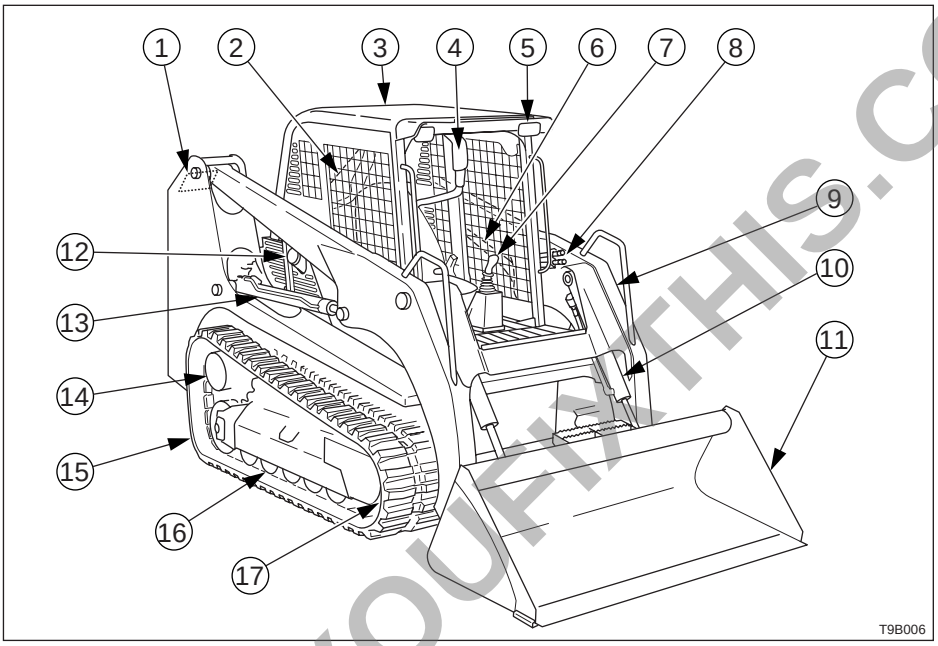


1. Tail light
2. Hydraulic tank
3. Canopy
4. Safety bar
5. Front light
6. Lift arm stop
7. Left control lever
8. Auxiliary hydraulic lines
9. Lift arm
10. Bucket cylinder
11. Bucket
12. Fuel filler cap
13. Arm cylinder
14. Travel motor
15. Crawler belt
16. Track roller
17. Idler

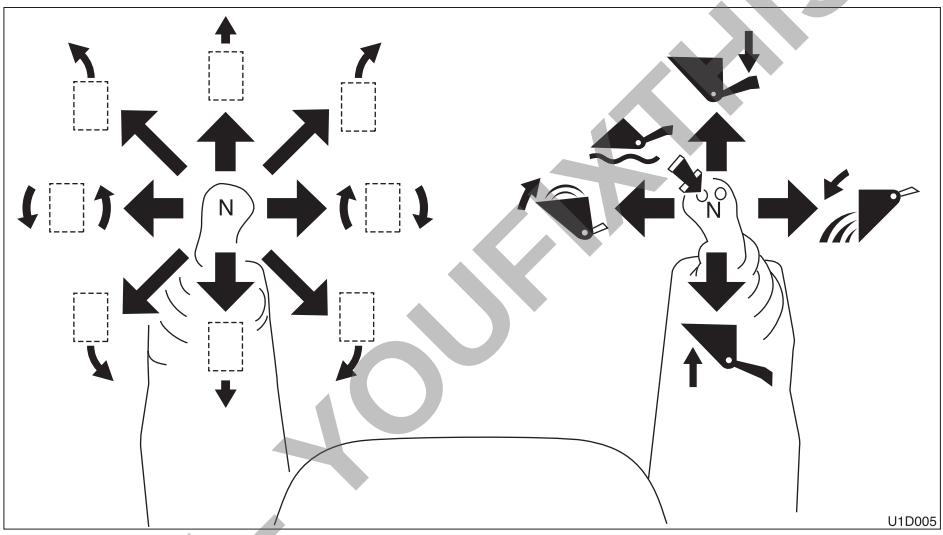
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Lever Pattern

⚠ WARNING

- **Be careful to check which pattern of lever control arrangement you are operating with before beginning operations.**
- **The explanations in this manual are for this pattern.**



	Crawler Forward		Lift Arm Lower
	Crawler Reverse		Lift Arm Raise
	Left Spin Turn		Bucket Rollback
	Right Spin Turn		Bucket Dump
	Left Pivot Turn		Lift Arm Float
	Right Pivot Turn	N	Neutral
	Right Pivot Turn Reverse		
	Left Pivot Turn Reverse		

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Lubricant and Fuel Chart

Use different lubricants, greases and fuels according to the temperature, referring to the chart below.

- Change the lubricant earlier than as shown in the table if it is extremely dirty or its performance has deteriorated severely.
- Whenever possible, use the same brand of lubricant as before. If changing with a different brand, replace the entire quantity – do not mix different brands.

Lubricants and greases

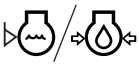
Part	Type	Type by temperature -22 -4 14 32 50 68 86 104°F -30 -20 -10 0 10 20 30 40°C	Replacement interval	Capacity Lit. (US. qt.)
Engine oil pan	Diesel engine oil API-CF or higher	SAE 10W-30 SAE 15W-40	After first 50 hrs. Every 250 hrs.	Upper limit TL220:7.4(7.8) TL230:10.2(10.8) TL240:10.2(10.8) TL250:13.2(13.9) Lower limit TL220:4.0(4.2) TL230:5.7(6.0) TL240:5.7(6.0) TL250:8.8(9.3)
Hydraulic tank	Diesel engine oil API-CD or CE	SAE 10W-30 SAE 10W-40	Every 1000 hrs.	System TL220:45 (11.9 US.gal.) TL230:58 (15.3 US.gal.) TL240:75 (19.8 US.gal.) TL250:95 (25.1 US.gal.) Tank TL220:29 (7.7 US.gal.) TL230:39 (10.2 US.gal.) TL240:49 (12.8 US.gal.) TL250:60 (15.9 US.gal.)
Engine cooling system	Coolant (water + coolant)**	50% coolant mixture 30% coolant mixture	Every 1000 hrs.	TL220:11 (11.6) TL230:16.5 (17.4) TL240:16.5 (17.4) TL250:16.5 (17.4)
Travel reduction gear	Gear oil API-GL-4	SAE 90	After first 250 hrs.* Every 500 hrs.	TL220:1.0 (1.06) TL230:1.0 (1.06) TL240:1.6 (1.69) TL250:1.6 (1.69)
Working equipment	Lithium based grease EP-2 NLGI No.2	—	Daily or every 10 hrs.	As required
Levers and Pedal			When required	

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If a Warning Lamp Flashes

If an alarm is sounded or a warning lamp starts flashing during operation, park the machine in a safe place and perform the procedures described below.

Warning lamp	Lamp name	Procedure
 T7B007	**Engine emergency lamp**	A problem has occurred in the engine lubrication system or the cooling system. ● When there is a problem in the engine lubrication system or coolant level, the engine oil pressure/ coolant level warning lamp flashes simultaneously. ● When the coolant temperature has risen irregularly, the coolant temperature warning lamp flashes simultaneously. For the procedures, refer to the respective warning lamps below.
 L3J004	**Engine oil pressure/ coolant level warning lamp**	Inspect the engine oil level or coolant level. If the lamp is flashing even though the level is normal or if it continues flashing after oil or coolant are added, consult a Takeuchi sales or service outlet. Refer to page 112 or 113 “Inspecting and Replenishing the Coolant” or “Inspecting and Replenishing the Engine Oil”.
 C4B012	**Coolant temperature warning lamp**	The coolant temperature has risen irregularly and the engine is overheating. Refer to page 151 “If the Engine Overheats”.
 OSOB080	**Battery charge warning lamp**	There is a problem with the fan belt or charger. Inspect the fan belt for slack or breakage and adjust as necessary. If the lamp continues flashing after maintenance, there is a problem with the charger. Consult a Takeuchi sales or service outlet. Refer to page 121 “Inspecting and Adjusting the Fan Belt”.
 G4B010	**Air cleaner warning lamp**	The air cleaner filter is clogged. If the air cleaner warning lamp lights, replace the elements immediately.

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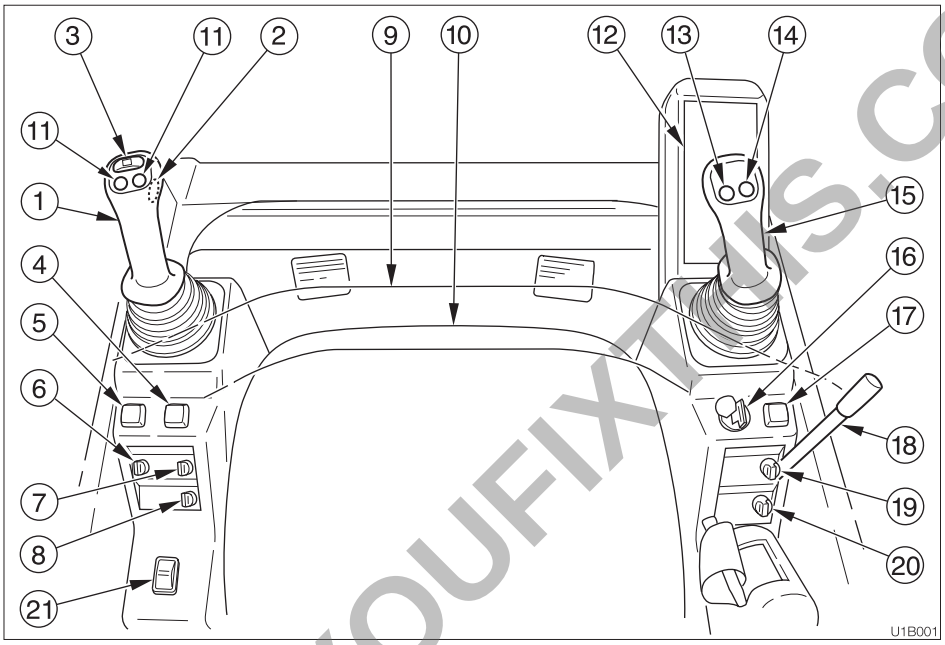
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TL220

TYPE			CANOPY	CAB
MASS				
Machine mass kg (lb.) (not including operator)	Rubber crawlers		2720 (5995)	2780 (6130)
PERFORMANCE				
Bucket capacity m^3 (cu.ft.) (standard bucket)	Heaped		0.298 (10.52)	
	Struck		0.223 (7.88)	
Travel speed km/h (mph)	Rubber crawlers	1st	6.5 (4.04)	
		2nd	9.3 (5.78)	
Gradeability (degrees)			30	
Ground pressure kPa (psi)	Rubber crawlers		32.1 (4.65)	32.8 (4.75)
Noise level <For EU> dB (A)	Sound-power level		L_{WA} 103	
	Sound-pressure level		L_{pA} 85	
ENGINE				
Manufacturer and model			Yanmar 4TNV84T-ZKTBL	
Rated output	kW / min^{-1} (hp / rpm)		38.2 / 2800 (51.2 / 2800)	
Displacement	ml (cu.in.)		1995 (121.7)	
Starter	V - kW		12 - 2.3	
Alternator	V - kW		12 - 0.48	
Battery	V - A·h		12 - 72	

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1. Left control lever
2. Travel speed switch
3. Slider switch (for auxiliary hydraulic)
4. Detent mode switch (for auxiliary hydraulic switches)
5. Flow selector switch (2way → 1way)
6. Heater switch (option)
7. Front wiper switch (option)
8. Rear wiper switch (option)
9. Safety bar
10. Seat
11. Auxiliary hydraulic buttons
12. Instrument panel
13. Float switch
14. Horn switch
15. Right control lever
16. Starter switch
17. High flow switch (option)
18. Throttle lever
19. Front light switch
20. Tail light switch
21. Hydraulic quick hitch switch (option)

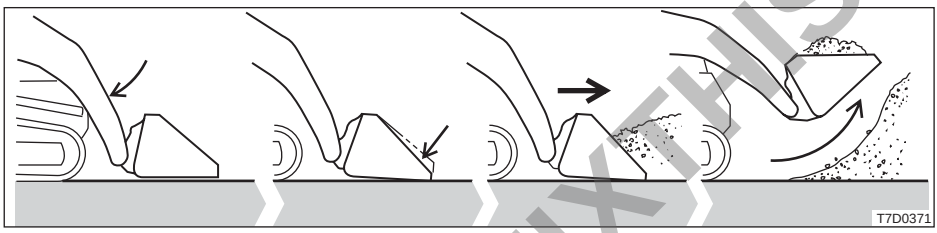
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Operations Possible with this Machine

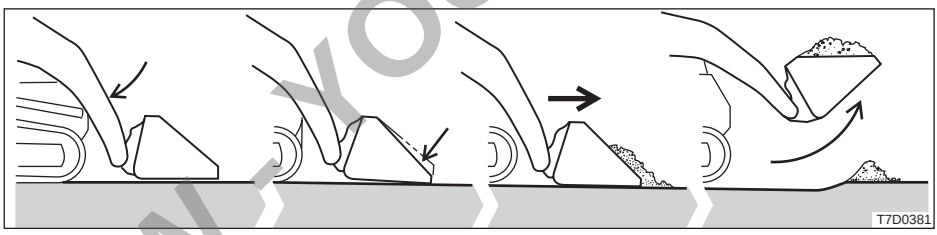
IMPORTANT: Do not perform scooping or grading operations with the bucket cylinders fully extended. The traction force will apply extremely heavy loads on the bucket cylinders and this may damage them.

Scooping



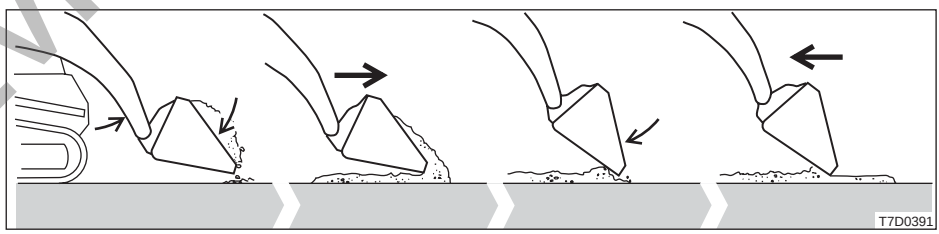
Lower the lift arms and bring the bucket down to the ground with the front end tilted slightly forward, then drive the loader forward until the bucket is filled with the material. Next tilt the bucket backward and scoop up the material.

Grading



Tilt the front edge of the bucket down at an angle which is appropriate for the ground hardness, then drive the loader forward slowly, digging into the ground with the cutting edge of the bucket. When the bucket is full, tilt it backward.

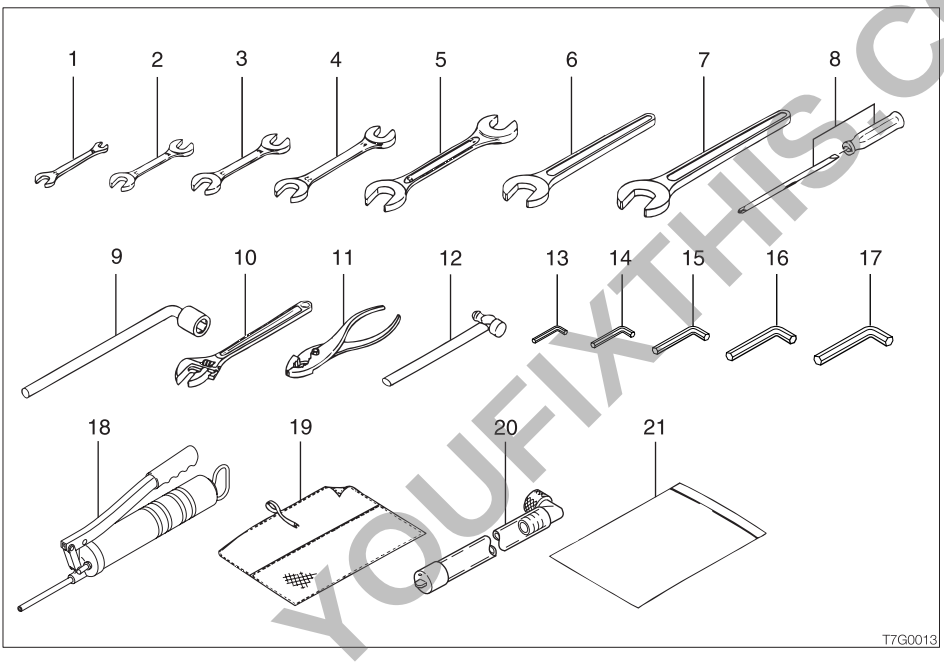
Leveling



Raise the lift arms and tilt the bucket forward, then release it as the loader is driven forward. Next tilt the bucket forward and lower the front edge until it is slightly above the ground surface, then back the loader over the load which was just released.

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Tools (Except for USA)



No.	Part name	Part No.	Remarks
1	Spanner	16900-01012	10-12
2	Spanner	16900-01113	11-13
3	Spanner	16900-01417	14-17
4	Spanner	16900-01922	19-22
5	Spanner	16900-02427	24-27
6	Spanner	16901-00030	30
7	Spanner	16901-00041	41
8	Screwdriver	16902-20205	(+) (–)
9	L-type wrench	16908-30019	19
10	Monkey wrench	16904-00250	250mm
11	Pliers	16905-00200	200mm

No.	Part name	Part No.	Remarks
12	Hammer	16903-00330	3/4
13	Hex. wrench	16906-00500	5mm
14	Hex. wrench	16906-00600	6mm
15	Hex. wrench	16906-00800	8mm
16	Hex. wrench	16906-01000	10mm
17	Hex. wrench	16906-01400	14mm
18	Grease gun	16910-60600	600cc
19	Tool case	16914-00001	TL230/TL240/TL250
20	Drain connector	15545-12601	TL220/TL230/ TL240/TL250
21	Case	16919-00001	

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Other Symptoms

For symptoms not included on the table below or if the problem persists after the proper procedures have been taken, consult a Takeuchi sales or service outlet.

Symptoms	Main cause	Procedure
Left and right control levers do not move smoothly	● Insufficient grease on left and right control levers	● Add grease. Refer to page 144.
Lift arms, bucket, auxiliary hydraulics or traveling operation not possible	● Safety bar is raised ● Fuse is blown	● Lower the safety bar. Refer to page 56. ● Replace the fuse. Refer to page 154.
Scooping or lifting force is insufficient	● Insufficient hydraulic oil level ● Hydraulic oil is not heated ● Air cleaner is clogged ● Hydraulic oil is not of suitable type	● Replenish to the prescribed level. Refer to page 115. ● Perform the warm-up procedure. Refer to page 73. ● Replace the air cleaner. Refer to page 132. ● Replace the hydraulic oil. Refer to page 138.
Traveling is not possible or not smooth	● Stones or foreign objects are stuck	● Remove the foreign object.
Machine does not travel straight forward	● Stones or foreign objects are stuck	● Remove the foreign object.
Operation is not possible with the various switches	● Fuse is blown ● Safety bar is raised	● Replace the fuse. Refer to page 154. ● Lower the safety bar. Refer to page 56.
Travel speed cannot be changed	● Fuse is blown	● Replace the fuse. Refer to page 154.
Hydraulic oil temperature is too high	● Insufficient hydraulic oil	● Replenish to the prescribed level. Refer to page 115.

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TL230

TYPE			CANOPY	CAB
MASS				
Machine mass kg (lb.) (not including operator)	Rubber crawlers		3635 (8015) [3695 (8145)]	3725 (8210) [3785 (8345)]
PERFORMANCE				
Bucket capacity m^3 (cu.ft.) (standard bucket)	Heaped		0.351 (12.4)	
	Struck		0.260 (9.18)	
Travel speed km/h (mph)	Rubber crawlers	1st	7.3 (4.54)	
		2nd	10.9 (6.77)	
Gradeability (degrees)			30	
Ground pressure kPa (psi)	Rubber crawlers		35.7 (5.18) [36.3 (5.26)]	36.6 (5.31) [37.2 (5.39)]
Noise level dB (A) <For EU>	Sound-power level		L_{WA} 103	
	Sound-pressure level		L_{pA} 85	
ENGINE				
Manufacturer and model			Yanmar 4TNV98-ZNTBL	
Rated output kW / min^{-1} (hp / rpm)			50.1 / 2500 (67.1 / 2500)	
Displacement ml (cu.in.)			3319 (203)	
Starter V - kW			12 - 3.0	
Alternator V - kW			12 - 0.48	
Battery V - A·h			12 - 80	

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Maintenance Chart

Maintenance Items	See Page
Walk-Around Inspection	
Inspecting by opening the engine hood and rear door	110
Inspecting by walking around the machine	111
Inspecting while sitting in the operator's seat	111
Daily Inspection (Every 10 Hours)	
Inspecting and replenishing the coolant	112
Inspecting and replenishing the engine oil	113
Inspecting the water separator	113
Inspecting the fuel level	114
Inspecting the hydraulic oil level and replenishing	115
Lubricating the working equipment	116
After First 50 Hours (New Machines Only)	
Replacing the hydraulic oil return filter	118
Replacing the engine oil and oil filter	119
Inspecting and adjusting the fan belt	121
Replacing the line filter	122
Every 50 Hours	
Inspecting and adjusting the crawler tension	124
Inspecting the battery fluid level and replenishing	126
Draining the fuel tank	128
Inspecting the bucket stoppers (bolts / nuts)	129
Every 100 Hours	
Cleaning the water separator	130
After First 250 Hours (New Machines Only)	
Replacing the travel motor gear oil*	131

* If the percentage of the traveling time within the total operating time is high, replace the gear oil earlier than the specified time.

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TL240

TYPE			CANOPY	CAB
MASS				
Machine mass kg (lb.) (not including operator)	Rubber crawlers		4430 (9765) [4480 (9875)]	4520 (9965) [4570 (10075)]
PERFORMANCE				
Bucket capacity m^3 (cu.ft.) (standard bucket)	Heaped		0.458 (16.17)	
	Struck		0.335 (11.8)	
Travel speed km/h (mph)	Rubber crawlers	1st	7.6 (4.72)	
		2nd	11.6 (7.21)	
Gradeability (degrees)			30	
Ground pressure kPa (psi)	Rubber crawlers		28.8 (4.18) [29.1 (4.22)]	29.4 (4.27) [29.7 (4.31)]
Noise level <For EU> dB (A)	Sound-power level		L_{WA} 104	
	Sound-pressure level		L_{pA} 85	
ENGINE				
Manufacturer and model			Yanmar 4TNV98T-ZNTBL	
Rated output kW / min^{-1} (hp / rpm)			61.9 / 2500 (83 / 2500)	
Displacement ml (cu.in.)			3319 (203)	
Starter V - kW			12 - 3.0	
Alternator V - kW			12 - 0.48	
Battery V - A·h			12 - 80	

[ ] : for High flow hydraulic system

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