KOBELCO

SERVICE MANUAL

WHEEL LOADER

LK650-II

Applicable: RE02201~

S5RE0004E 10/90

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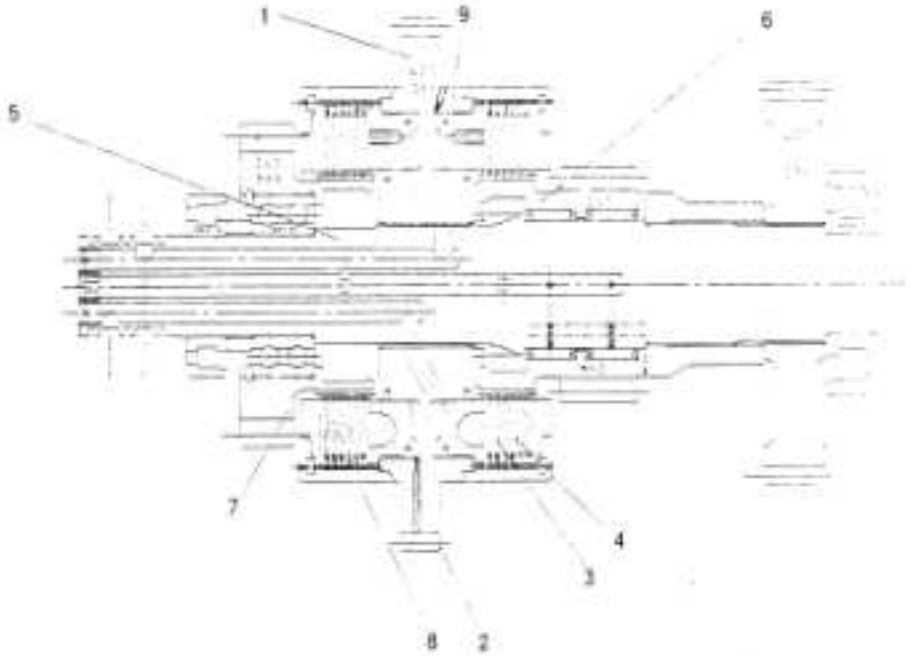
CLUTCH PACKS

Forward and Reverse Clutches



1. Clutch drum
2. Clutch piston
3. Friction plate
4. Steel plate
5. Main shaft
6. Forward clutch gear
7. Reverse clutch gear
8. Return spring
9. Residual pressure prevention orifice

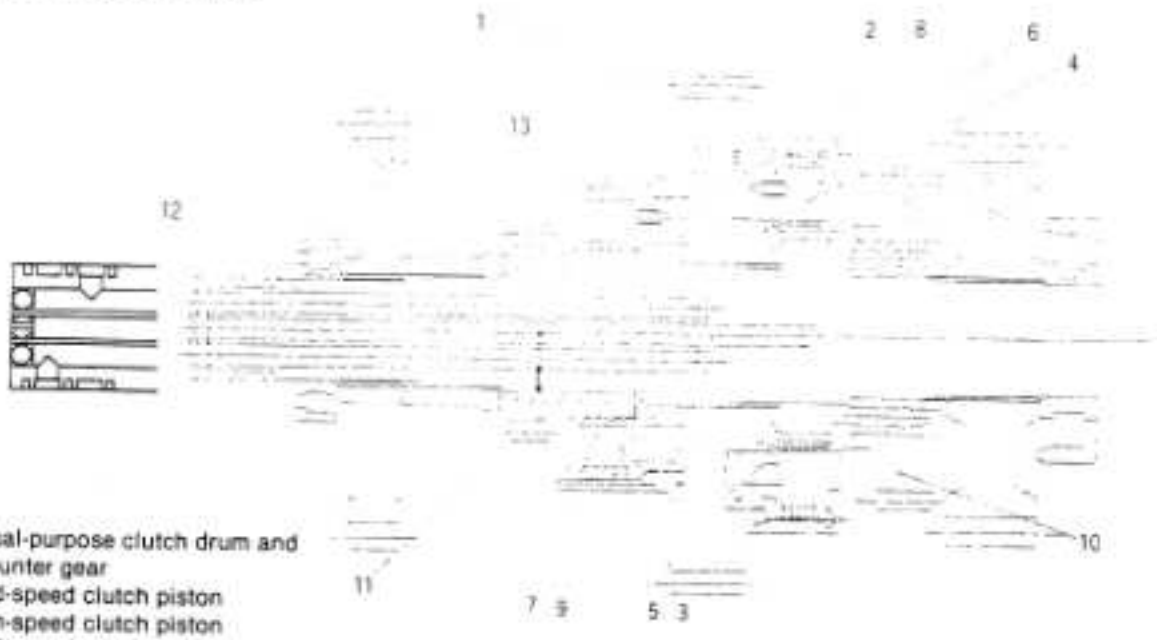
1st and 2nd-Speed Clutches



1. Dual-purpose clutch drum and counter gear
2. Clutch piston
3. Friction plate
4. Steel plate
5. Counter shaft
6. 1st-speed clutch gear
7. 2nd-speed clutch gear
8. Return spring
9. Residual pressure prevention orifice

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3rd and 4th-Speed Clutches



1. Dual-purpose clutch drum and counter gear
2. 3rd-speed clutch piston
3. 4th-speed clutch piston
4. 3rd-speed clutch steel plate
5. 4th-speed clutch steel plate
6. 3rd-speed clutch friction plate
7. 4th-speed clutch friction plate
8. 3rd-speed clutch return spring
9. 4th-speed clutch return spring
10. 3rd-speed clutch gear
11. 4th-speed clutch gear
12. Counter shaft
13. Residual pressure prevention orifice

Types and Numbers of Clutch Plates and Return Springs

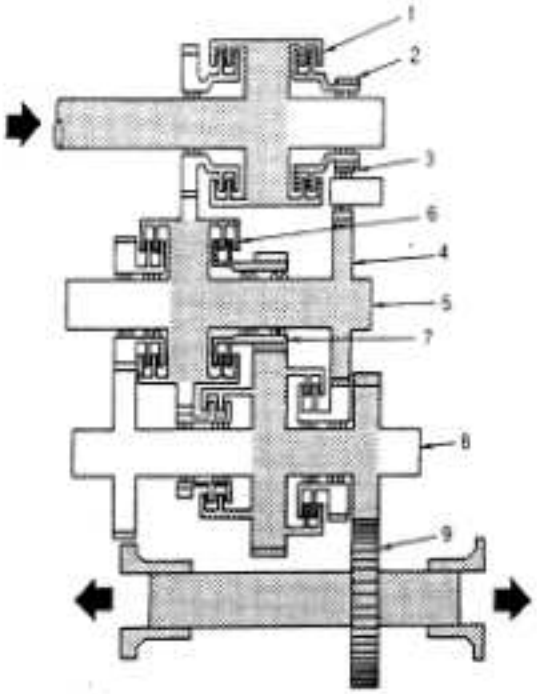
	Friction plates		Steel plates		Return springs	
	Type	No.	Type	No.	Type	No.
Forward clutch	(The same) paper, green	9	(The same) large diameter	10	(The same) large diameter	18
Reverse clutch		9		10		18
1st-speed clutch	(The same) paper, brown	6		7		12
2nd-speed clutch		6		7		12
3rd-speed clutch		5		6		10
4th-speed clutch	Paper, brown	5	Small diameter	6	Small diameter	10

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POWER TRANSMISSION PATHS THROUGH THE TRANSMISSION

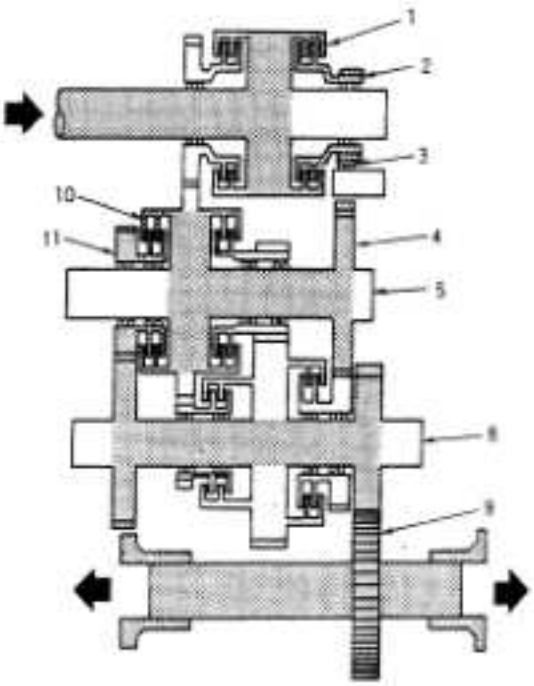
Forward 1st-speed position

- The forward clutch (1) is engaged, so that the drive from the torque converter is transmitted to the forward clutch gear (2).
- The drive from the forward clutch gear (2) is transmitted to the counter gear (4) via the idler gear (3).
- As the 1st-speed clutch (6) is also engaged, the drive is transmitted into the 1st and 2nd-speed counter shaft (5). This drive subsequently turns the 3rd and 4th-speed counter shaft (8) via the 1st-speed clutch gear (7).
- Finally the 3rd and 4th-speed counter shaft drive is transmitted to the output shaft via the output shaft gear (9).



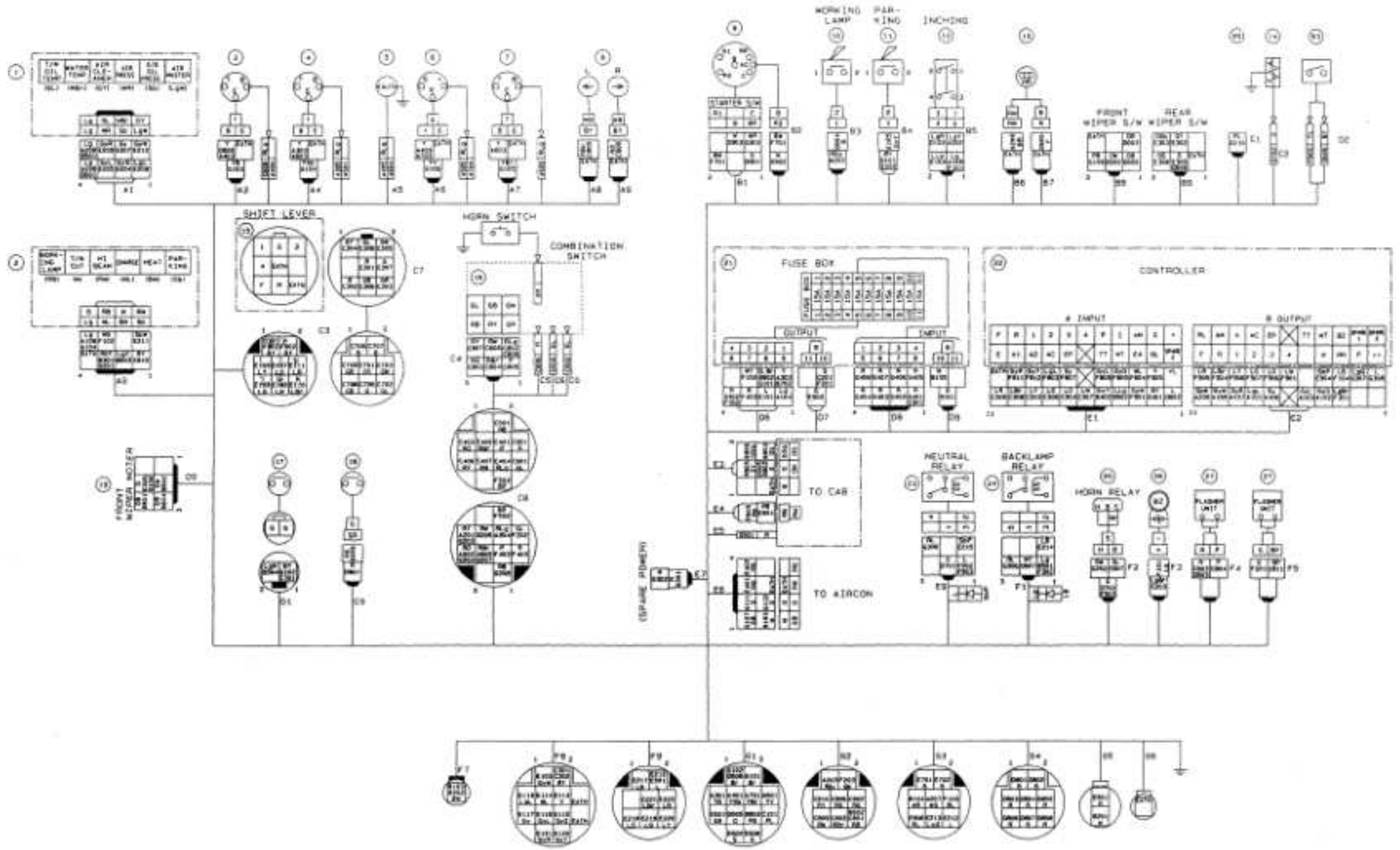
Forward 2nd-speed position

- The forward clutch (1) is engaged, so that the drive from the torque converter is transmitted to the forward clutch gear (2).
- The drive from the forward clutch gear (2) is transmitted to the counter gear (4) via the idler gear (3).
- As the 2nd-speed clutch (10) is also engaged, the drive is transmitted into the 1st and 2nd-speed counter shaft (5). This drive subsequently turns the 3rd and 4th-speed counter shaft (8) via the 2nd-speed clutch gear (11).
- Finally the 3rd and 4th-speed counter shaft drive is transmitted to the output shaft via the output shaft gear (9).



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ELECTRICAL WIRING DIAGRAM (1/2)



NO	DESCRIPTION
1	PILOT LAMP ASSY
2	PILOT LAMP ASSY
3	WATER TEMP GAUGE
4	OIL TEMP GAUGE (T/M)
5	SPEED METER
6	AIR PRESS GAUGE
7	FUEL LEVEL GAUGE
8	PILOT LAMP FOR WIPER
9	STARTER SWITCH
10	WORKING LAMP SWITCH
11	PARKING SWITCH
12	INCHING SWITCH
13	HOUR METER
14	CIGAR LIGHTER
15	SHIFT LEVER
16	COMBINATION SWITCH
17	AIR PRESS SWITCH FOR PARKING
18	STOP SWITCH
19	FRONT WIPER MOTOR
20	WASHER SWITCH
21	FUSE BOX
22	CONTROLLER
23	NEUTRAL RELAY
24	BACKLAMP RELAY
25	HORN RELAY
26	BUZZER
27	FLASHER UNIT
28	WASHER MOTOR
29	TRANSMISSION
30	HEAD LAMP
31	TURNING INDICATOR LAMP
32	HORN
33	SWITCH FOR POSITIONER
34	SWITCH FOR KICKOUT
35	CONTROL VALVE
36	SWITCH FOR AIR MASTER STROKE
37	LEVEL SWITCH FOR BRAKE OIL
38	SOLENOID VALVE FOR PARKING
39	LOW PRESSURE INDICATOR (HIGH)
40	LOW PRESSURE INDICATOR (LOW)
41	AIR PRESSURE UNIT
42	SOLENOID VALVE FOR T/M CLUTCH
43	SWITCH FOR T/C OIL TEMP
44	T/C OIL TEMP UNIT
45	AIRCON MOTOR
46	AIR CLEANER INDICATOR
47	COMPRESSOR
48	FUEL SENDING UNIT
49	GLOW PLUG
50	BATTERY RELAY
51	SAFETY RELAY
52	EMERGENCY RELAY
53	STARTER
54	SWITCH FOR E/G OIL PRESS
55	ALTERNATOR
56	SWITCH FOR E/G WATER TEMP
57	E/G WATER TEMP UNIT
58	WORKING LIGHT
59	REAR COMBINATION LAMP
60	STOP SOLENOID
61	GLOW PLUG CONTROLLER
62	BATTERY
63	POWER UP SWITCH (OPTION)

16-028

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