January 6, 2021

Joint Tester and Hydraulic Hand Pump

Operation Manual

January 2021

Kubota Corporation

Ⅰ. Hydraulic Joint Tester Operating Procedures

Component Parts of Hydraulic Joint Tester

Pict.1 Hydraulic Joint Tester

Pict.2 Rubber Ring

Pict.3 Hydraulic Pump

Pict.4 Water Tank and Hand Pump

Detail of Component Parts

Pict.5 Front Wheel Shaft

Pict.6 Rear Wheel Shaft

Pict.7 Turnbuckle

Pict.8 AdjustingBolt

Pict.9 Compression Plate

Pict.10 Shaft folded

Pict.11 Air Release

Pict.12 Inlet

Specifications of Hydraulic Joint Test Band

Item	Dimension	Size
Body	Weight (lb)	437
	Minimum OD (inches)	48.8
	Maximum OD (inches)	52.6
	Pushing plate width (inches)	11.6
Rubber Ring	Weight (lb)	44
	Width (inches)	11.0
Water Tank	Weight (lb)	110 (When empty)
	Volume (gallons)	13.2
	Length x Depth x Height (inches)	32 x 16 x 10

Installation of Rubber Ring

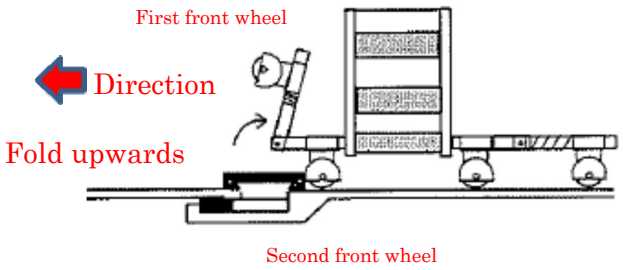
1. Mark the location of the Rubber Ring on a testing joint. Mark at least 4 points so that the Rubber Ring is to be placed in the center of the joint.
2. Install the Rubber Ring in the center of the joint all around with an air release on top and an inlet on bottom.

Pict.13 Rubber Ring in the center of a joint

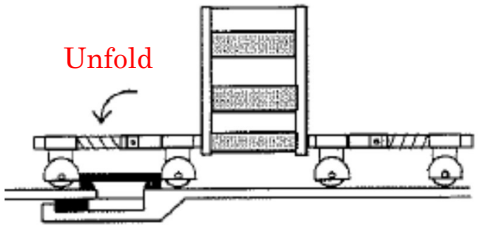
Pict.14 Air release on top and Inlet on bottom

Installation of Joint Test Band

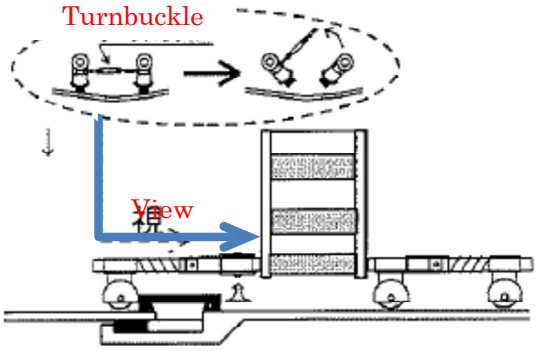
1. Push the Joint Tester slowly toward a joint until the first front wheels contact the rim of the Rubber Ring and stop pushing.
2. Fold both front wheel shafts upwards.
3. Continue to push the Joint Tester slowly toward a joint until the second front wheels contact the rim of the Rubber Ring and stop pushing.



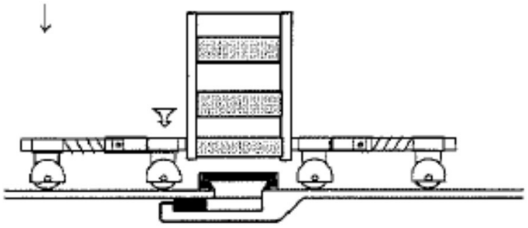
4. Unfold both front wheel shafts completely to the original position. Confirm that the first front wheels are placed over the other side of the rim.



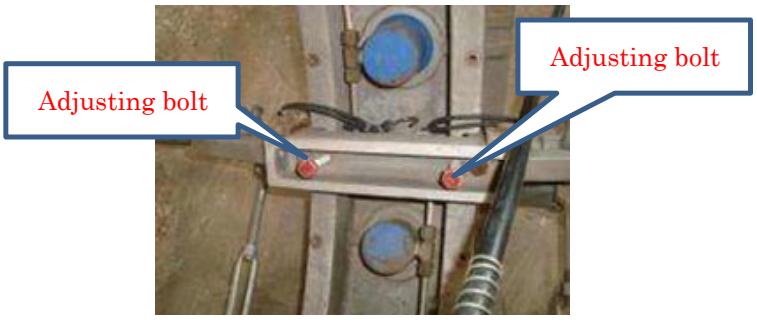
5. Remove the Turnbuckle which is located between the front wheel shafts in order to release the second front wheels.
6. Turn the second front wheels upwards and tighten the thumbscrews to keep two wheels from falling down.



7. Continue to push the Joint Tester slowly to the center of the joint. Confirm that Compression Plates and Rubber Ring are uniformly installed all around a joint.



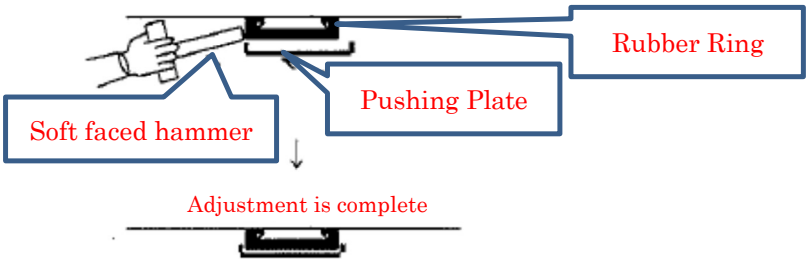
Note: If the Compression plates contact the Rubber Ring, adjust the height by turning the red bolts which are located on the bottom.



Pict.15 Adjusting bolt

8. Undo the thumbscrews and turn the second front wheels to an original position.
9. Replace the Turnbuckle to hold wheels.
10. Connect the hydraulic hose to the Joint Tester.

11. Operate the hydraulic pump to expand the Compression Plates. At this point, the Compression Plates are barely contacted against the RubberRing.
12. Check and adjust the position of the Rubber Ring by using a soft faced hammer.



13. Always make sure to release both Turnbuckles by one turn or two in order to avoid unbalanced pressure before the Rubber Ring is completely compressed by the Compression Plates.

Note: This process is very important to hold the required pressure when a joint is tested.

14. Continue to operate the hydraulic pump until the Rubber Ring is fully compressed.

Note: The pump is pre-set to limit the maximum pressure by approx.7000psi.

15. Connect the Hydraulic Hose and the inlet of the JointTester.
16. Open the Air release which is located on the upper side of the Joint Tester.
17. Operate the Wing Pump to fill the testing joint with water. Refer to the Hydraulic Hand Pump Operating Procedures.
18. Check water from the Air release and keep it running for a while to completely release all the air out of the joint before closing the Air release.
19. Operate the Booster Pump to the required testing pressure which is 0.5Mpa (72.5psi).

Pict.16 Booster Pump

20. Close Valve1 to hold the required testing pressure for the required testing time which is

normally 5 minutes.

Note: Joint pressure test shall be operated at a joint of 3 thru 4 pipes away from the end of the last pipe due to pull out resistance force from the pumping pressure.
Pipes at the testing joint shall be backfilled prior to the joint test.

Pict.16 Hydraulic pressure test

Ⅱ. Hydraulic Hand Pump Operating Procedures

Before Testing:

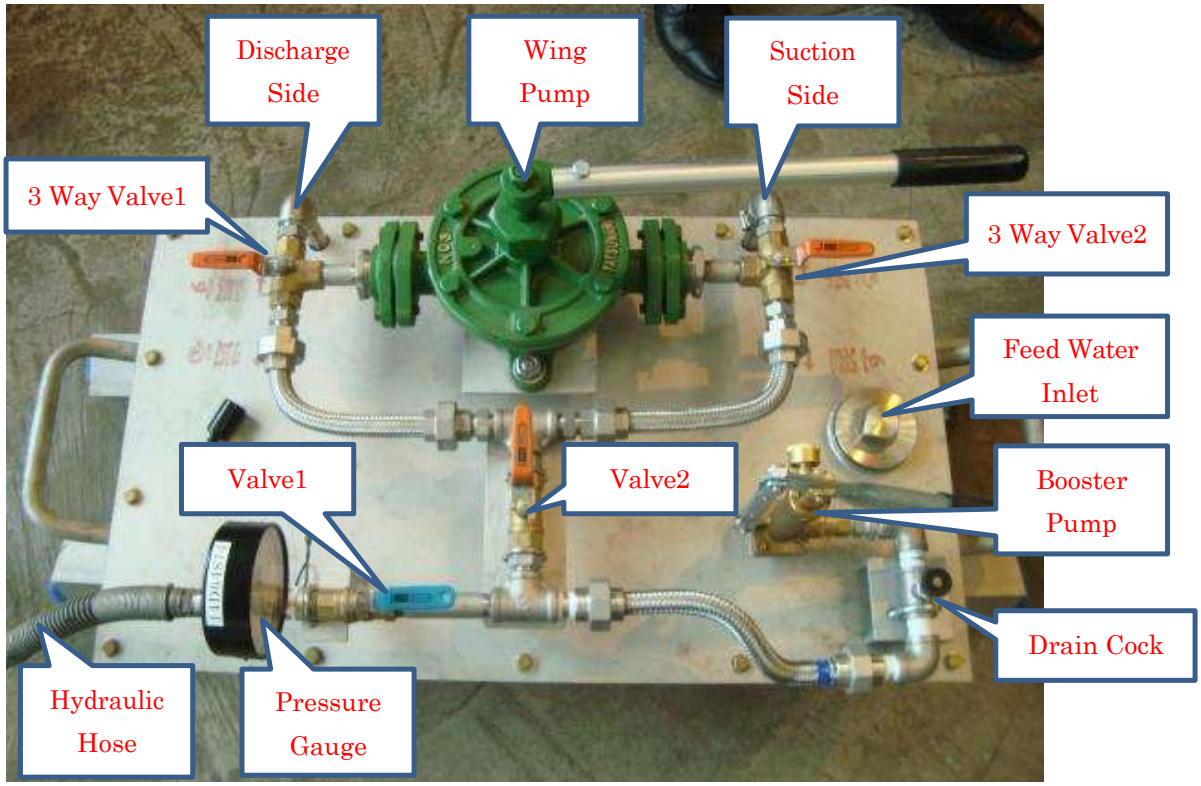
Filling and pressurizing a joint: Refer to Fig.2 shown on the next page.

1. Fill the tank with clean water from the feed water inlet. Do Not use unclean and muddy water in order to avoid valves getting clogged
2. Set both handles of the 3 Way Valves to the correct direction, "**GO**" shown on the water tank.
3. Close Valve1. Open the Drain Cock and Valve2.
4. Operate the Booster Pump until some water comes out of the Drain Cock.
5. Close the Drain Cock.
6. Keep operating the Booster Pump to send some water to the Wing Pump. If any water does not come out, confirm that the Accumulator is not clogged.
7. Open Valve1.
8. Operate the Wing Pump to confirm that water comes out of the Hydraulic Hose.
9. Connect the Hydraulic Hose and the inlet of the Joint Test Band.
10. Open the Air Cock which is located on the upper side of the Joint Test Band.
11. Operate the Wing Pump to fill a testing joint with water.
12. Keep operating the Wing Pump until some water comes out of the Air Cock.
13. Close the Air cock after confirming that air in the hose and joint is completely discharged.
14. Close Valve2.
15. Operate the Booster Pump to the required testing pressure.
16. Close Valve1 to hold the required testing pressure.

After Testing:

Returning water in a joint to the tank

1. Open Valve1 to return water in a joint to the tank.
2. Turn both 3 Way Valves to the correct direction, "**RETURN**" shown on the water tank.
3. Open Valve2.
4. Open the Air Cock located on the upper side of the Joint Test Band.
5. Operate the Wing Pump to return water from a tested joint.


Discharge Side
Wing Pump
Suction Side
3 Way Valve1
3 Way Valve2
Feed Water Inlet
Valve1
Valve2
Booster Pump
Drain Cock
Hydraulic Hose
Pressure Gauge