WSM

WORKSHOP MANUAL
TRACTOR

MECHANISM

Kubota

KiSC issued 06, 2006 A

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MECHANISM

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1. Oil is supplied from the power steering hydraulic pump (2) while running the engine.
2. The oil entering the regulating valve assembly (1) flows through the pressure reducing valve (5) to the GST circuit. This oil pressure is maintained at a fixed level by the pressure reducing valve (5).
3. When the GST lever is operated, the desired shift solenoids (8), (9), (10), (11), (14) or (16) are excited according to the output voltage from the GST lever sensor.
4. When the solenoid valve is operated, oil is supplied to corresponded shift pistons (12), (13), (15) or (17), and the shift piston is moved. The shift arm that is moved by the shift piston moves shifter of synchromesh to shift the gear. At this time, GST clutch (27) has been disengaging until gear shifting is completed.
   The GST clutch (27) is engaging except where the condition is neutral, is gear shifting and is engine stopping.
5. Pressure in the pilot circuit rises because the shift check valves (18), (21) and (19) or (20) are shut by the movements of shift pistons at the same time as completing gear shifting.
6. By means of pressure rising of the circuit, the clutch valve (24) is actuated. And, oil flows through the low-pass valve (25) and the proportional reducing valve (26) to the GST clutch (27). This oil flows until becoming the compound pressure which is both of setting pressure for closing of low-pass valve, and controlled indication pressure of the proportional reducing valve.

(Reference)

- Setting pressure for closing of low-pass valve : 0.24 MPa (2.5 kgf/cm^2, 34.1 psi)

7. Because pressure in the GST clutch (27) is gradually pressurized by function of proportional reducing valve (26), clutch is able to engage without shock and smoothly.
8. When the pressure in the circuit rises to the system pressure, pressure is maintained. And the GST clutch is maintained at engaging condition until the next gear shifting.

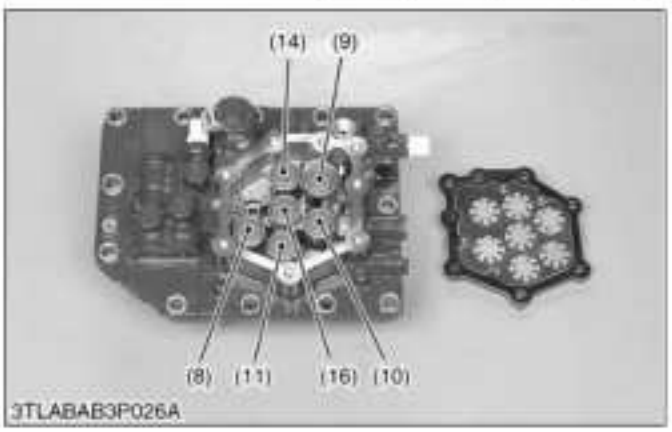
State of energizing of solenoid

(Forward)

	N	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
Solenoid 1(10)		ON						ON	ON				
Solenoid 2 (16)			ON							ON	ON		
Solenoid 3 (9)				ON	ON							ON	
Solenoid 4 (14)						ON	ON						ON
Solenoid 5 (11)				ON		ON		ON		ON			
Solenoid 6 (8)	(ON)	ON	ON	ON	ON	ON	ON						

(Reverse)

	N	1st	2nd	3rd	4th	5th	6th	7th	8th
Solenoid 1 (10)		ON				ON			
Solenoid 2 (16)			ON				ON		
Solenoid 3 (9)				ON				ON	
Solenoid 4 (14)					ON				ON
Solenoid 6 (8)	(ON)	ON	ON	ON	ON				



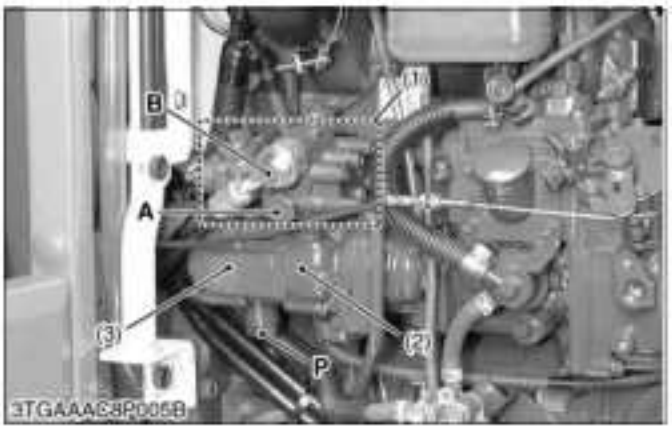
No.	Solenoid	Color of wiring
(10)	Solenoid 1	Black
(16)	Solenoid 2	White
(9)	Solenoid 3	Red
(14)	Solenoid 4	Green
(11)	Solenoid 5, Sub-range Lo-Hi	Blue
(8)	Solenoid 6,Main range L-H	Yellow

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5. REGULATOR VALVE

[1] TYPE 1 (TA530-19050, T1060-19053, T1170-19050)



The regulator valve (1) is installed on the power steering pump, regulating the oil pressure of the hydraulic PTO clutch and bi-speed clutch circuit.

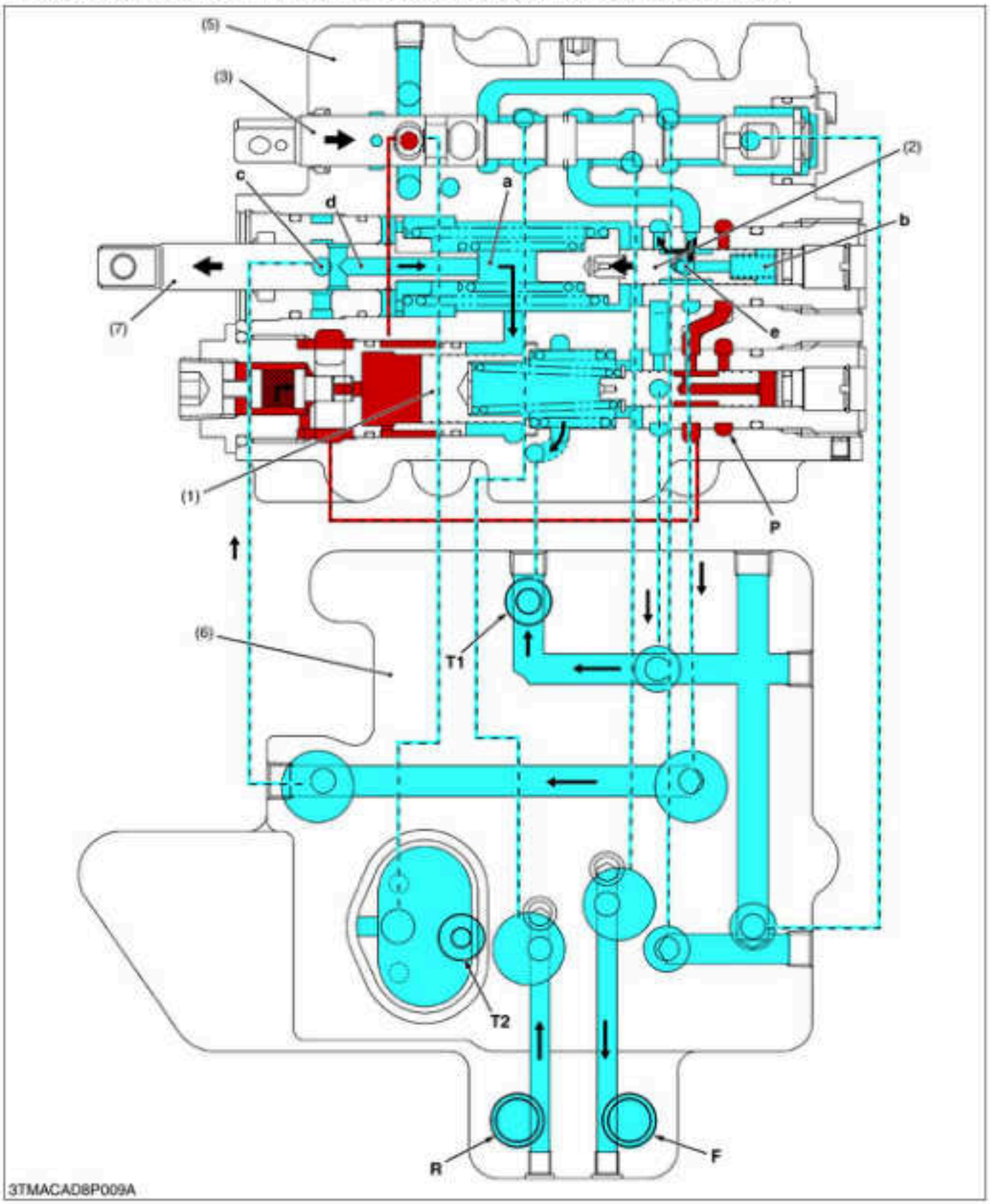
(1) Regulator Valve
(2) 3P Hydraulic Pump
(3) Power Steering Pump

A : A Port
B : B Port
P : P Port

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■ When Clutch Pedal is Depressed (with Shuttle Lever at Forward or Reverse Position)

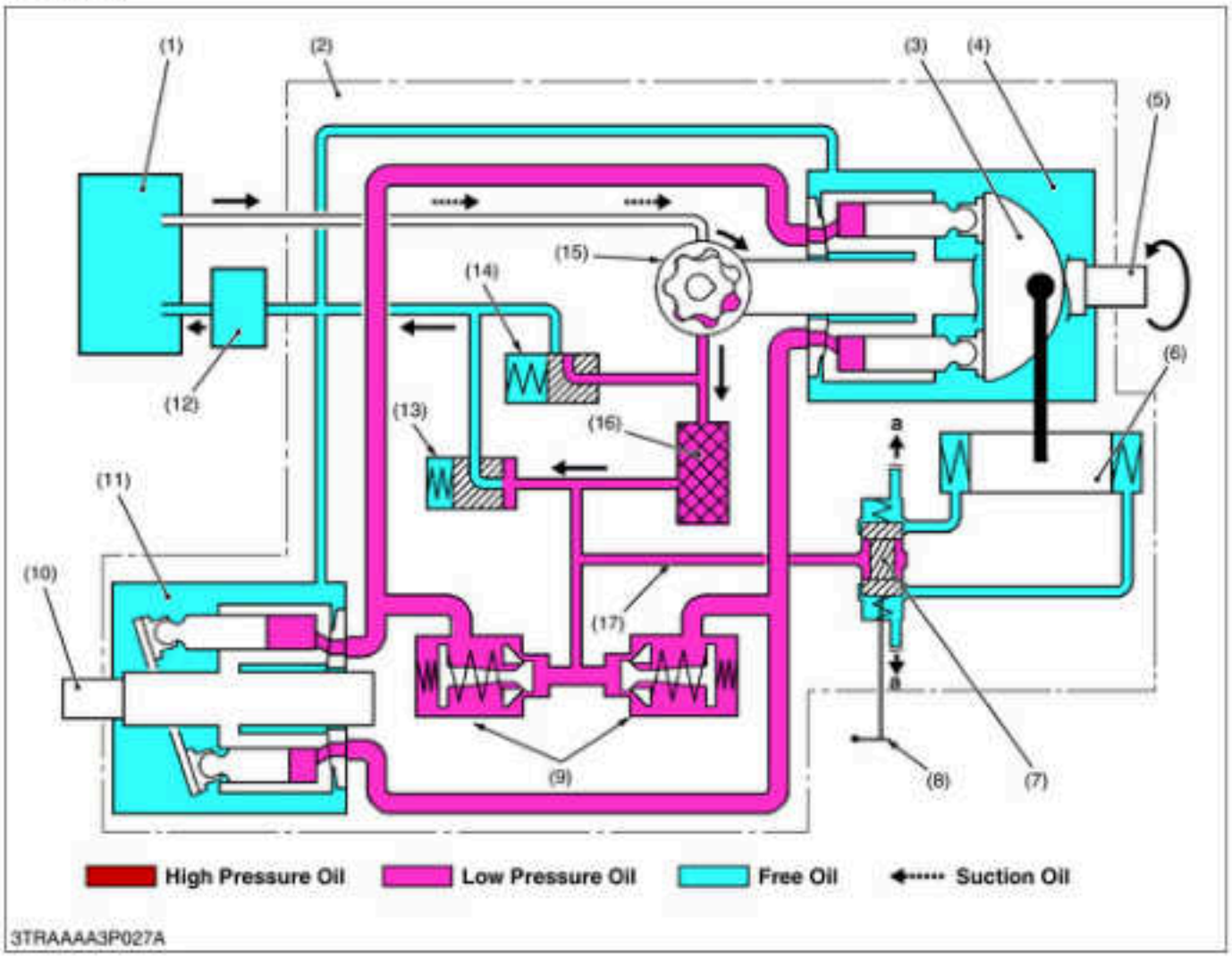


a : Connect to Shuttle Lever b : Connect to Clutch Pedal

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[4] OPERATION

■ Neutral



(1) Transmission Case
(2) HST Housing
(3) Variable Swashplate
(4) Pump Cylinder
(5) Input Shaft
(6) Servo Piston
(7) Regulator
(8) HST Pedal (Control Lever)
(9) Check and High Pressure Relief Valve
(10) Output Shaft
(11) Motor Cylinder
(12) Oil Cooler
(13) Charge Relief Valve
(14) Filter Protective Relief Valve
(15) Charge Pump
(16) Oil Filter
(17) Bypass Pipe

a : To HST Housing

The sucked oil from the transmission case (1) by the charge pump (15) flows into the HST housing (2) and regulator (7) through the oil filter (16) and charge relief valve (13). Overflow oil from HST housing (2) returns to the transmission case (1) through the oil cooler (12).

When the HST pedal (8) is in neutral, regulator (7) is not activated, so the variable swashplate (3) is at right angles to the pump pistons and they only rotate with cylinder block (4) without reciprocation. Since the oil is not being pumped to motor, the cylinder block in the motor (11) is stationary and the output shaft (10) does not rotate.

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		Starting System										Charging System
		Key Stop Relay	Starter Relay	Safety Switch 1 (Clutch Pedal)	Safety Switch 2 (HST Pedal)	Safety Switch 3 (PTO-1)	Safety Switch 4 (PTO-2)	Safety Switch 5 (Shift Lever, shuttle lever)	Seat Switch	Seat Tilt Switch	Operator Presence Controller	Alternator
B	B7410		T1060-33720	6C040-55852		52320-42900		6A320-42770	K1122-62280	K1122-62280		
	B7510	T1060-33710		↑	52320-42900	↑	T2050-33780	↑	↑	↑	6C190-55510	16241-64012
	B7610	↑		↑	↑	↑	↑		↑	↑	↑	↑
	B7800	↑		↑	↑	↑			↑	↑	↑	↑
	B2630	↑			↑	6A700-18810			↑	↑	↑	↑
	B3030	↑			↑	↑			↑	↑	↑	↑
	B3030CAB	↑			↑	↑			↑	↑	↑	16210-64012
L	L2800	T1060-33710	T1060-33720	6A100-30860	TD060-53900	T0430-32370		TC220-43900	TD060-47902		TD060-30500	T1060-15682
	L3400	↑	↑	↑	↑	↑		↑	↑		↑	↑
	L4400	↑	↑			T1060-43900		↑	↑		↑	↑
	L3130	↑	↑	TD060-57500	TD060-53900	TD060-42780		TD060-42772	↑		↑	↑
	L3430	↑	↑	↑	↑	↑		↑	↑		↑	↑
	L3430CAB	↑	↑	↑	↑	↑			↑		↑	3A611-74012
	L3830	↑	↑	↑	↑	↑		TD060-42772	↑		↑	T1060-15682
	L4330	↑	↑	↑	↑	↑		↑	↑		↑	↑
	L4330CAB	↑	↑	↑	↑	↑			↑		↑	3A611-74012
	L4630	↑	↑	↑	↑	↑		TD060-42772	↑		↑	T1060-15682
	L4630CAB	↑	↑			↑		↑	↑		↑	3A611-74012
	L5030	↑	↑	TD060-57500	TD060-53900	↑		↑	↑		↑	T1065-15682
	L5030CAB	↑	↑	↑	↑	↑			↑		↑	3A611-74012
	STV32	↑	↑	TA530-30860	TA530-30860	TA530-32233						T1060-15682
	STV36	↑	↑	↑	↑	↑						↑
	STV40	↑	↑	↑	↑	↑						↑
M	MX5000	T1060-33710	T1060-33720			T1060-43900		TC220-43900	TD060-47902		TD060-30500	T1060-15682
	M4800		35800-75070			TA040-43900		3A011-75100	↑		3A272-75250	3A011-74013
	M5700HD		↑			↑		3A051-75100			↑	↑
	M5700HDCAB	3A111-75080	3G700-75080			↑		↑			↑	3A611-74012
	M6800HD	↑	↑			↑		↑			↑	3A251-74010
	M6800HDCAB	↑	↑			↑		↑			↑	3A651-74010
	M8200HD	↑	↑			↑		↑			↑	3A251-74010
	M8200HDCAB	↑	↑			↑		↑			↑	3A651-74010
	M9000HD	↑	↑			↑		↑			↑	3A251-74010
	M9000HDCAB	↑	35800-75070			↑		↑			↑	3A651-74010
	ME5700		↑			↑		↑				3A011-74012
	ME5700CAB		↑			↑		↑				3A611-74010
	ME8200	3A111-75080	3G700-75080			↑		↑				3A251-74010
	ME8200CAB	↑	↑			↑		↑				3A651-74010
	ME9000	↑	↑			↑		↑				3A251-74010
	ME9000CAB	↑	↑			↑		↑				3A651-74010
	M95S	3F740-75030	↑			↑		36602-29500	3N300-85070		3A272-75250	↑
	M105S	↑	↑			↑		↑	↑		↑	↑
	M95X	↑	↑			3P300-55412		3M750-34620	3F460-85210		3P300-78502	3P201-64010
	M105X	↑	↑			↑		↑	↑		↑	3P200-64010
	M125X	↑	16541-60181			↑		↑	↑		↑	3M760-64010

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