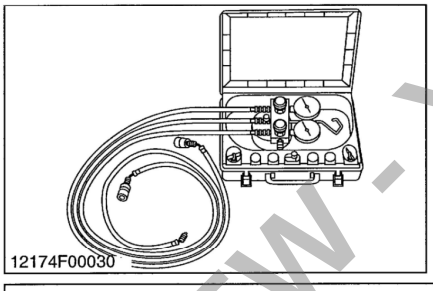
Code No : 07909-31551
Application : Use to check of radiator cap pressure, and leaks from cooling system.

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■ **NOTE**

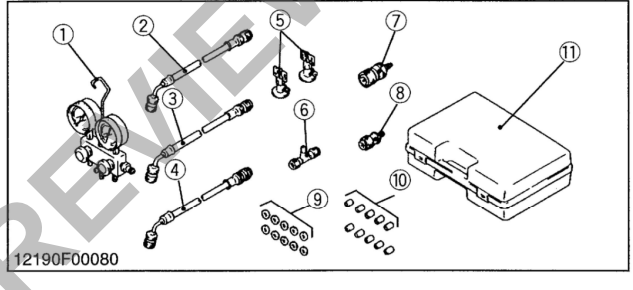
- **Special tools for R134a refrigerant air conditioning system introduced below are available from NIPPONDENSO CO. LTD.**

12550G00500


12174F00030

Air Conditioner Service Tool

Code No: NIPPONDENSO 95048-00061
Application: Use for charging, testing or discharging the air conditioning system.



12190F00080

(1)	Manifold Gauge Assembly	95048-10090
(2)	Charging Hose (Red : HI)	95948-10270
(3)	Charging Hose (Blue : LO)	95948-10280
(4)	Charging Hose (Green)	95948-10260
(5)	Can Tap Valve	95048-10150
(6)	T Joint	95048-10160
(7)	Quick Coupler (HI)	95048-10130
(8)	Quick Coupler (LO)	95048-10140
(9)	Service Valve Packing	95906-10310
(10)	Charging Hose Packing	95906-10300
(11)	Tool Case	95949-10610

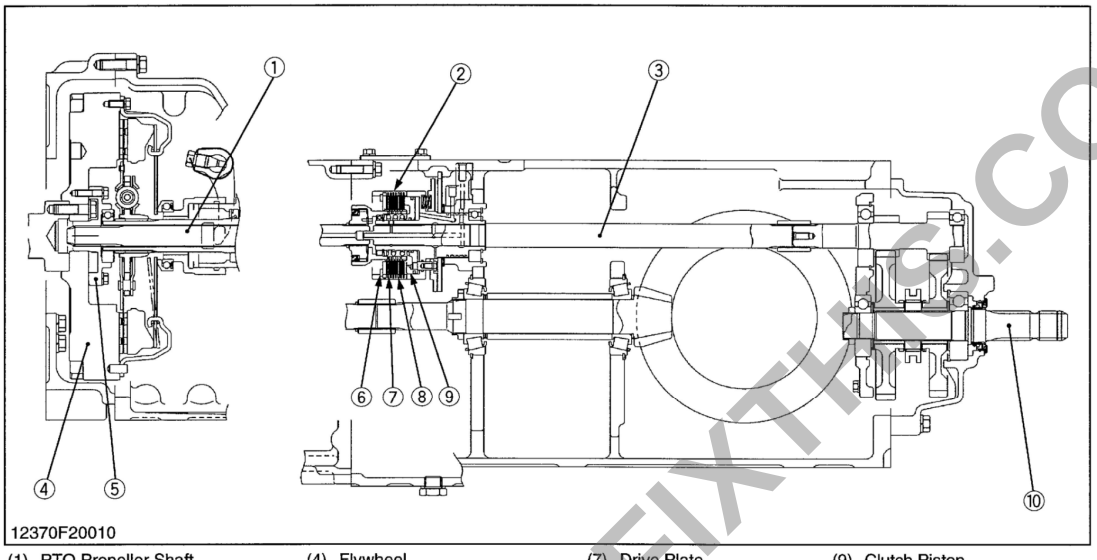
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[2] PTO CLUTCH

(1) Structure



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(1) PTO Propeller Shaft
(2) PTO Clutch Pack
(3) Gear Shaft
(4) Flywheel
(5) PTO Spline Hub
(6) Pressure Plate
(7) Drive Plate
(8) Clutch Disc
(9) Clutch Piston
(10) PTO Shaft

As shown in the figure above, the PTO propeller shaft (1) is splined to the spline hub (5) and is always rotated while the engine runs.

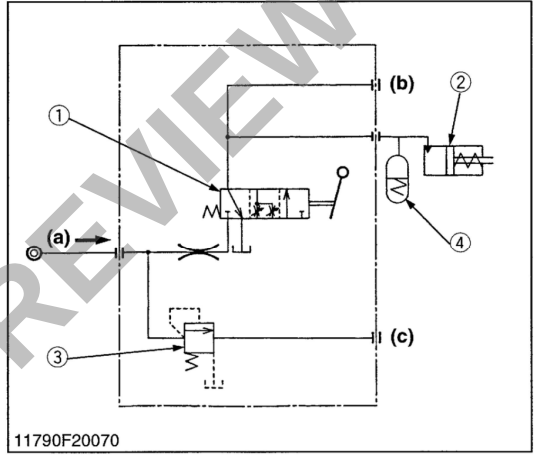
The PTO clutch pack has seven clutch discs (8), seven drive plates (7) and one pressure plate (6). The clutch piston (9) actuated by hydraulic from PTO clutch valve, tightly presses the clutch discs (8) and drive plates (8) toward the pressure plate (6).

As a result, the rotation of the PTO propeller shaft is transmitted to the gear shaft (3) through the PTO clutch pack (2).

The PTO clutch valve can be in a semi-clutching state by means of the modulating valve. Thereby, the PTO clutch is engaged very smoothly.

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(2) Oil Flow



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The oil from the steering controller flows into the PTO clutch valve.

When the PTO is at the disengaged position, the oil flows is stopped by the PTO clutch valve (1). When the PTO is at the engaged position, the oil flows through the PTO clutch valve (1) to the modulating valve (4) and PTO clutch pack (2) to engage it.

(1) PTO Clutch Valve
(2) PTO Clutch Pack
(3) Relief Valve
(4) Modulating Valve
(a) From Steering Controller
(b) Pressure Check Port
(c) Lubricating Port

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[1] FEATURES



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(1) Auxiliary Control Valve
(2) Independent PTO
Hydraulic PTO Clutch System
(3) Full Hydrostatic Power Steering
(4) Synchro-Shuttle (Forward-Reverse)
(5) New Design
(6) E-TVCS (Three Vortex Combustion System) Diesel Engine
(7) New Transmission (Creep Option)
(8) Wet Disc Brake
(9) Three Point Hitch with Big Lift Power
Three Point Hitch Fully Equipped with position, Draft and Mixed Control
(10) Comfortable Integral Cab By KUBOTA
Shift Levers Integrally and Ergonomically Positioned Full-Floating Type Flat Deck Wider Piece of Curved Glass Side Glass Open

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[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.

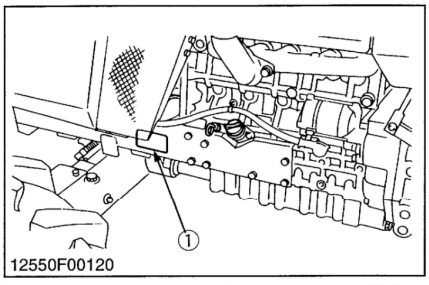
Indication on top of bolt	⬡ 4 No-grade or 4T						⬡ 7 7T						⬡ 9 9T		
Material of bolt	SS400, S20C						S43C, S48C						SCr435, SCM435		
Material of opponent part	Ordinariness			Aluminum			Ordinariness			Aluminum			Ordinariness		
Diameter	N·m	kgf·m	ft-lbs	N·m	kgf·m	ft-lbs	N·m	kgf·m	ft-lbs	N·m	kgf·m	ft-lbs	N·m	kgf·m	ft-lbs
M6 (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
M8 (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 (16 mm, 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 (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				490 to 568	50.0 to 58.0	362 to 420

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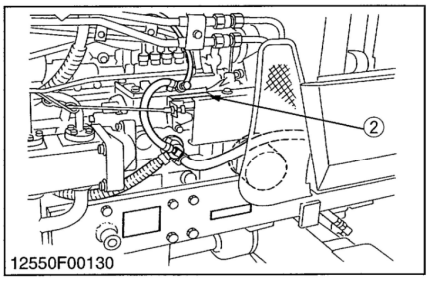
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[2] TRACTOR IDENTIFICATION



12550F00120



12550F00130

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

(1) Tractor Identification Plate (2) Engine Serial Number

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[5] LUBRICANTS, FUEL AND COOLANT

	Place	Capacity		Lubricants, fuel and coolant
		M4900 M5700	M4900 (CAB) M5700 (CAB)	
1	Fuel	65 L 17.2 U.S.gals. 14.3 Imp.gals.	95 L 25.1 U.S.gals. 20.9 Imp.gals.	No. 2-D diesel fuel No. 1-D diesel fuel it temperature is below – 10 ˚C (14 ˚F)
2	Coolant (Radiator)	7.3 L 7.7 U.S.qts. 6.4 Imp.qts		Fresh clean water with anti-freeze
	Coolant (Recovery tank)	1.0 L 1.1 U.S.qts. 0.9 Imp.qts.		
3	Washer liquid	–	1.3 L 1.4 U.S.qts. 1.1 Imp.qts.	Automobile washer liquid
4	Engine crankcase	8.0 L 8.5 U.S.qts. 7.0 Imp.qts		Engine oil : API Service Classification 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
5	Transmission case	40.0 L 42.3 U.S.qts. 35.2 Imp.qts.	43.0 L 45.4 U.S.qts. 37.8 Imp.qts.	KUBOTA SUPER UDT fluid *
6	Front axle case [4WD]	8.0 L 8.5 U.S.qts. 7.0 Imp.qts		KUBOTA SUPER UDT fluid or SAE80, SAE90 gear oil

Greasing

	Place	No. of greasing point		Capacity	Type of grease
7	Front wheel hub [2WD]	2		Until grease overflows	Multipurpose type grease
	Knuckle shaft [2WD]	2			
	Front wheel case support [4WD]	2			
	Front axle support [4WD]	1			
	Top link	2			
	Top link bracket	2			
	Lift rod	1			
	Steering joint	–	1		
	Battery terminal	2		Moderate amount	

* KUBOTA original transmission hydraulic fluid.

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No.	Item \ Period		Service Interval										After purchase		Important		Reference page
			50	50	100	200	300	400	600	800	1500	3000	1 year	2 years			
34	Cooling system	Flush												☆			G-28
35	Coolant	Change												☆			G-28
36	Fuel system	Bleed											Service as required				G-29
37	Clutch housing water	Drain															G-30
38	Fuse	Replace															G-30, 31
39	Light bulb	Replace															G-32
40	Washer liquid	Add															G-32
41	Refrigerant (gas)	Check															10-S20

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.**

**** Every year or every 6 times of cleaning.**

***** Replace only if necessary.**

● The items listed above (@ marked) are registered as emission related critical parts by KUBOTA in the U.S.EPA nonroad emission regulation. As the engine owner, you are responsible for the performance of the required maintenance on the engine according to the above instruction. Please see the Warranty Statement in detail.

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[8] CHECK AND MAINTENANCE

CAUTION

- **Be sure to check and service the tractor on a flat place with engine shut off, the parking brake on and chock the wheels.**

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(1) Daily Check

To prevent trouble from occurring, it is important to know the condition of the tractor. Check the following items before starting.

Checking

- Check areas where previous trouble was experienced.
- Walk around the tractor.

1) Check the tire pressure, and check for wear and damage.
2) Check for oil and water leaks.
3) Check the engine oil level.
4) Check the transmission fluid level.
5) Check the coolant level.
6) Check the condition of ROPS attaching hardware.
7) Check and clean the radiator screen and grill.
8) Check the bolts and nuts of the tires are tight.
9) Check the number plate or SMV emblem for damage and cleaner replace as necessary if equipped.
10) Care of danger, warning and caution labels.
11) Clean around the exhaust manifold and the muffler of the engine.

- While sitting in the operator's seat.

1) Check the throttle pedal, brake pedals and clutch pedal.
2) Check the parking brake.
3) Check the steering wheel.

- Turning the key switch.

1) Check the performance of the Easy Checker lights.
2) Check head lights, tail lights and hazard lights. Clean if necessary.
3) Check the performance of the meters and gauges.

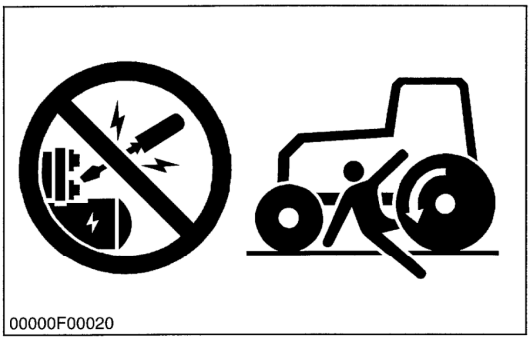
- Starting the engine.

1) Check to see that the lights on the Easy Checker go off.
2) Check the color of the exhaust.
3) Check the brakes for proper operation.

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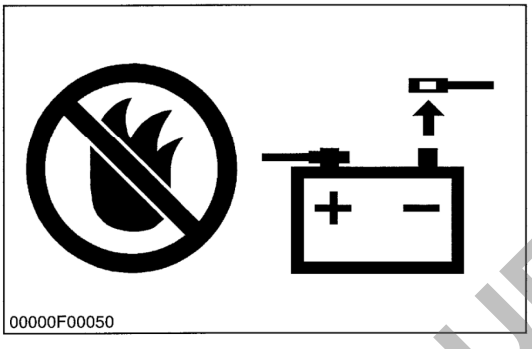
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SAFETY STARTING

(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.

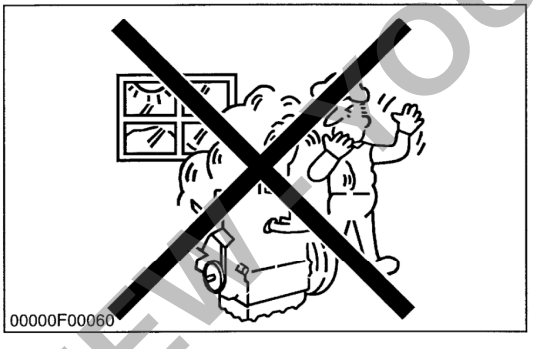
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AVOID FIRES

(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.

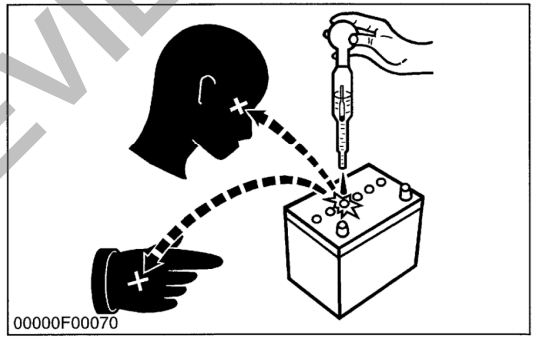
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VENTILATE WORK AREA

(1) 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.

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PREVENT ACID BURNS

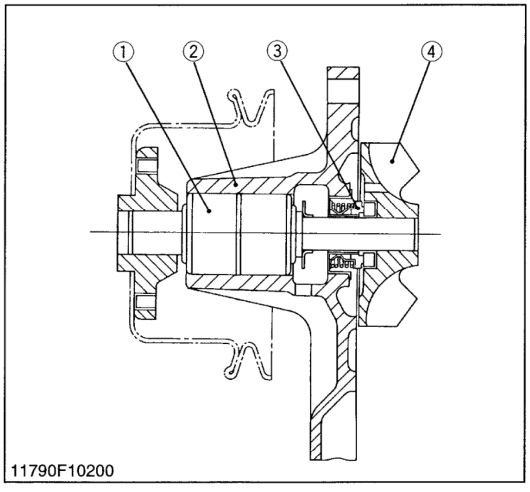
(1) Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, clothing and cause blindness if splashed into eyes. Keep electrolyte away from eyes, hands and clothing. If you spill electrolyte on yourself, flush with water, and get medical attention immediately.

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(1) Water Pump



The water pump is driven with the fan drive pulley, which is on the water pump shaft and driven by the crankshaft with a belt.

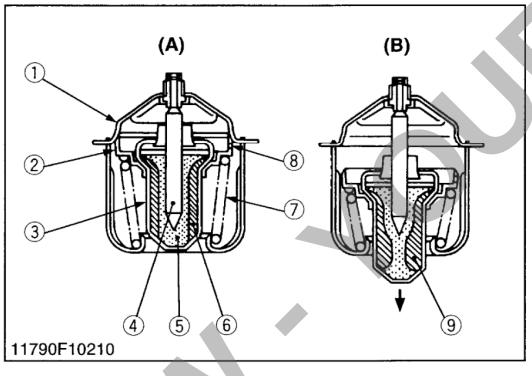
The rotating impeller (4) in the water pump receives cool water from the bottom of the radiator and the water jacket of cylinder head, and sends it into the water jacket in the cylinder block.

The mechanical seal (3) prevents the water from entering the bearing (1).

(1) Bearing
(2) Pump Body
(3) Mechanical Seal
(4) Pump Impeller

11790M10170

(2) Thermostat



The thermostat is wax pellet type, which controls the flow of the cooling water to the radiator to keep the proper temperature.

The case has a seat (1) and the pellet (3) has a valve (2). The spindle (4) attached to the case is inserted into the synthetic rubber (5) in the pellet. The pellet is charged with wax (6).

(A) At low temperature (lower than 71 ˚C, 159.8 ˚F)

The valve (2) is seated by the spring (7) and the cooling water circulates in the engine through the water return pipe but does not enter the radiator.

(B) At high temperature (higher than 71 ˚C, 159.8 ˚F)

As the water temperature rises, the wax in the pellet (3) turns liquid and expands, repelling the spindle (4).

The pellet lowers and the valve (2) opens to send the cooling water to the radiator.

(1) Seat
(2) Valve
(3) Pellet
(4) Spindle
(5) Synthetic Rubber
(6) Wax (Solid)
(7) Spring
(8) Leak Hole
(9) Wax (Liquid)

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PTO CLUTCH

Item		Factory Specification	Allowable Limit
PTO Clutch Valve Condition • Engine Speed Maximum • Oil temperature 45 to 55 ˚C 113 to 131 ˚F	Relief Valve Setting Pressure	2.45 to 2.55 MPa 25 to 26 kgf/cm^2 355 to 370 psi	–
PTO Clutch Disc	Thickness	1.70 to 1.90 mm 0.067 to 0.075 in.	1.55 mm 0.061 in.
PTO Steel Plate	Thickness	1.15 to 1.25 mm 0.045 to 0.049 in.	1.10 mm 0.043 in.
PTO Piston	Flatness	–	0.15 mm 0.006 in.
PTO Steel Plate	Flatness	–	0.30 mm 0.012 in.
PTO Return Spring	Free Length	40.5 mm 1.59 in.	37.5 mm 1.48 in.
PTO Brake Spring	Free Length	20.3 mm 0.80 in.	18.0 mm 0.71 in.
Seal Ring	Thickness	2.45 to 2.50 mm 0.096 to 0.098 in.	2.0 mm 0.079 in.

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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-10.)

Item	N·m	kgf·m	ft-lbs
Main delivery pipe and return pipe retaining nut	46.6 to 50.9	4.8 to 5.2	34.4 to 37.6
Turning delivery hose retaining nut	24.5 to 29.4	2.5 to 3.0	18.1 to 21.7
Starter's terminal **B** mounting nut	8.8 to 11.8	0.9 to 1.2	6.5 to 8.7
Engine and clutch housing mounting screw, nut	77.5 to 90.2	7.9 to 9.2	57.1 to 66.5
Engine and clutch housing mounting stud bolt	38.2 to 45.1	3.9 to 4.6	28.2 to 33.3
Clutch mounting screw	23.5 to 27.5	2.4 to 2.8	17.4 to 20.3
Release fork setting screw	166.7 to 191.2	17.0 to 19.5	123.0 to 141.0
PTO clutch control valve mounting screw	23.5 to 27.5	2.4 to 2.8	17.4 to 20.3
PTO clutch case bearing holder mounting screw	23.5 to 27.5	2.4 to 2.8	17.4 to 20.3
Rear wheel mounting nut	260 to 304	26.5 to 31.0	192 to 224
Step mounting nut	48.1 to 55.9	4.9 to 5.7	35.4 to 41.2
Step mounting screw (M16)	117.7 to 147.1	12.0 to 15.0	87.0 to 108.5
ROPS mounting screw M16 grade 9	259.9 to 304.0	26.5 to 31.0	192.0 to 224.0
Clutch housing and transmission case mounting screw, nut			
• M12, grade 11 nut	103.0 to 117.7	10.5 to 12.0	75.9 to 86.8
• M12, grade 7 screw, nut	77.5 to 90.2	7.9 to 9.2	57.1 to 66.5
• M10, grade 9 screw	60.8 to 70.6	6.2 to 7.2	44.8 to 52.1
Clutch housing and transmission case mounting stud bolt	38.2 to 45.1	3.9 to 4.6	28.2 to 33.3
Transmission upper cover mounting screw	23.5 to 27.4	2.4 to 2.8	17.4 to 20.3
Brake plate mounting screw	9.8 to 11.3	1.00 to 1.15	7.2 to 8.3

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MECHANISM

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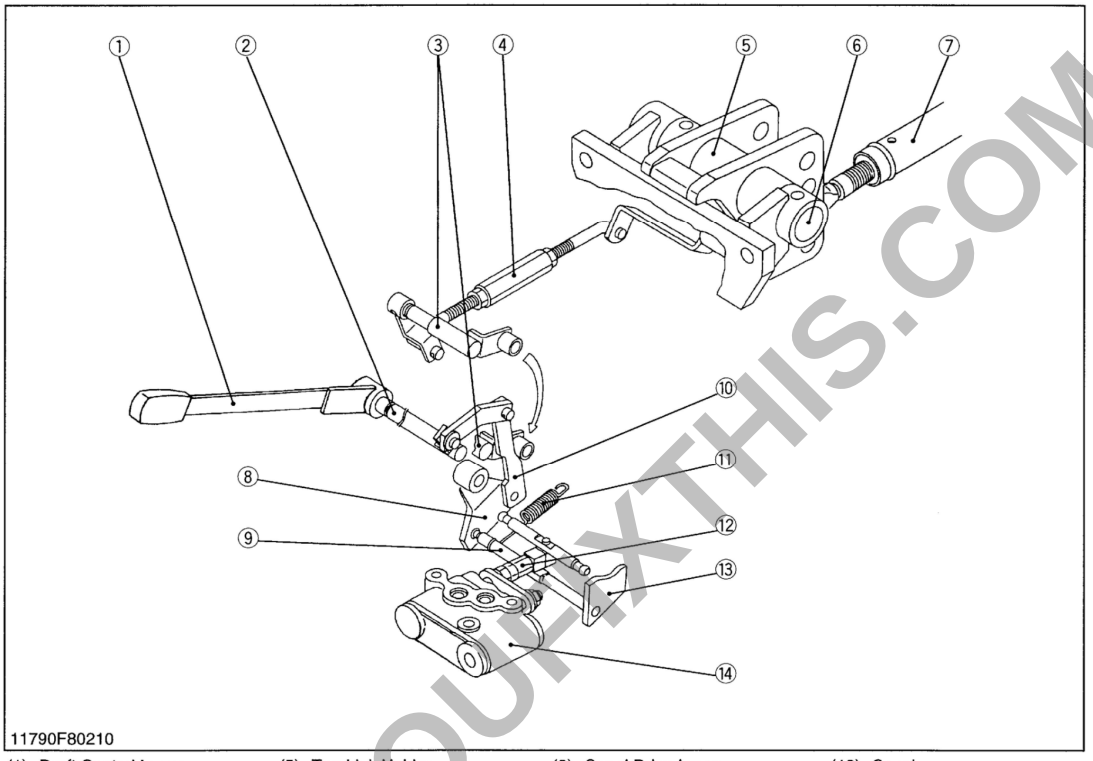
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■ Draft Control Operation



(1) Draft Control Lever
(2) Lever Shaft
(3) Feedback Shaft
(4) Feedback Rod
(5) Top Link Holder
(6) Torsion Bar
(7) Top Link
(8) Link 2
(9) Spool Drive Lever
(10) Link 1
(11) Spring
(12) Spool
(13) Fixed Arm
(14) Control Valve

1. The traction load applied to the tractor from the implement act as a torsional force to the torsion bar (6) via the top link (7) and the top link holder (5). When the torsion bar (6) is twisted, its displacement is transmitted to the feedback shaft (3) to rotate via the feedback rod (4). The feedback shaft rotates and push the link 1 (10) to rotate the link 2 (8). The end of the spool drive lever (9) is connected to the link 2 (8) and the other end is hold by the fixed arm (13), pulling out or pushing in the spool (12) by the rotation of the link 2 (8).
The spring (11) is pulling the spool drive lever (9) to keep the link 1 (10) coming in contact with the feedback shaft (3).
The angle of the link 1 (10) is controlled by the draft control lever (1) via the lever shaft (2).

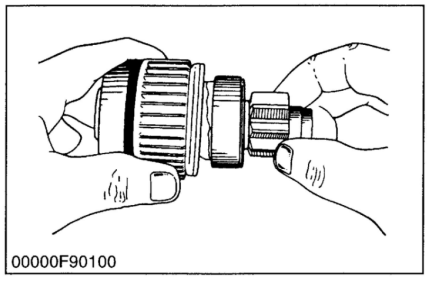
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SERVICING

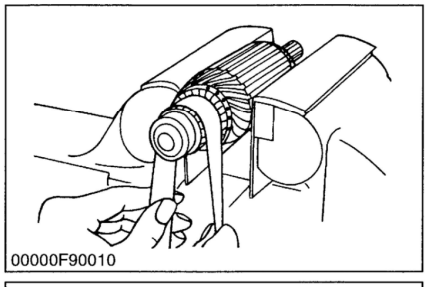
(1) Starter


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Overrunning Clutch

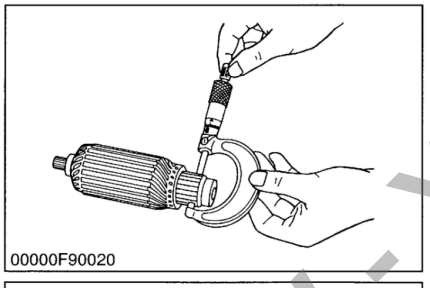
1. Inspect the pinion for wear or damage.
2. If there is any defect, replace the overrunning clutch assembly.
3. Check that the pinion turns freely and smoothly in the overrunning direction and does not slip in the cranking direction.
4. If the pinion slips or does not rotate in the both directions, replace the overrunning clutch assembly.

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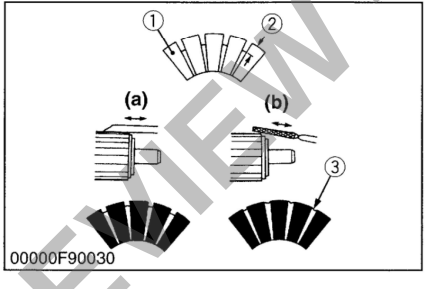

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Commutator and Mica

1. Check the contact face of the commutator for wear, and grind the commutator with emery paper if it is slightly worn.
2. Measure the commutator O.D. with an outside micrometer at several points.
3. If the minimum O.D. is less than the allowable limit, replace the armature.
4. If the difference of the O.D.'s exceeds the allowable limit, correct the commutator on a lathe to the factory specification.
5. Measure the mica undercut.
6. If the undercut is less than the allowable limit, correct it with a saw blade and chamfer the segment edges.


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Commutator O.D.	Factory spec.	30.0 mm 1.181 in.
	Allowable limit	29.0 mm 1.142 in.
Difference of O.D.'s	Factory spec.	Less than 0.02 mm 0.0008 in.
	Allowable limit	0.05 mm 0.0020 in.
Mica undercut	Factory spec.	0.50 to 0.80 mm 0.0197 to 0.0315 in.
	Allowable limit	0.20 mm 0.0079 in.



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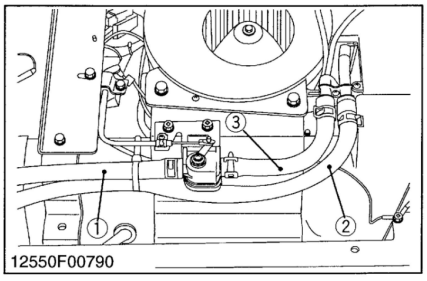
(1) Segment
(2) Undercut
(3) Mica

(a) Correct
(b) Incorrect

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Removing Heater Hoses

1. Remove the outer roof.
2. Disconnect the heater hoses (1), (2), (3).
3. Pull out the heater hoses (1), (2) from the bottom of the cabin.
4. Take out the heater hoses (1), (2).

(When reassembling)

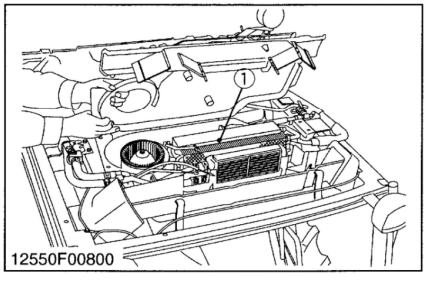
- When connecting the heater hose with A/C unit, hose should be put into the A/C unit pipe more than 30 mm (1.2 in.).

(1) Heater Hose 1 (2) Heater Hose 2

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SERVICING

(1) Air Conditioner Unit



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Evaporator

1. Check whether white powder or dust is attached to the evaporator (1). If they are attached, wash them off with warm water and blow them off with compressed air.

■ NOTE

- **In case the evaporator is cleaned with warm water, cap the evaporator pipe ends so that water does not enter it.**

(1) Evaporator

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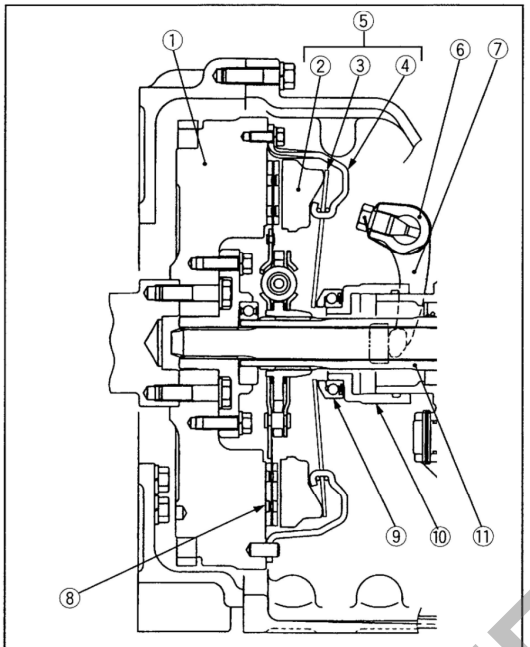
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■ Clutch "Disengaged"

When the clutch pedal is depressed, the clutch rod is pulled to move the clutch lever (11). Then, the release fork (9) pushes the release hub (7) and release bearing (6) toward the flywheel. Simultaneously, the release bearing (6) pushes the diaphragm spring (3).

As the pressure plate (2) is pulled by the diaphragm spring (3), the frictional force among the flywheel (1), clutch disc (10) and pressure plate (2) disappears.

Therefore, rotation of the flywheel (1) is not transmitted to the clutch disc (8), and then the rotation of the gear shaft (11) stops.

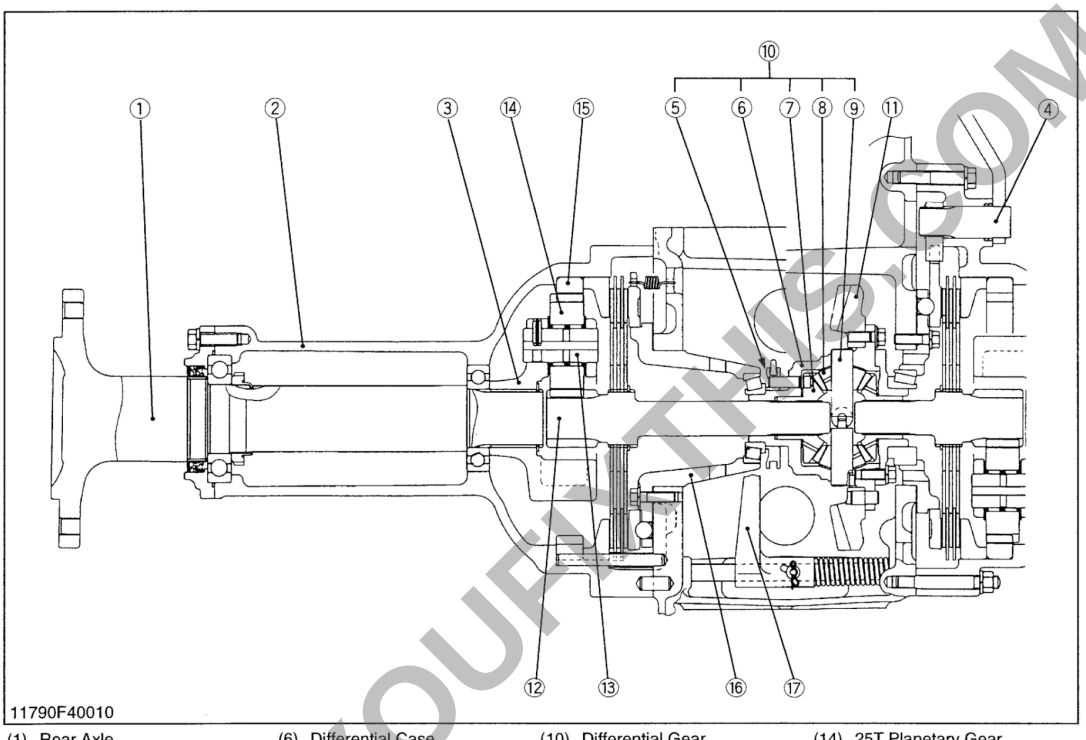
(1) Flywheel
(2) Pressure Plate
(3) Diaphragm Spring
(4) Clutch Cover
(5) Pressure Plate Assembly
(6) Clutch Lever
(7) Release Fork
(8) Clutch Disc
(9) Release Bearing
(10) Release Hub
(11) Gear Shaft

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[1] FEATURES



(1) Rear Axle
(2) Rear Axle Case
(3) Planetary Gear Support
(4) Brake Cam Shaft
(5) Differential Lock Shifter
(6) Differential Case
(7) Differential Side Gear
(8) Differential Pinion Gear
(9) Differential Pinion Shaft
(10) Differential Gear
(11) 39T Bevel Gear
(12) Brake Shaft (13T Gear)
(13) Planetary Gear Pin
(14) 25T Planetary Gear
(15) 65T Internal Gear
(16) Differential Bearing Support
(17) Differential Lock Shift Fork

The rear axles are the final mechanism which transmit power from the transmission to the rear wheels. Direction of power transmitted is changed at a right angle by the differential gear (10) and, at the same time, speed is reduced. It is further reduced by the planetary gear to drive the rear axles.

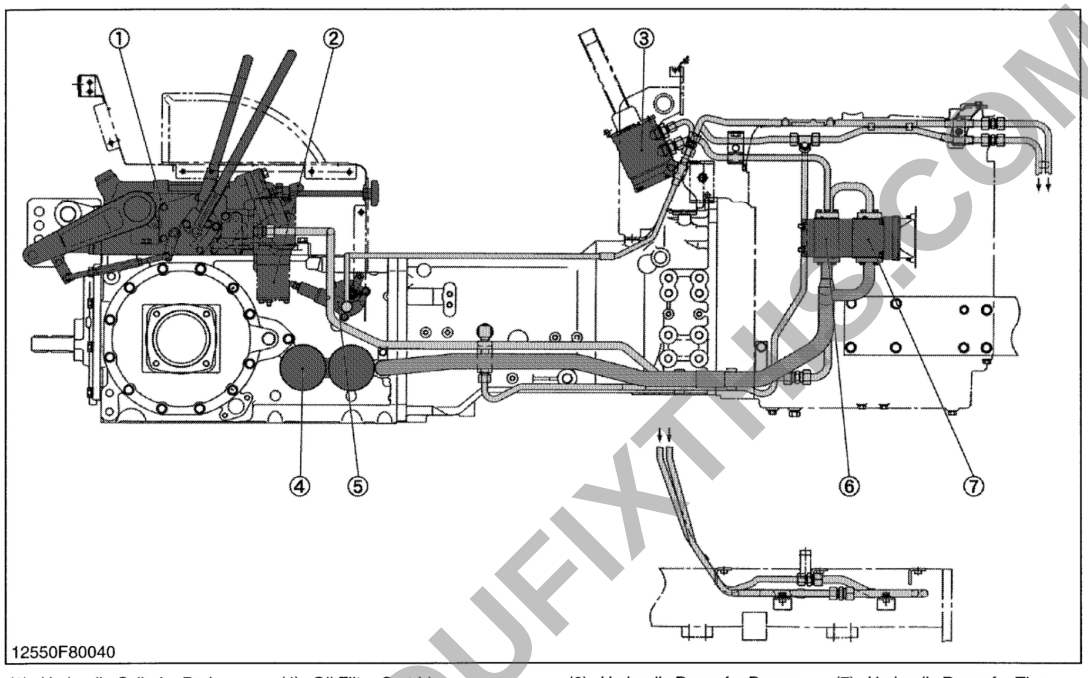
The rear axles (1) are semi-floating type with the ball bearing between the rear axle (1) and rear axle case (2), which support the rear wheel load as well as transmitting power to the rear wheel. They withstand all the forces caused by tire rotation and side skidding.

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[1] THREE POINT HYDRAULIC SYSTEM



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(1) Hydraulic Cylinder Body
(2) Auxiliary Control Valve
(3) Power Steering Controller
(4) Oil Filter Cartridge
(5) PTO Control Valve
(6) Hydraulic Pump for Power Steering
(7) Hydraulic Pump for Three Point Hydraulic System

The hydraulic system of these tractors are composed of the main components as shown in the figure.

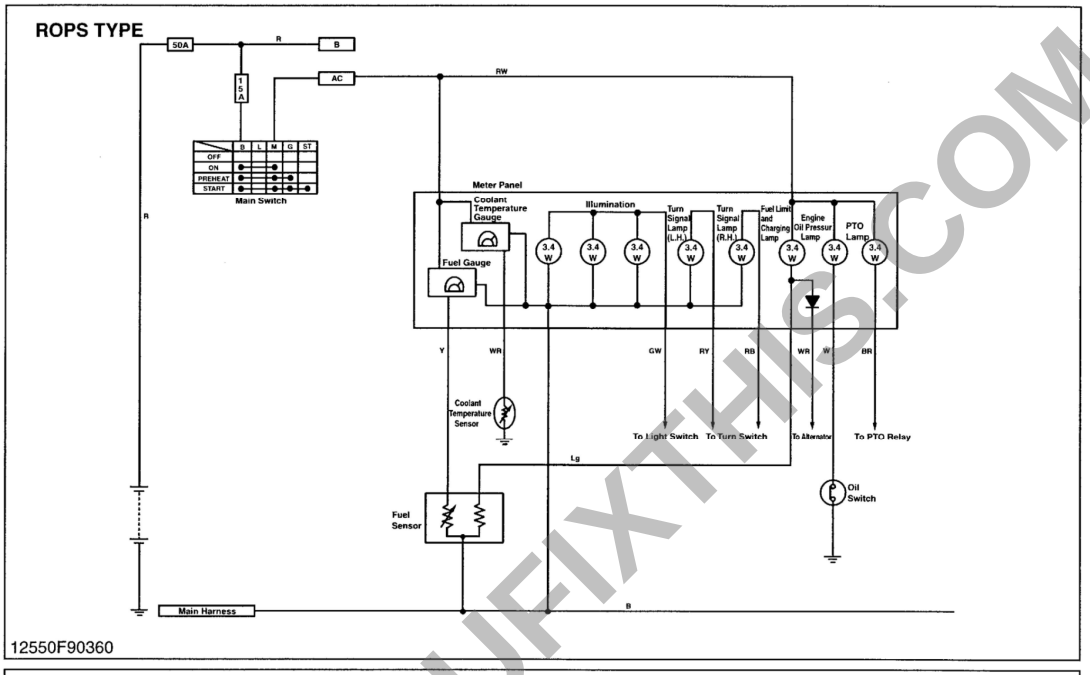
- To raise and lower the implement connected to the three point hitch. For this motion, the position control valve and the linkage installed on the hydraulic cylinder body provide three different applications : position control, draft control and mix control.
- Take out hydraulic power from the hydraulic cylinder body to operate an implement's hydraulic actuator.
- Takes out hydraulic power from the quick couplers for the implements with either single acting or double acting actuators. In this case, the implement's cylinders can be actuated by operating the auxiliary control valves.

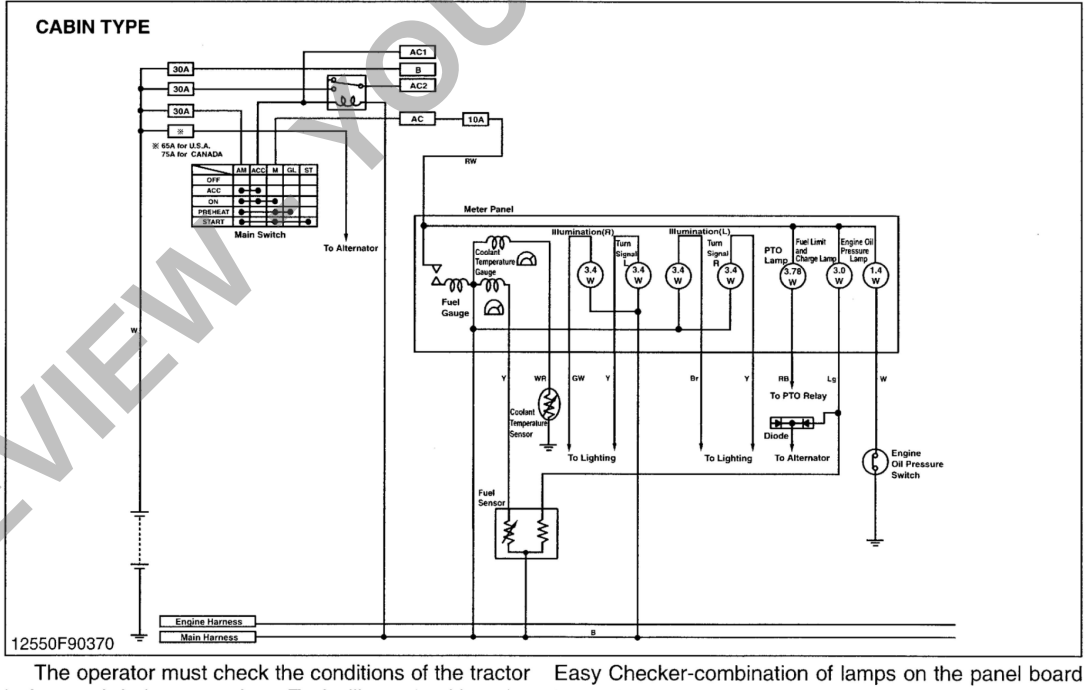
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[7] EASY CHECKER



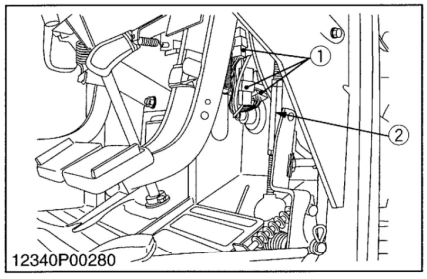


The operator must check the conditions of the tractor before and during operation. To facilitate checking, the Easy Checker-combination of lamps on the panel board is provided.

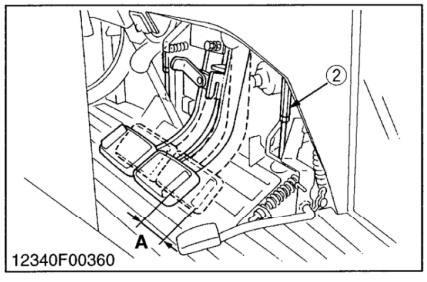
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Preparation 3

1. Disconnect the connectors (1) and pull out it from cabin.
2. Disconnect the brake rod **R.H.** (2) from turnbuckle and remove it.

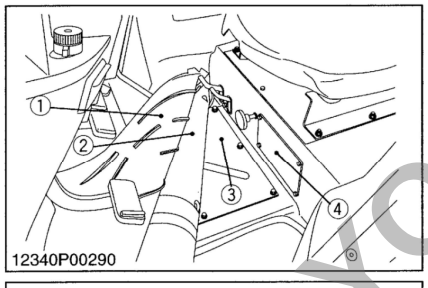
(When reassembling)

- Be sure to adjust the brake pedal free travel.

Proper brake pedal free travel **(A)**	40 to 45 mm (1.6 to 1.8 in.) in the pedal
	Keep the free travel in the right and left brake pedals equal.

(1) Connectors
(2) Brake Rod **R.H.**

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Preparation 4

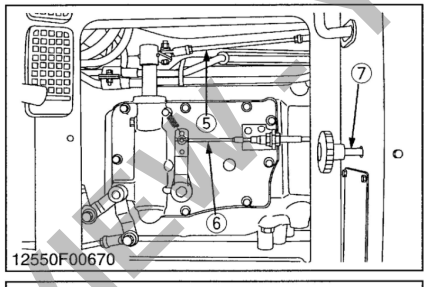
1. Remove the floor mat 1 (1), floor mat 2 (2) and cover 1 (3), cover 2 (4).
2. Disconnect the main shift rod (5).
3. Disconnect the wire (6).
4. Disconnect the lowering speed adjusting rod (7).

(When reassembling)

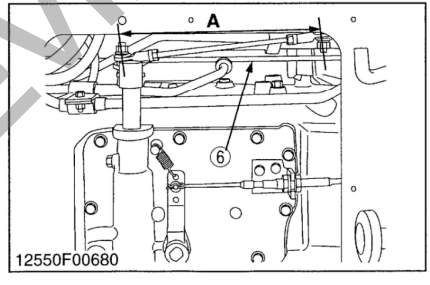
- Be sure to adjust the main shift rod length **(A)**, if necessary.

Shift rod length **(A)**	Factory spec.	Approx. 275 mm 10.8 in.

(1) Floor Mat **1**
(2) Floor Mat **2**
(3) Cover **1**
(4) Cover **2**
(5) Main Shift Rod
(6) Wire
(7) Lowering Speed Adjusting Rod



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