

Service Manual

01

Rough Terrain Crane

Model **TR-150XL-4**

Applicable Serial No. FD0806 —

Rotary Joint

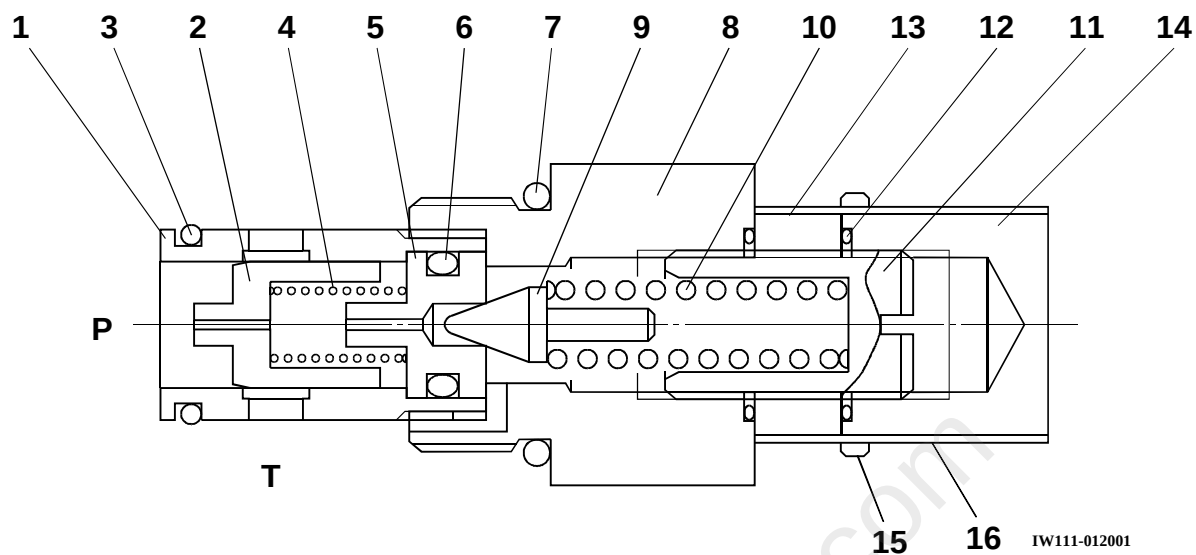
1.Slip ring assy	9.Plain bearing	17.Flange bolt	25.Joint
2.Plain bearing	10.Support	18.Plake	26.Joint
3.Packing	11.Grease nipple	19.Support	27.Fitting
4.Ring seal	12.Plain bearing	20.Bolt	28.Joint
5.Body	13.Ring seal	21.Flange bolt	29.O-ring
6.Core	14.Packing	22.Clamp	30.Ring seal
7.Plug	15.Ring seal	23.Nut	
8.Core	16.Hexagon socket head bolt	24.Plake	

Thread size and tightening torque

Sign / Port	Thread size	Tightening torque	
		N•m	ft•lbf
16	M 8	23.5 - 27.5	17.3 - 20.3
17	M 8	11.8 - 13.7	8.7 - 10.1
20	M 12	74 - 82	54.6 - 60.5
21	M 6	4.4 - 5.4	3.2 - 4
P1, P2, P3	G 1/2	98	72
P4, P5, P6, Dr	G 3/8	49	36
A1, A2, A3	G 1/4	29.4	22
W1, W2	R 3/8	44.1 - 61.8	32.5 - 45.6
T1	Swing platform side G 3/4	167	123
	Chassis side G1•1/4	255	188
T2	Swing platform side G 1/2	98	72

Hydraulic Pilot Control Valve (Swing, Elevating, Telescoping, Winch)

1.13 Relief valve assy (RF1)

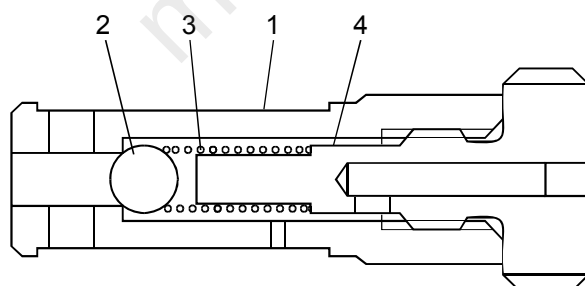


Thread size and tightening torque

Sign /Port	Thread size	Tightening torque	
		N•m	ft•lbf
1	—	18.6 – 20.6	13.7 – 15.2
13, 14	M14×1.0	18.6 – 20.6	13.7 – 15.2
Body	M24×1.5	58.8 - 68.6	43 - 50

- | | | | |
|------------------------------|--------------------------|---------------------|---------------------|
| 1. Socket | 5. Regulating valve seat | 9. Regulating valve | 13. Nut |
| 2. Pressure regulating valve | 6. O-ring | 10. Spring | 14. Cap nut |
| 3. O-ring | 7. O-ring | 11. Adjusting screw | 15. Band |
| 4. Spring | 8. Regulating section | 12. O-ring | 16. Shrinkable tube |

1.14 Slow return valve



1. Guide
2. Steel ball
3. Spring
4. Plug

IW134-013017

Thread size and tightening torque

Sign /Port	Thread size	Tightening torque		Remarks
		N•m	ft•lbf	
4	G 1/4	4.9 – 5.9	3.6 – 4.3	Apply Loctite242

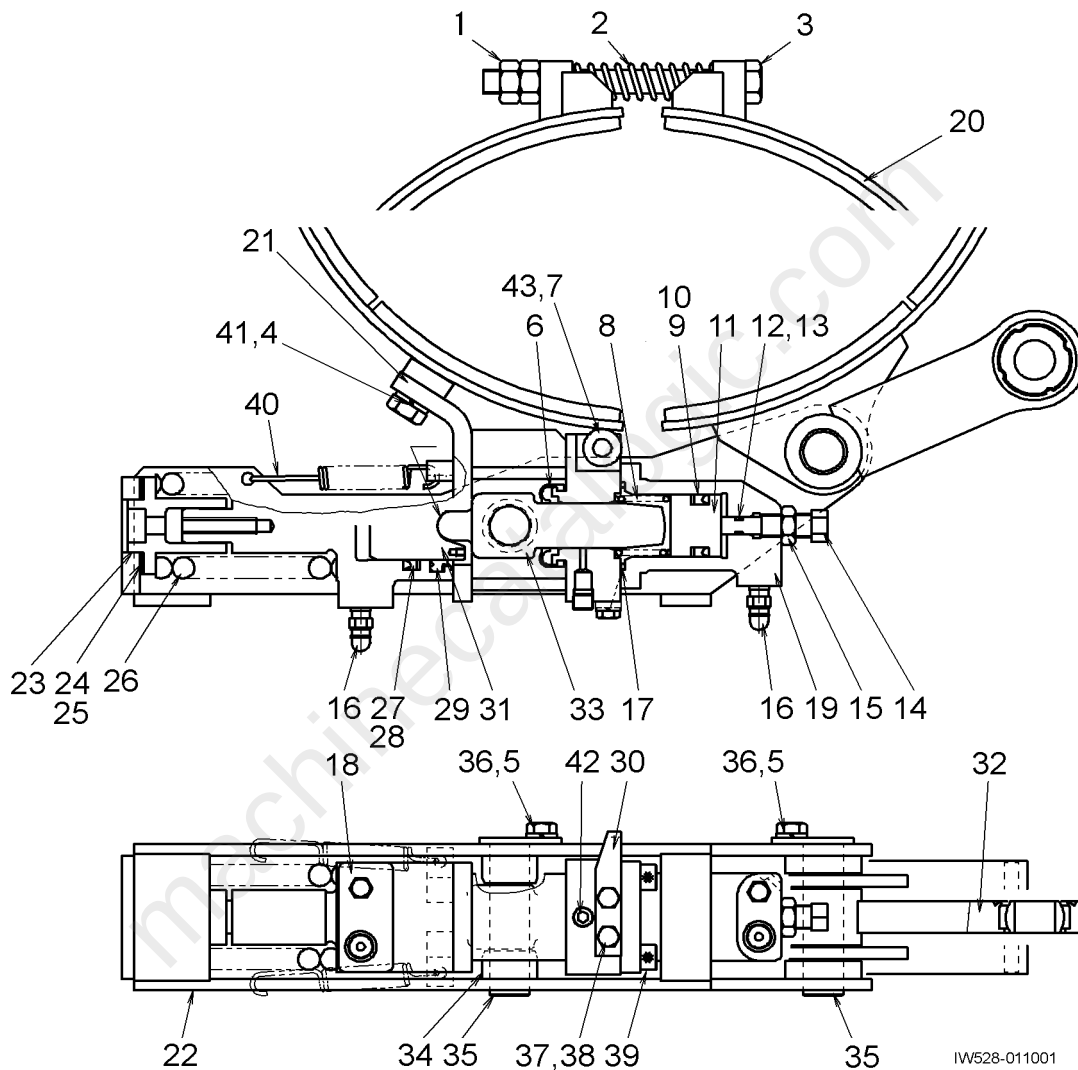
Winch Brake Band

F-6 Winch Brake Band

[NOTICE]

◆ There is a case that the appearance and so on differ from the parts for this machine. Although there is not so much difference in functions and disassembly procedures, make sure of the serial number of this machine and the part sales unit described in the parts catalog before starting disassembling operations.

1. Structure



IW528-011001

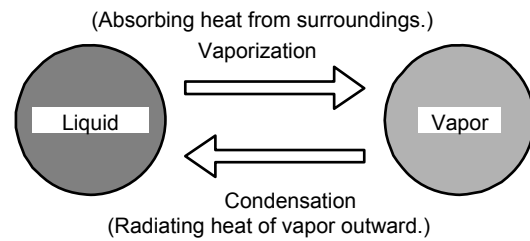
- | | | | |
|------------------|-------------------|------------------------|------------------------------|
| 1. Nut | 12. O-ring | 23. Support | 34. Spacer |
| 2. Spring | 13. Backup ring | 24. Plate (shim) | 35. Pin |
| 3. Bolt | 14. Bolt | 25. Plate (shim) | 36. Bolt |
| 4. Bolt | 15. Nut | 26. Spring | 37. Bolt |
| 5. Spring washer | 16. Plug assembly | 27. Packing | 38. Spring washer |
| 6. Boot | 17. O-ring | 28. Backup ring | 39. Hexagon socket head bolt |
| 7. Pin | 18. Cylinder | 29. Dust seal assembly | 40. Spring |
| 8. Spring | 19. Cylinder | 30. Indicator | 41. Spring washer |
| 9. Packing | 20. Band | 31. Piston | 42. Plug |
| 10. Backup ring | 21. Support | 32. Link assembly | 43. Retaining ring |
| 11. Piston | 22. Support | 33. Rod | |

Air Conditioner

2. Introduction to air conditioning

[NOTICE]

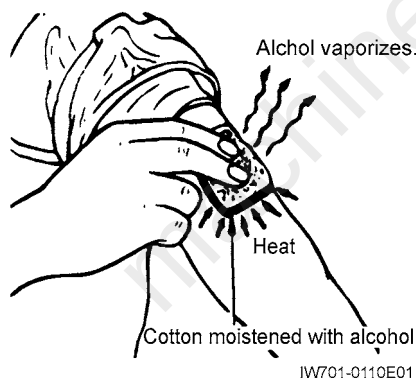
- ◆ This section explains the fundamentals of the car air conditioner. Difficult concepts and special mechanisms have been omitted where possible, and only contents which focus on the basic functions have been included.



IS701-0010E0

2.1 Principle of air conditioning

1. When alcohol is applied to your skin, it feels cool, and when your garden is watered in the summertime, you also feel cooler air. This is because when alcohol or water vaporizes, it absorbs heat (known as latent heat) from its surroundings. As a liquid (such as alcohol and water) changes into a vapor (such as alcohol vapor and water vapor), it requires heat (evaporation heat). The substance surrounding the liquid is cooled as heat is absorbed from it.
2. This natural phenomenon explains in brief the principle of the air conditioning that is used when we need to lower the temperature in the cab.



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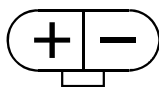
5. A compressor is needed to compress the vapor, and a condenser is needed to absorb heat from it.

3. However, if the vaporized liquid used for cooling is simply disposed of into the air, it must be constantly replenished with more liquid. As this is not practical, in the actual cooling system the vapor is cooled and returned to liquid form (condensed).
4. To condense the vapor, it is necessary to absorb heat from it. At this time if the vapor is compressed to higher pressure, condensation will take place relatively easily.

Solenoid Valve (Steering Mode)

Solenoid valve assy (SoL.30, 31)

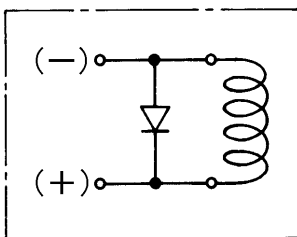
Connector



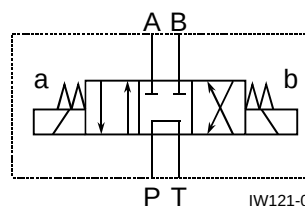
IW121-0542E01

(+) : Red

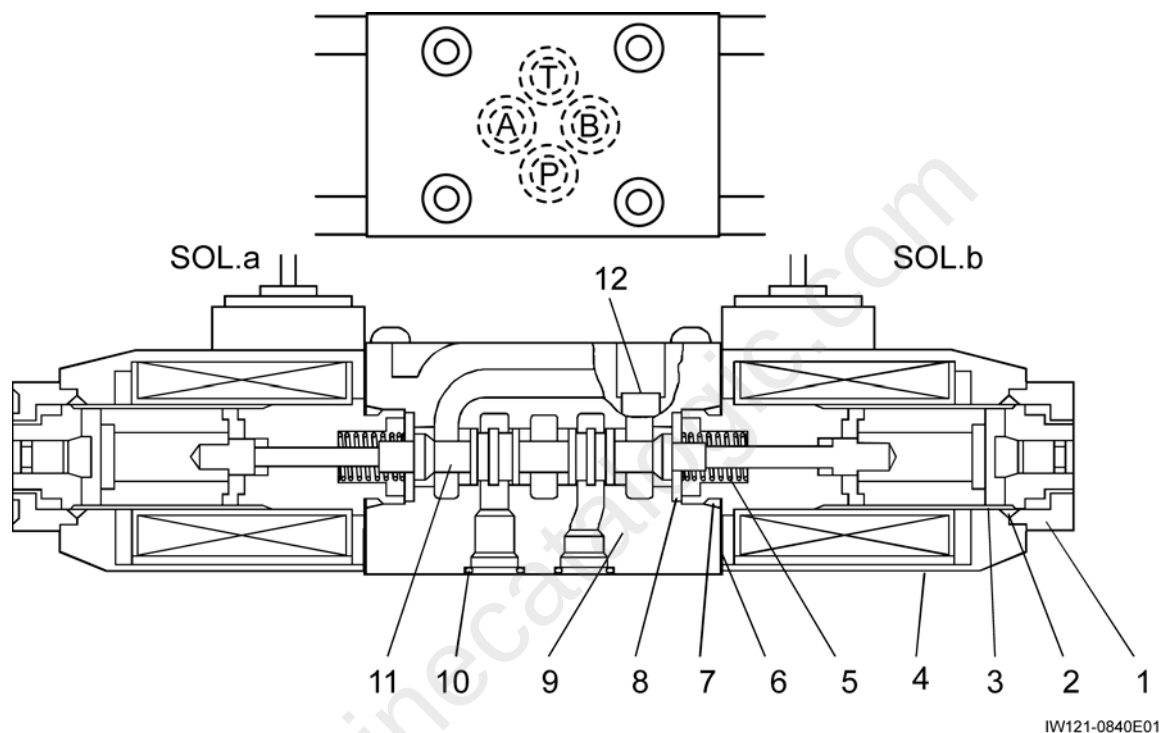
(-) : Black



IW121-023002



IW121-084005



IW121-0840E01

1.Nut

2.O-ring

3.Solenoid core

4.Solenoid coil

5.Spring

6.Packing

7.O-ring

8.Center washer

9.Body

10.O-ring

11.Spool

12.Spring pin

[NOTICE]

◆ Spool(11) is symmetric.

◆ Adjust the slit of centering washer(8) to body(9) side.

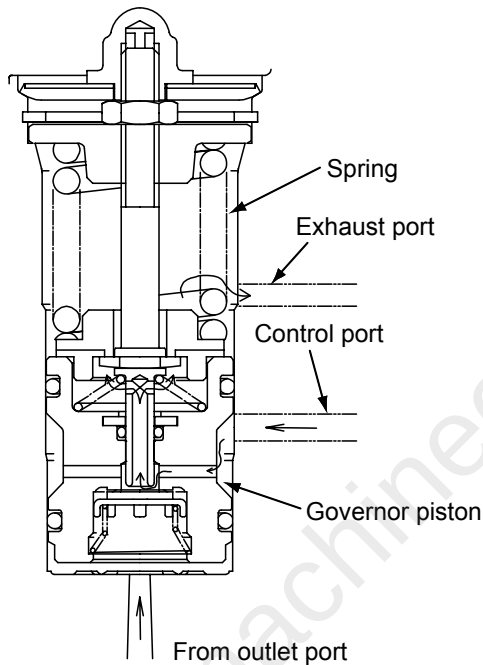
Thread size and tightening torque

Sign / port	Thread size	Tightening torque	
		N-m	ft-lbf
1	—	8.8 - 10.8	6.5 - 8
3	—	18 - 22	13.3 - 16.2

Air Dryer

2.3 Intake position

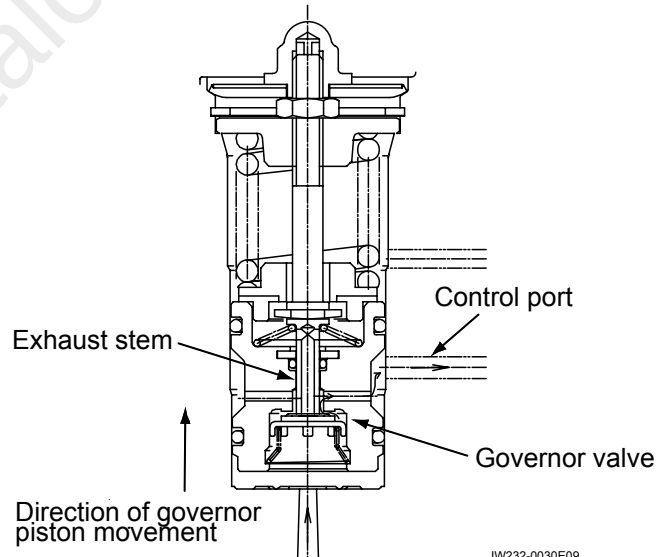
1. The pressurized air from the air dryer outlet port (air tank pressurized air) travels through the passage and acts on the bottom of the governor piston.
2. When the air pressure is at or below the specified pressure, the governor piston is kept pressed down by the spring.
3. Under these conditions, the pressurized air in the control port passes through the exhaust stem and is released into the atmosphere.



IW232-0030E08

2.4 Release position

1. When the outlet port air pressure (air tank air pressure) increases, and the force acting on the bottom of the governor piston becomes stronger than the force of the spring, the governor piston moves toward the spring side.
2. The exhaust stem is closed by the governor valve, and the control port air is cut off from the atmosphere.
3. When the outlet port pressure increases further, and reaches the release pressure, the governor piston moves farther to the spring side, and the governor valve is opened by the exhaust stem.
4. The pressurized air from the outlet port passes through the governor valve, and is delivered from the control port to the top of the air dryer drain valve, pressing the drain valve open.



IW232-0030E09

5. The outlet port air pressure (air tank air pressure) gradually decreases. When it drops to the intake pressure, the governor piston is pressed back by the spring.
6. This closes the governor valve. The exhaust stem is disconnected from the governor valve, and the control port pressurized air passes through the exhaust stem to be released into the atmosphere. This closes the drain valve.

Air Bleeding Procedure

5. Hydraulic pilot circuit

[NOTICE]

- ◆ Set the hydraulic oil temperature to 50°C (122°F) or higher, set the PTO switch to ON, let the engine idle.

5.1 Swing

With the swing brake ON, move the swing control lever fully to the right-swing side. Keep the above conditions for 20 seconds or more for bleeding. Proceed the same steps by moving the swing control lever to the left-swing side.

5.2 Elevating

Pull out the connector of the AML vent solenoid. Move the boom elevating control lever fully to the boom lowering side. Keep the above conditions for 20 seconds or more for bleeding. Proceed the same steps by moving the boom elevating control lever to the boom raising side.

5.3 Telescoping

Pull out the connector of the AML vent solenoid. Move the boom telescoping control lever fully to the retraction side. Keep the above conditions for 20 seconds or more for bleeding. Proceed the same steps by moving the boom telescoping control lever to the boom extension side.

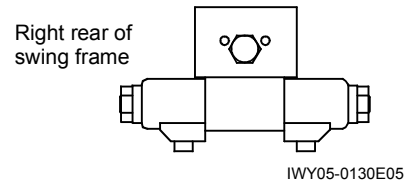
5.4 Winch (main and aux.)

[NOTICE]

- ◆ Bleed the main and auxiliary winch circuits by following the procedures below. The procedures are common to the both circuits.

Pull out the connector of the AML vent solenoid. Move the hoist control lever fully to the hoist-up side. Keep the above conditions for 20 seconds or more for bleeding. Proceed the same steps by moving the hoist control lever to the hoist-down side.

AML vent solenoid valve



6. Air conditioner motor

Pour the hydraulic oil through the drain port into the casing until the oil flows out.

Full Version Available

Tadano TR-150XL-4 Rough Terrain Crane Service Manual

Tadano TR-150XL-4 rough terrain crane service manual, with repair procedures, adjustments and hydraulic troubleshooting. Instant PDF download.

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