WSM

WORKSHOP MANUAL
TRACTOR

B6200HST · B7200HST

FOR U.S.A.

Kubota

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M MECHANISM

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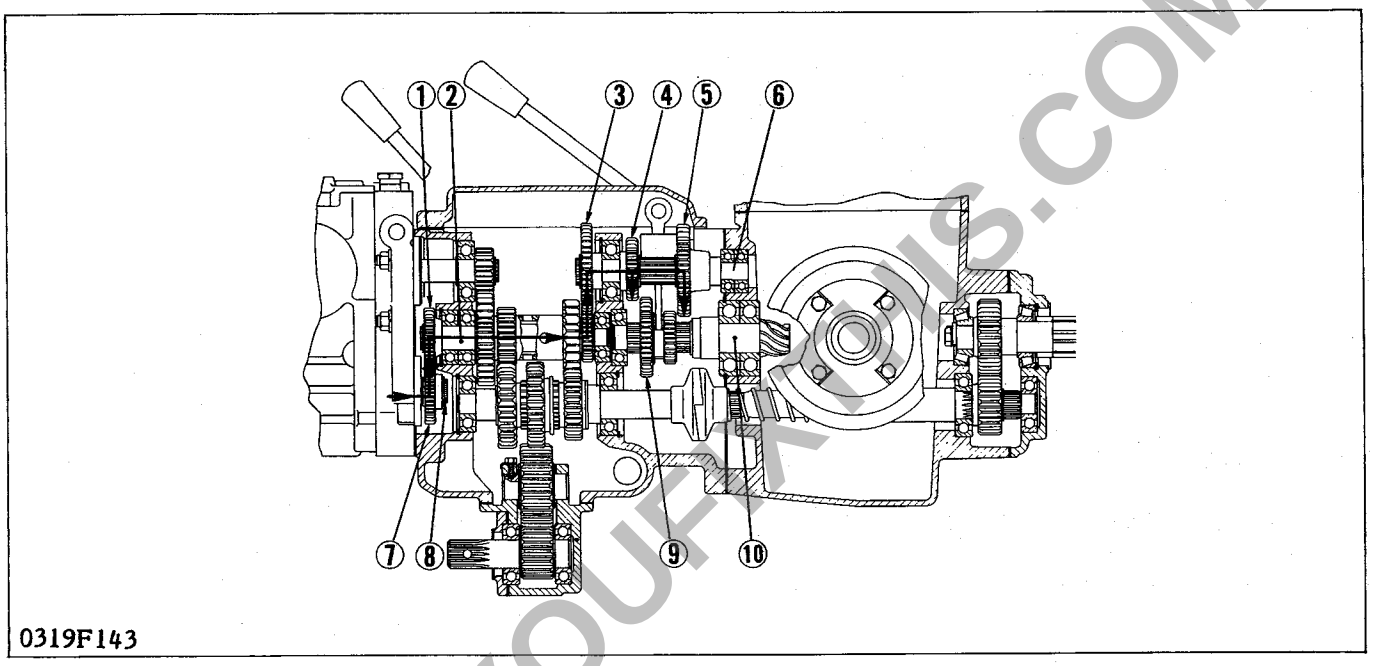
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[2] Mechanical Transmission

(1) High-Low Gear Shift Section

Mechanical transmission receives engine power from the output shaft of hydrostatic transmission and selects high or low gear, and transmits the power to differential.

■ Neutral

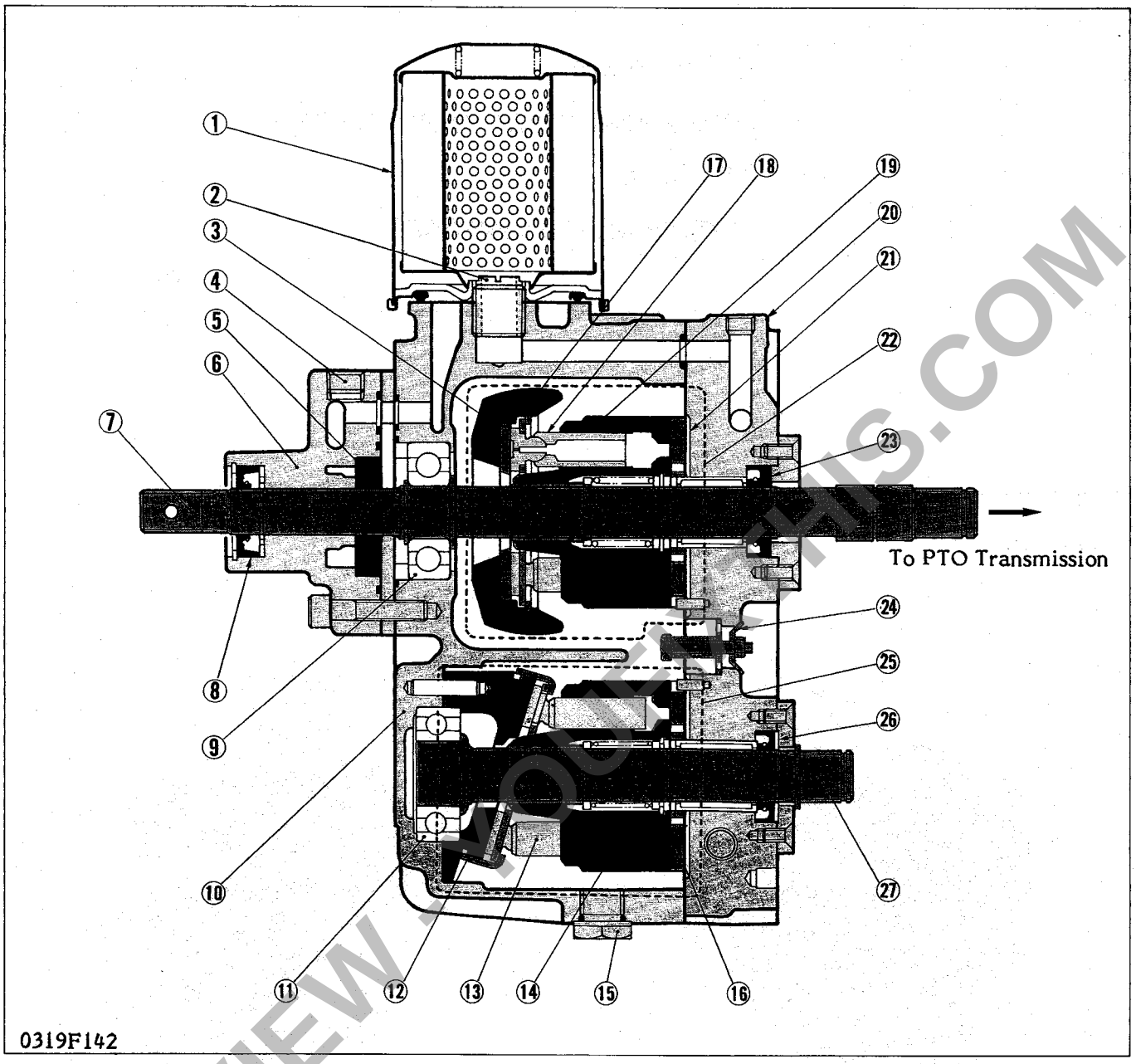


(1) 14T Gear
(2) 2nd Shaft
(3) 24T Gear
(4) 15T Gear
(5) 23T Gear
(6) 4th Shaft
(7) 16T Gear
(8) Output Shaft
(9) 20T-12T Gear
(10) Spiral Bevel Pinion

High or low speed is obtained by shifting 20T-12T gear (9) splined to spiral bevel pinion (10). When in neutral, neither 15T gear (4) nor 23T gear (5) meshes with 20T-12T gear (9) on spiral bevel pinion (10). Engine power is transmitted to the output shaft (8) of hydrostatic transmission, to which 16T gear (7) is splined. 16T gear (7) and 14T gear (1) are in mesh. 14T gear (1) is splined to 2nd shaft (2). Integral 11T gear on 2nd shaft (2) and 24T gear (3) are in mesh. 24T gear (3) is splined to 4th shaft (6). To 4th shaft (6), 15T gear (4) and 23T gear (5) are also splined. Spiral bevel pinion (10) is not driven.

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(1) Oil Filter Cartridge
(2) Joint
(3) Thrust Plate
(4) P3 Port
(5) Trocoid Rotor Assembly
(6) Charge Pump Case
(7) Input Shaft
(8) Oil Seal
(9) Ball Bearing
(10) Case
(11) Ball Bearing
(12) Fixed Swashplate
(13) Piston
(14) Cylinder Block
(15) Drain Plug
(16) Valve Plate
(17) Variable Swashplate
(18) Piston
(19) Cylinder Block
(20) Port Block
(21) Valve Plate
(22) Variable Displacement Piston Pump
(23) Oil Seal
(24) Case Relief Valve
(25) Fixed Displacement Piston Motor
(26) Oil Seal
(27) Output Shaft

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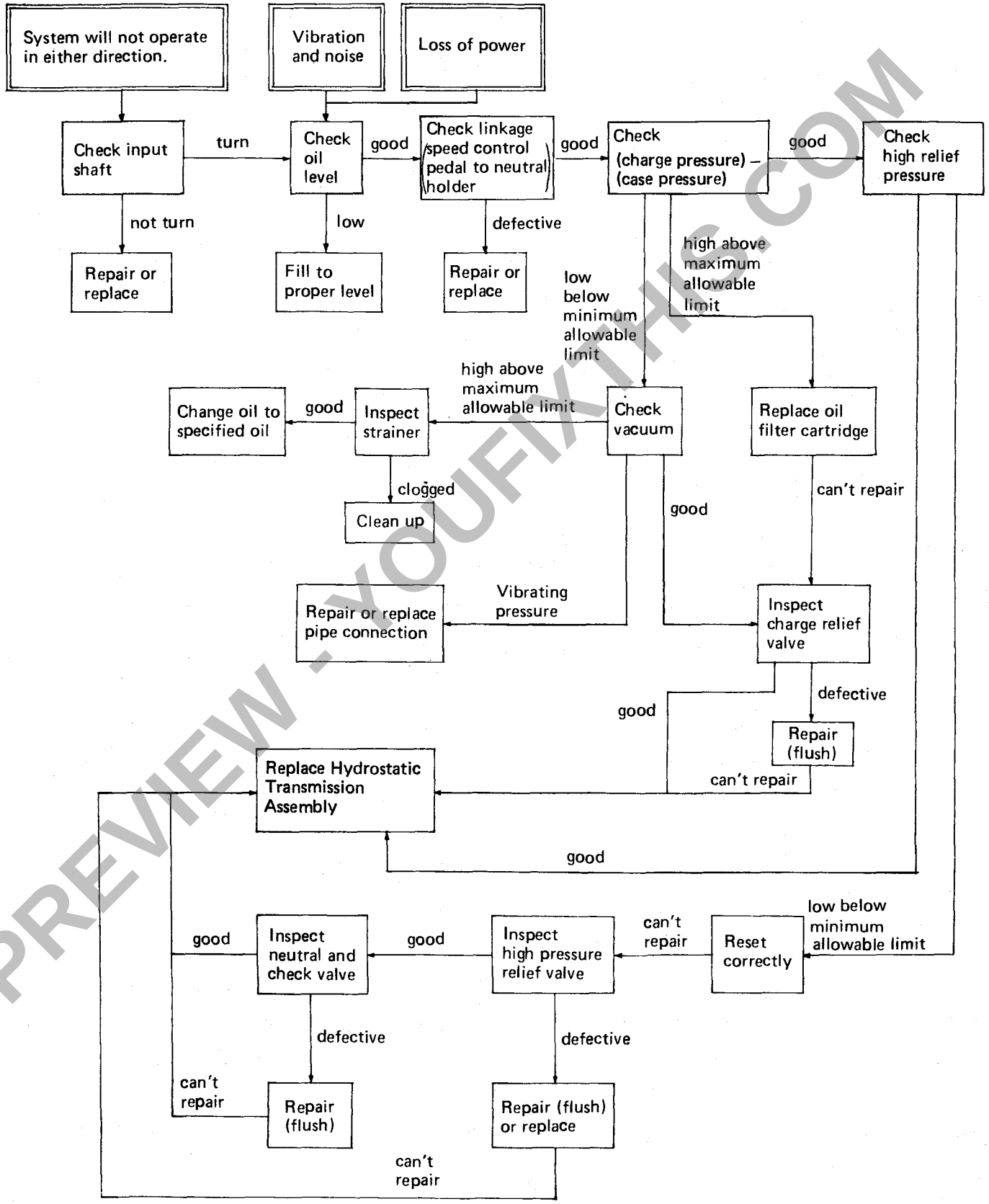
TIGHTENING TORQUES

Screws and Nuts	Tightening Torque		
	N-m	kgf-m	ft-lbs
Slotted nut	17.7 to 34.3	1.8 to 3.5	13.0 to 25.3
Front axle frame mounting screw	39.2 to 64.7	4.0 to 6.6	28.9 to 47.7
Engine mounting screw	23.5 to 27.5	2.4 to 2.8	17.4 to 20.3
Steering wheel mounting nut	41.2 to 58.8	4.2 to 6.0	30.4 to 43.4
Steering gear box mounting nut	39.2 to 64.7	4.0 to 6.6	28.9 to 47.7
Rear wheel hub cotter 2 and nut	166.7 to 191.2	17.0 to 19.5	123.0 to 141.0
Clutch housing mounting nut	41.2 to 58.8	4.2 to 6.0	30.4 to 43.4
HST mounting screw	48 to 56	4.9 to 5.7	35.4 to 41.2
Control valve mounting screw	16.7 to 21.6	1.7 to 2.2	12.3 to 15.9
Top link bracket mounting screw	39.2 to 64.7	4.0 to 6.6	28.9 to 47.7
Hydraulic cylinder mounting screw	20.6 to 29.4	2.1 to 3.0	15.2 to 21.7
Transmission case mounting nut	39.2 to 64.7	4.0 to 6.6	28.9 to 47.7
Rear axle case mounting screw			
M 10	39.2 to 64.7	4.0 to 6.6	28.9 to 47.7
M 12	60.8 to 106.9	6.2 to 10.9	44.8 to 78.8

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TROUBLESHOOTING



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SPECIFICATIONS

Model			B6200HST 2WD			B6200HST 4WD		
Maximum P.T.O. power			9.3 kW (12.5 HP)*					
Engine gross H.P.			11.2 kW (15 HP)*					
Engine	Model		D850-LA-H					
	Type		Vertical, water-cooled, 4-cycle diesel					
	Number of cylinders		3					
	Bore and stroke		72 mm x 70 mm (2.83 in. x 2.76 in.)					
	Total displacement		855 cm^3 (52.2 cu. in.)					
	Rated revolution		41.7 r/s (2500 rpm)					
	Maximum torque (Net)		49.1 N·m, 5.01 kgf·m, 36.2 ft-lbs/1800 rpm					
	Combustion chamber		Spherical type					
	Fuel injection pump		Bosch K type mini pump (NP-PFR3KD50/2NP4)					
	Governor		Centrifugal ball mechanical governor					
	Injection nozzle		Throttle type (ND-DN12SD12)					
	Injection timing		0.35 to 0.38 rad. (20 to 22 deg.) before T.D.C.					
	Injection order		1-2-3					
	Injection pressure		13.7 to 14.7 MPa (140 to 150 kgf/cm^2, 1991 to 2131 psi)					
	Compression ratio		22					
	Lubricating system		Forced lublicating by rotor-type pump					
	Cooling system		Pressurized radiator, Forced circulation with water pump					
	Starting system		Electric starting with cell starter (12V, 0.8kW) glow plug and decompression device					
	AC dynamo		12V, 150W					
	Battery		12V, 45Ah					
	Fuel		Diesel fuel No.1-D [below-10°C (15'F)] Diesel fuel No.2-D [above-10°C (15'F)] (ASTM D975)					
	Lubricating oil		MIL-L-2104B or MIL-L-2104C, quality better than CC class (API)					
	Weight (Dry)		105.0 kg (231 lbs)					
Capacities	Fuel tank		20 ℓ (5.3 U.S.gals., 4.40 Imp.gals.)					
	Engine crankcase		3.1 ℓ (3.3 U.S.qts., 2.73 Imp.qts.)					
	Engine coolant		2.8 ℓ (3.0 U.S.qts., 2.46 Imp.qts.)					
	Transmission case		13.5 ℓ (3.6 U.S.gals., 2.97 Imp.gals.)					
	Steering gear case		0.2 ℓ (0.2 U.S.qts., 0.18 Imp.qts.)					
	Front axle case		0.5 ℓ (0.5 U.S.qts., 0.44 Imp.qts.)					
	Front axle gear case		0.15 ℓ (0.16 U.S.qts., 0.13 Imp.qts.)					
Tires		Front	4.50-10	5.00-10	18x9.50-8	5-12	6-12 B	20.5x8.00-10
		Rear	7-16	8-16	29x12.00-15	7-16	8-16	29x12.00-15
Dimensions	Overall length mm (in.)		2590(102.0)	2590(102.0)	2590(102.0)	2590(102.0)	2590(102.0)	2590(102.0)
	Overall width mm (in.)		910(35.8) 960(37.8) 1080(42.5)	990(39.0) 1110(43.7)	1140(44.9)	940(37.0) 960(37.8) 1080(42.5)	980(38.6) 1110(43.7)	1140(44.9)
	Overall height with muffler mm (in.)		1795(70.7)	1815(71.5)	1785(70.3)	1810(71.3)	1825(71.9)	1800(70.9)
	Wheel base mm (in.)		1470(57.9)	1470(57.9)	1470(57.9)	1470(57.9)	1470(57.9)	1470(57.9)
	Min. ground clearance mm (in.)		230(9.1)	255(10.0)	240(9.4)	230(9.1)	240(9.4)	210(8.3)
	Treads	Front mm (in.)	710(28.0)	710(28.0)	850(33.5)	785(30.9)	795(31.3)	825(32.5)
		Rear mm (in.)	740(29.1) 790(31.1) 910(35.8)	790(31.1) 910(35.8)	840(33.1)	740(29.1) 790(31.1) 910(35.8)	790(31.1) 910(35.8)	840(33.1)
Weight kg (lbs)			525(1158)	535(1180)	545(1202)	580(1279)	595(1312)	600(1323)
P.T.O. shaft			Transmission case rear (Rear P.T.O.), transmission case bottom (Mid P.T.O.) and engine front (Front P.T.O.)					
Rear P.T.O.			SAE 1-3/8 (with over running clutch), 2 speeds (540 and 858 rpm at 2517 engine rpm)					
Mid P.T.O.			USA No.5 Involute spline, 2 speeds (1546 and 2456 rpm at 2517 engine rpm)					
Clutch			Dry single plate					
Steering			Ball screw type					
Transmission			Main-hydrostatic transmission; High-Low gear shift (2 forward, 2 reverse)					
Brake			Internal expanding type, right and left independent with interlocking device					
Min. turning radius m (feet)			2.1 (6.9)			2.3 (7.5)		

■NOTE: ★ Manufacture's estimate.

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[5] MAINTENANCE CHECK LIST

Service Interval	Check Points	Reference Page
Initial operation (initial 60 hours)	During this period, pay special attention to the following. ●After the initial 35 hours of use, change the engine oil and the oil filter cartridge. ●After the initial 50 hours of use, change the transmission oil and the oil filter cartridge and clean the oil strainer. ●Quick starts or sudden braking should be avoided.	 S.G-6 S.G-7
Every 75 hours	Change engine oil.	S.G-8
Every 100 hours	Lubricate the following points: ●King pins (2WD Type) ●Center pin (2WD Type) ●Clutch pedal shaft ●Brake pedal shaft ●Speed control pedal shaft ●Clutch release hub Check the following points to be connected securely. ●Hydraulic inlet line clamps ●Fuel line clamps Clean air cleaner element. Clean fuel filter. Check battery electrolyte level. Check fuel line. Check fan drive belt tension. Check clutch pedal play. Check brake pedal play. Check steering wheel play.	 S.G-9 S.G-9 S.G-9 S.G-9 S.G-9 S.G-9 S.G-10 S.G-10 S.G-10 S.G-11 S.G-11 S.G-11 S.G-12 S.G-12 S.G-13 S.G-13
Every 150 hours	Replace engine oil filter cartridge. Check water pipes and clamps.	S.G-14 S.G-14
Every 200 hours	Replace transmission oil filter cartridge.	S.G-14
Every 300 hours	Change transmission oil. Change front axle case oil (4WD Type). ●Clean transmission strainer.	S.G-15 S.G-15,16 S.G-7
Every 400 hours	Replace fuel filter.	S.G-15
Every 500 hours	Clean radiator interior.	S.G-16
Every one to two months	Recharge battery if necessary.	S.G-17
Every 3 months	Change scale inhibitor and coolant.	S.G-17
Every year or every 6 times of cleaning	Replace air cleaner element.	S.G-18
Every year	Change anti-freeze and coolant.	S.G-18
Every 2 years	Replace battery, if necessary. Replace water pipes and clamps. Replace fuel line and clamps. Replace hydraulic hoses and clamps.	S.G-19 S.G-19 S.G-19 S.G-20
Every 800 hours	Check valve clearance.	S.G-20

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SPECIFICATIONS (Continued)

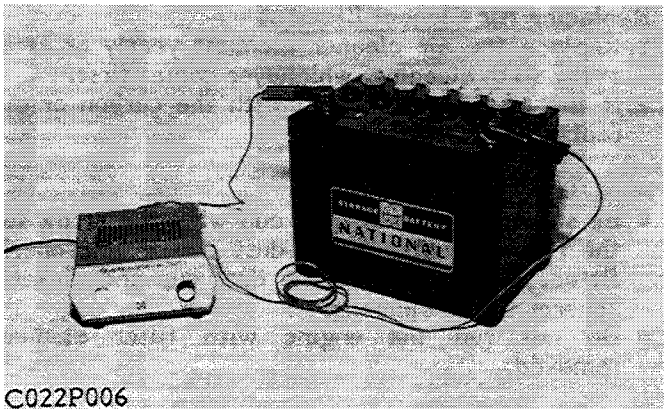
B7200HST 2WD				B7200HST 4WD			
10.5 kW (14 HP)*							
12.7 kW (17 HP)*							
D950-LA-H							
Vertical, water-cooled, 4-cycle diesel							
3							
75 mm x 70 mm (2.95 in. x 2.76 in.)							
927 cm^3 (56.6 cu. in.)							
41.7 r/s (2500 rpm)							
54.0 N·m, 5.51 kgf·m, 39.8 ft-lbs/1600 rpm							
Spherical type							
Bosch K type mini pump (NP-PFR3KD50/2NP4)							
Centrifugal ball mechanical governor							
Throttle type (ND-DN12SD12)							
0.35 to 0.38 rad. (20 to 22 deg.) before T.D.C.							
1-2-3							
13.7 to 14.7 MPa (140 to 150 kgf/cm^2, 1991 to 2131 psi)							
22							
Forced lublicating by rotor-type pump							
Pressurized radiator, Forced circulation with water pump							
Electric starting with cell starter (12V, 0.8kW), glow plug and decompression device							
12V, 150W							
12V, 45Ah							
Diesel fuel No.1-D [below-10°C (15°F)], Diesel fuel No.2-D [above-10°C (15°F)] (ASTM D975)							
MIL-L-2104B or MIL-L-2104C, quality better than CC class (API)							
105.0 kg (231 lbs)							
20 ℓ (5.3 U.S.gals., 4.40 Imp.gals.)							
3.1 ℓ (3.3 U.S.qts., 2.73 Imp.qts.)							
2.8 ℓ (3.0 U.S.qts., 2.46 Imp.qts.)							
13.5 ℓ (3.6 U.S.gals., 2.97 Imp.gals.)							
0.2 ℓ (0.2 U.S.qts., 0.18 Imp.qts.)							
—				0.5 ℓ (0.5 U.S.qts., 0.44 Imp.qts.)			
—				0.15 ℓ (0.16 U.S.qts., 0.13 Imp.qts.)			
5.00-10	5.00-10	18x9.50-8	18x9.50-8	6-12 B	6-12	20.5x8.00-10	20.5x8.00-10
8-16	9.5-16	29x12.00-15	31x13.5-15	8-16	9.5-16	29x12.00-15	31x13.5-15
2590(102.0)	2590(102.0)	2590(102.0)	2590(102.0)	2590(102.0)	2590(102.0)	2590(102.0)	2590(102.0)
990(39.0) 1110(43.7)	1045(41.1) 1095(43.1) 1145(45.1) 1265(49.8)	1140(44.9)	1240(48.8)	1050(41.3) 1110(43.7)	1050(41.3) 1095(43.1) 1145(45.1) 1265(49.8)	1140(44.9)	1240(48.8)
1815(71.5)	1815(71.5)	1785(70.3)	1785(70.3)	1830(72.0)	1840(72.4)	1805(71.1)	1805(71.1)
1470(57.9)	1470(57.9)	1470(57.9)	1470(57.9)	1470(57.9)	1470(57.9)	1470(57.9)	1470(57.9)
255(10.0)	285(11.2)	240(9.4)	250(9.8)	240(9.4)	255(10.0)	215(8.5)	215(8.5)
710(28.0)	710(28.0)	850(33.5)	850(33.5)	860(33.9)	860(33.9)	895(35.2)	895(35.2)
790(31.1) 910(35.8)	795(31.3) 845(33.3) 895(35.2) 1015(40.0)	840(33.1)	895(35.2)	790(31.1) 910(35.8)	795(31.3) 845(33.3) 895(35.2) 1015(40.0)	840(33.1)	895(35.2)
535(1180)	550(1213)	545(1202)	550(1213)	605(1334)	615(1356)	610(1345)	615(1356)
Transmission case rear (Rear P.T.O.), transmission case bottom (Mid P.T.O.) and engine front (Front P.T.O.)							
SAE 1-3/8 (with over running clutch), 2 speeds (540 and 858 rpm at 2517 engine rpm)							
USA No.5 Involute spline, 2 speeds (1546 and 2456 rpm at 2517 engine rpm)							
Dry single plate							
Ball screw type							
Main-hydrostatic transmission; High-Low gear shift (2 forward, 2 reverse)							
Internal expanding type, right and left independent with interlocking device							
2.1 (6.9)				2.2 (7.2)			

■ **NOTE:** * Manufacture's estimate.

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(10) Check Points of Every One to Two Months

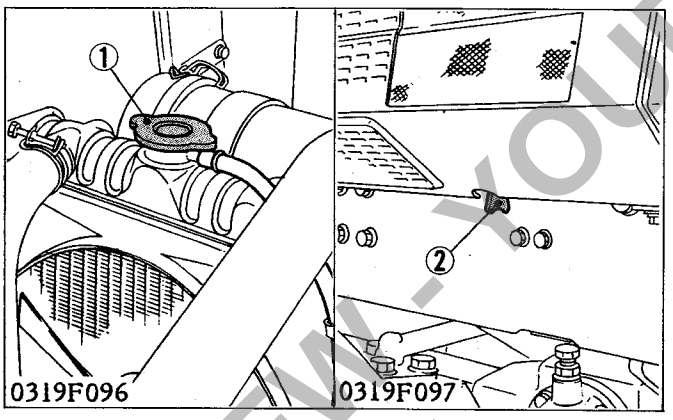


C022P006

Charging Battery

1. If the battery is weak, the engine is difficult to start and the lamps become dim. It is important to check the battery and recharge before trouble occurs.
2. The water in the electrolyte evaporates during recharging. Liquid shortage damages the battery and excessive liquid spills over and damages the tractor body. If low, be sure to fill up the battery with distilled water.
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 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 after the operation has been finished. Failure to do this extremely affects the service life due to overdischarge.

(11) Check Points of Every 3 Months



0319F096 0319F097

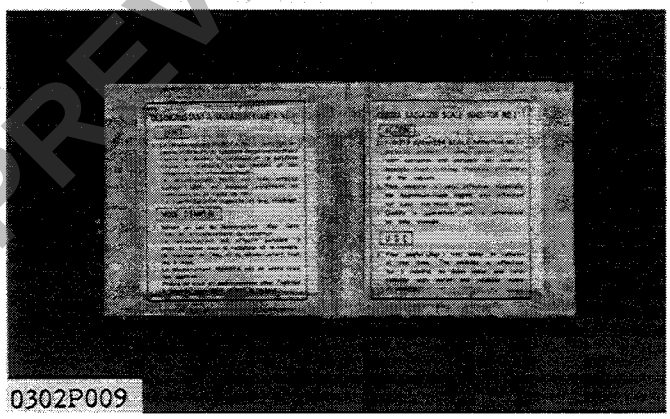
Changing Scale Inhibitor and Coolant

1. To drain the used coolant, remove the drain plug (2) and radiator cap (1).
2. Clean the radiator interior, and screw in the drain plug.
3. Fill clean and fresh water up to the specified level.

■ **IMPORTANT**

- After changing coolant, securely tighten the radiator cap.

(1) Radiator Cap
(2) Drain Plug


0302P009

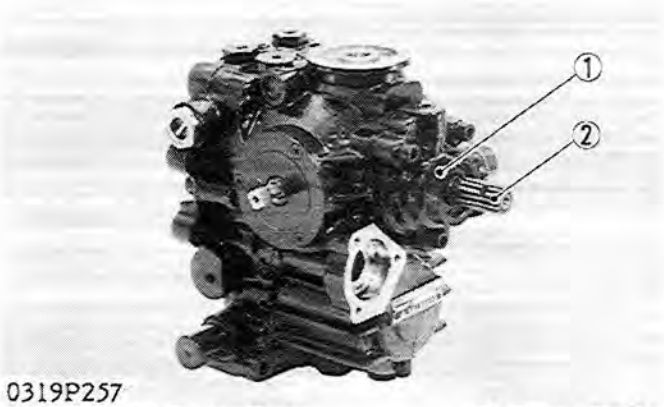
(Reference)

KUBOTA Scale Inhibitor No.11

- The KUBOTA Scale Inhibitor No. 11 prevents scale formation in the coolant. Scale which builds up in either hard or soft water sharply reduces cooling efficiency.
- The scale inhibitor is effective for 3 months, so a complete change of coolant must be done every 3 months.
- Do not use a scale inhibitor and an anti-freeze at the same time. This may cause sludge to form, adversely affecting the engine parts.

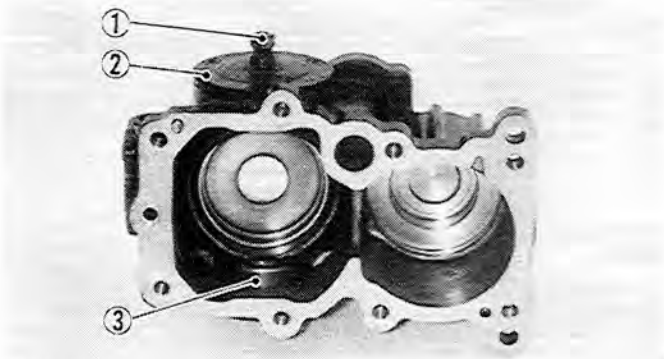
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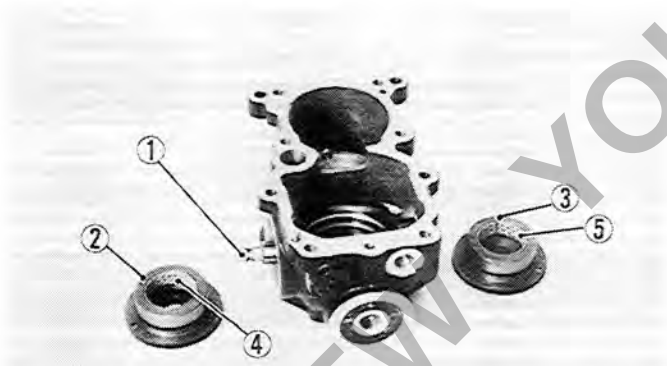


0319P257

(1) Charge Pump Case (2) Input Shaft



0303P039



0011P141

(1) Trunnion Shaft
(2) Trunnion Shaft Cover 1
(3) Trunnion Shaft Cover 2
(4) Seam of Bearing
(5) Seam of Bearing

Charge Pump and Input Shaft

1. Remove the screws retaining the charge pump case (1).
2. Tapping the rear end of the input shaft (2) with a soft hammer, separate the charge pump case (1) with the input shaft (2) from the case.
3. Remove two knock pins.

(Tightening torque)

Screw	11 to 14 N-m
(Charge pump case to case)	1.1 to 1.4 kgf-m
	8.0 to 10.1 ft-lbs

Pump Swashplate

1. Remove the screws retaining trunnion shaft cover.
2. Tap the end of trunnion shaft (1) with a soft hammer to separate the trunnion shaft cover 2 (3).
3. Tap the end of shaft with a soft hammer to separate the trunnion shaft cover 1 (2).

(When reassembling)

- Install the trunnion shaft covers (2), (3) with the seam of bearing (4), (5) facing forward (machined surface side of case).

(Tightening torque)

Screw	2.0 to 2.5 N-m
(Trunnion shaft cover to case)	0.20 to 0.26 kgf-m
	1.4 to 1.9 ft-lbs

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