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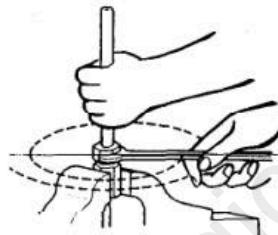
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TO START

PLACE CURSOR ON THE SYSTEM AND LEFT CLICK

GENERAL CAUTIONS

- 4) While turning the pipe by hand, screw the nut onto the body with a spanner, and tighten it until the pipe becomes stuck and can not be turned by hand.
Stop tightening at this point.
(This point is referred to as "grip point".)
- 5) Turn the nut further from the grip point through $1\frac{1}{4}$ to $1\frac{1}{2}$ turn. Now, the cutting edge of the sleeve firmly bites into the pipe.



Final tightening

- If the nut is tightened excessively, the spring effect of the sleeve is lost, and the nut will be loosening under vibration. Do not tighten the nut excessively.
 - Do not apply oil to the nut and sleeve. If oil is on them, remove by wiping.
- 1) Set the provisionally tightened and then unscrewed pipe and pipe fitting to the fitting body on the crane, and turn the nut 2 - 3 turns by hand.
 - 2) Further tighten the nut with a spanner until the tightening torque starts to increase sharply. Stop tightening at this point.
(This point is referred to as "sharp torque rise point".)
 - 3) Tighten the nut further $\frac{1}{6}$ - $\frac{1}{4}$ turn from the sharp torque rise point.

GENERAL

● DESCRIPTION OF SYSTEM

(Refer to the circuit diagram in Chapter Z.)

1. Torque converter circuit

The hydraulic oil delivered under pressure from the charging pump flows via the line filter into the main relief valve for clutch provided on the transmission, where it branches into three directions.

One flow is to the PTO clutch solenoid valve (SOL41) as well as to the lock-up clutch solenoid valve (SOL61).

And the other is to the axle lock release solenoid valve (SOL40).

The PTO clutch solenoid valve (SOL41) gets energized when the PTO switch is on, the pressurized oil flows through the solenoid valve (SOL41) to the PTO clutch to engage it.

Axle lock release solenoid valve (SOL40) is energized while the PTO switch is off and the boom over front detection switch is on, that is, while the vehicle is in the traveling attitude, allowing oil to flow to the pilot check valve to apply pilot pressure and to release the axle lock. On the other hand, the oil also flows to the clutch pressure control valve (accumulator) as well as four speed-shifting solenoid valves (1st, 2nd, 3rd and R). The pressurized oil regulated by the clutch pressure control valve (accumulator) flows through the speed range shifting valve, which is actuated by means of solenoid valve (SOL42, 43, 44 and 45) introduced pilot pressure, allowing to engage the desired clutch for power transmitting circuit formation of three forward and one backward motions.

The pressurized oil through the main relief valve comes to the torque converter, where it circulates, returns to the transmission by way of the oil cooler. This oil is regulated by the circulating oil pressure control valve and serves as lubricant for transmission clutches.

It also lubricates the PTO clutch from the converter output circuit.

BOOSTER

PRINCIPLES OF OPERATION

TR500/600XL/650XXL

1. Relay valve

1) Booster not in operation

Figure 1 shows the state of the relay valve when the booster is not in operation. Since chamber A is open to the atmosphere via the brake valve, piston (33n) is held in its raised position by return spring (33m). In this state, chamber B is also open to the atmosphere through path C.

2) Booster in operation for assisting braking

When the brake pedal is depressed, the signal pressure is applied to the service port. This pressure acts on piston (33n) and the piston compresses return spring (33m), bringing the piston seat in contact with valve ass'y (33s). This causes chamber B to shut off path C, and simultaneously the valve ass'y is pressed down. As a result, the body seat opens, allowing compressed air to flow from chamber D to chamber B, to delivery port, and then to the air cylinder. (Fig. 2)

Booster in operation

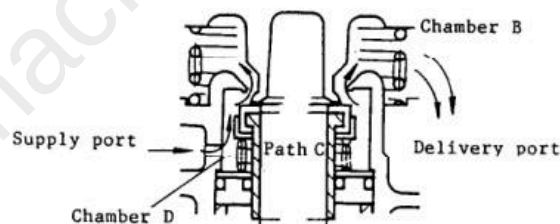
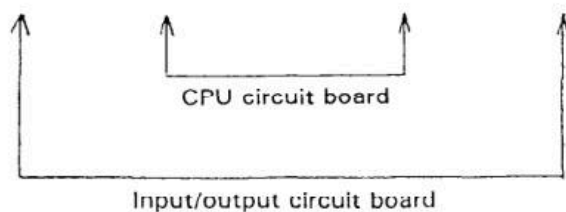
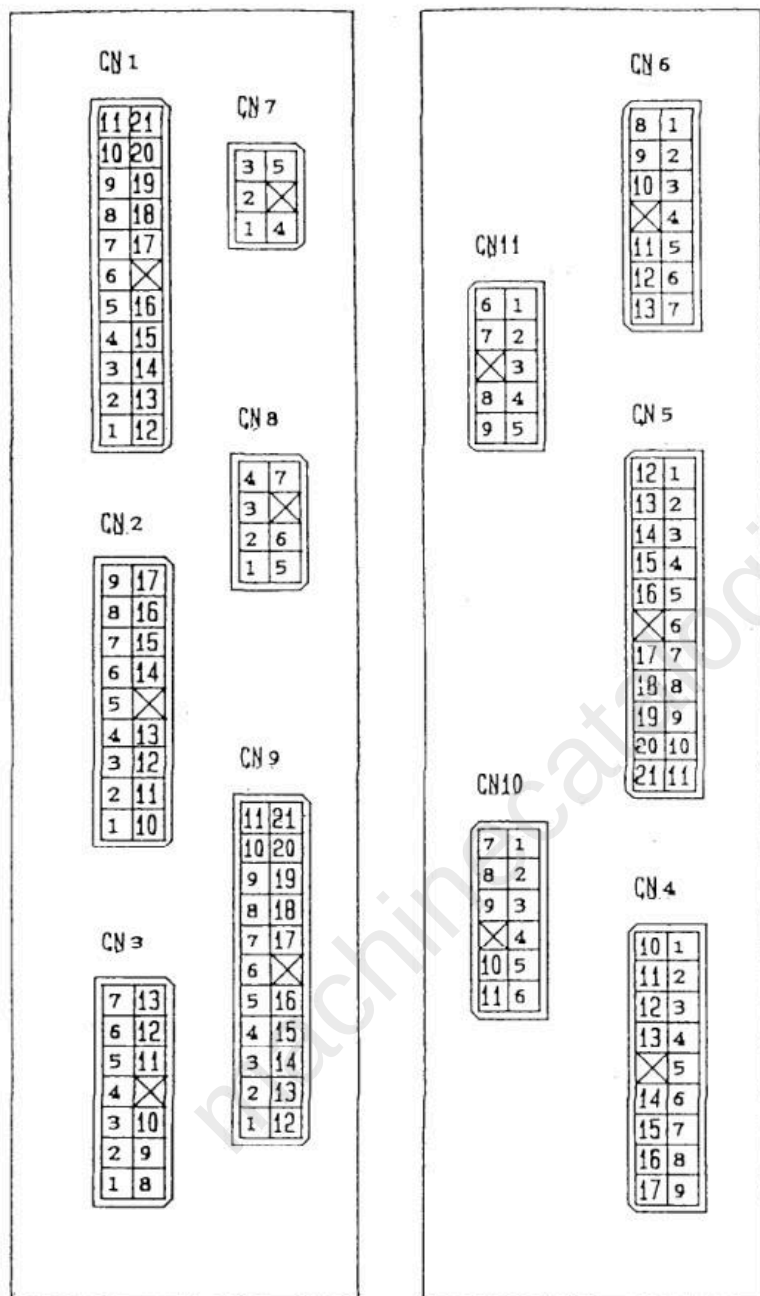


Fig. 2

When the inside pressure in chamber B reaches the signal pressure level (same level as pressure in chamber A), the body seat comes in contact with valve ass'y (33s), shutting-off the passage between chamber D and chamber B. Therefore, the pressure in chamber B does not increase. (Fig. 3)

MULTIPLEX DATA TRANSMITTER

Connection diagram for connectors (Upper unit) TR-100M-1 (~#FC0474)



C N 1 <IN>

1	RL	30	N
2	RY	31	1
3	RB	32	2
4			Spare input (+) 1
5	AW	33	D
6	A	40	R
7	LO	54	Air heater relay
8	WB	43	Extension
9	Y	62	Retraction
10	WL	46	Jack
11	GY	60	Outrigger beam
12	PB	45	F L
13	WY	44	F R
14	WR	42	R L
15	W	41	R R
16	Sb	72	A L L
17	Lq	39	Spring lock
18	LqR	38	Spring unlock
19			Spare input (+) 2
20	YG	20	Emergency transmission switch
21	B	0	G N D

C N 3 <I>

1	GO
2	GB
3	WG
4	G
5	Y
6	LY
7	
8	
9	
10	GL
11	YG
12	B
13	

C N 4 <I>

1	L
2	P
3	Lc
4	
5	
6	
7	
8	AW
9	W
10	
11	
12	
13	
14	
15	
16	B
17	

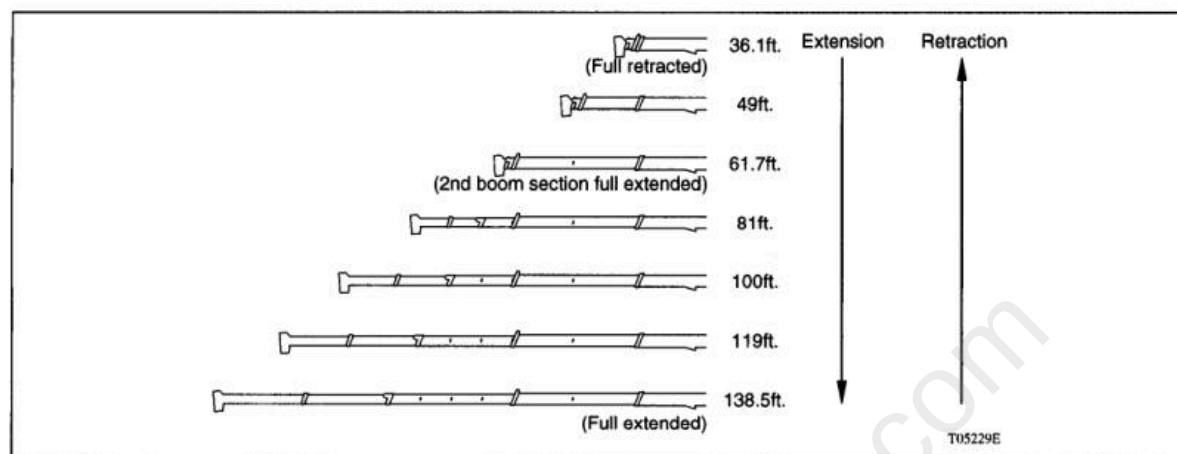
C N 2 <IN>

1	L	29	2-wheel steering
2	LR	48	4-wheel steering
3	LB	47	Crab steering
4	BrW	53	Rear steering
5	PB	57	Reverse steering
6	YB	51	H/L 2-/4-wheel drive selection (1)
7	YL	50	H/L 2-/4-wheel drive selection (2)
8	BrB	49	Mode selection (power/economical)
9	Gr	56	Rear steering lock
10	LqB	59	Rear steering unlock (for correction)
11	BrR	36	Headlamp A
12	BrY	37	Headlamp B
13	Br	35	Clearance lamp
14	G	28	Oil cooler
15			Spare input (+) 3
16			Spare input (+) 4
17	B	0	G N D

C N 7 <Power supply>

1	RG	157	24 V power supply
2	RG	157	24 V power supply
3	B	0	G N D
4	B	0	G N D
5	B	0	G N D

The boom length and boom telescoping sequence are shown below.

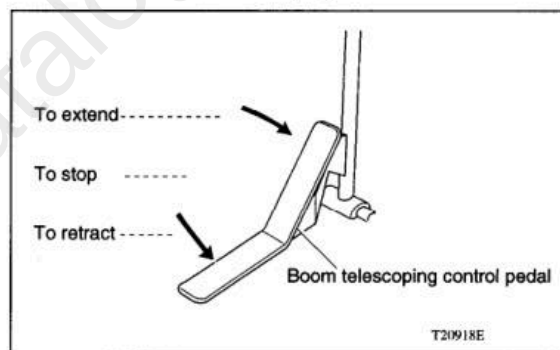


Extension

1. Push the boom telescoping control lever forward. The 2nd boom section will extend.
2. After the 2nd boom section has fully extended, press the 3rd / 4th / top boom extending switch. The 3rd, 4th and top boom sections go extending simultaneously. Keep the lever pushed in this while.
 - ◆When the 3rd boom section begins to extend, release the switch.
3. Once the boom has extended to the desired length, return the boom telescoping control lever to the neutral position.

Boom Telescoping Control Pedal

This pedal is for extending and retracting the boom. It is linked with the boom telescoping control lever in motion.



Retraction

1. Pull the boom telescoping control lever rearward. The boom will begin to retract. When retracting a fully extended boom, first the 3rd, 4th and top boom sections will retract simultaneously. After the 3rd, 4th and top boom sections have completely retracted, the 2nd section will retract.
2. Once the boom has retracted to the desired length, return the boom telescoping control lever to the neutral position.

COUNTERBALANCE VALVE

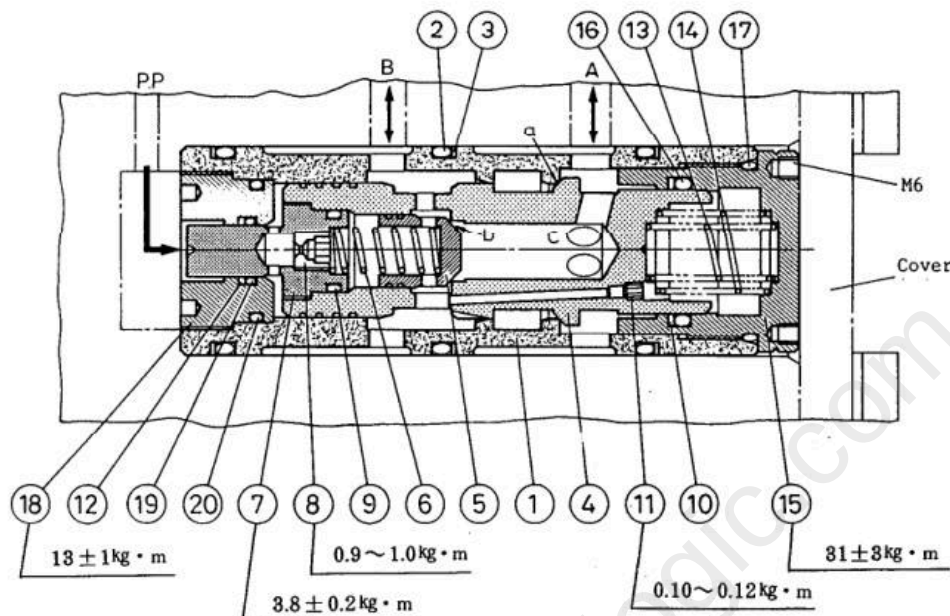


Fig. 1

- | | |
|-----------------|-----------------|
| 1. Valve body | 11. Orifice |
| 2. O-ring | 12. Backup ring |
| 3. Backup ring | 13. Spring (A) |
| 4. Main spool | 14. Spring (B) |
| 5. Check valve | 15. Plug |
| 6. Spring | 16. O-ring |
| 7. Pilot spool | 17. O-ring |
| 8. Orifice | 18. Plug |
| 9. O-ring | 19. O-ring |
| 10. Backup ring | 20. O-ring |

● DISMOUNTING AND REMOUNTING

WARNING

☆ IF THE COVER IS REMOVED WHILE PRESSURE IS STILL PENT UP IN PORT PP, THE VALVE MAY BE SHOT OFF. TO PREVENT THIS, VENT THE PENT PRESSURE BY MOVING THE CONTROL LEVER SEVERAL TIMES WITH THE ENGINE STOPPED, BEFORE REMOVING THE COVER.

NOTE

☆ After remounting, bleed the circuit and the units, and test the operation to make sure of the absence of faulty conditions.

PRESSURE REGULATOR

CAUTION

☆ TAKE CARE TO AVOID DAMAGING THE DIAPHRAGM.

2. Set diaphragm ④ in the groove in body ① and clamp cap ③ to body ① with the clamp bolts.

CAUTION

☆ FINAL TIGHTENING OF LOCKNUT ⑬ IS TO BE MADE AFTER THE OPERATIONAL TESTS DESCRIBED LATER.

3. Screw in sleeve ⑦ and temporarily secure it with locknut ⑭.

CAUTION

☆ FINAL TIGHTENING OF LOCKNUT ⑭ IS TO BE MADE AFTER THE OPERATIONAL TESTS DESCRIBED LATER.

4. Insert spring ⑩, screw in adjusting screw ⑫ and temporarily secure it with locknut ⑬.

CAUTION

☆ SEAL THE COVER AFTER THE OPERATIONAL TESTS DESCRIBED LATER.

5. Install cover ⑮.

● TEST

1. Operation test

1. Loosen locknut ⑬ and screw in sleeve ⑦ 1 to 2 turns.
2. Gradually raise the pressure until valve A ⑤ opens, and check that the unloader valve actuates to unload the compressor.
3. Gradually lower the reservoir pressure and maintain it at $7.6 \pm 0.2 \text{ kg/cm}^2$ ($108.1 \pm 2.84 \text{ psi}$) (Valve B ⑥ actuation pressure).
4. Gradually screw in adjusting screw ⑫ until valve B ⑥ opens at $7.6 \pm 0.2 \text{ kg/cm}^2$ ($108.1 \pm 2.84 \text{ psi}$) pressure, and the pressure in the unloader line is discharged; lock the adjusting screw with locknut ⑬.

Full Version Available

Tadano TR-600XL-3 Rough Terrain Crane Service Manual

Tadano TR-600XL-3 rough terrain crane service manual with repair procedures, adjustments and troubleshooting for the main systems. Instant PDF download.

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