

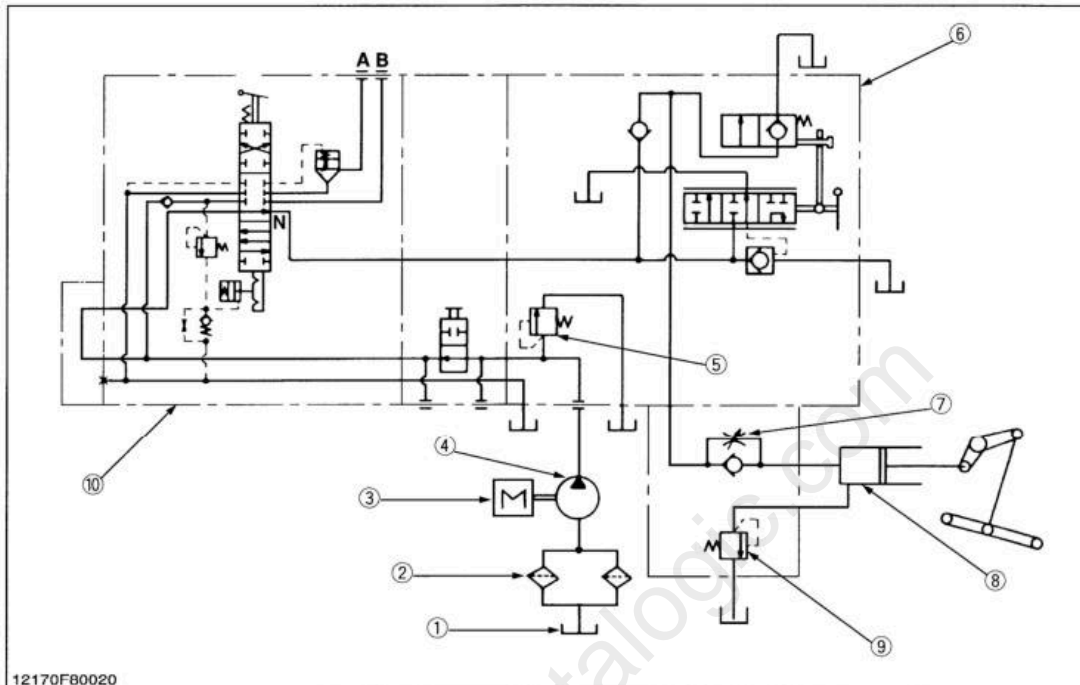
WSM

WORKSHOP MANUAL
TRACTOR

M4900, M5700

Кубота

[2] HYDRAULIC CIRCUIT FOR THREE POINT HYDRAULIC SYSTEM



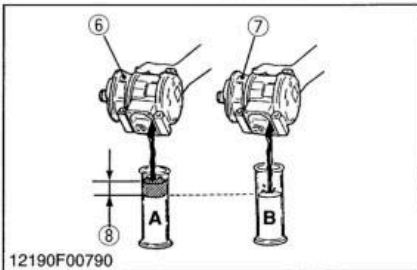
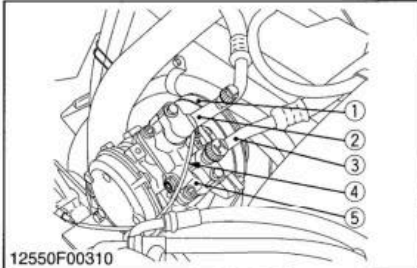
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|------------------------------------|------------------------------------|------------------------------|----------------------------------|
| (1) Oil Tank (Transmission Case) | (5) Relief Valve | (8) Hydraulic Cylinder | A : To Implement Cylinder |
| (2) Hydraulic Oil Filter Cartridge | (6) Control Valve | (9) Cylinder Safety Valve | B : To Implement Cylinder |
| (3) Engine | (7) Lowering Speed Adjusting Valve | (10) Auxiliary Control Valve | |
| (4) Hydraulic Pump | | | |

- When the engine is started, the hydraulic pump (4) is rotated to suck oil from transmission case (1) through the suction pipe. Supplied oil is filtered by the hydraulic oil filter cartridge (2).
- Filtered oil is forced out by the hydraulic pump to the auxiliary control valve (10) through the delivery pipe.
- With the auxiliary control valve (10) in neutral position, oil is channelled from "N" port to the control valve (6).
- The hydraulic system has a relief valve (5) which restricts the maximum pressure in the circuit. The hydraulic cylinder (8) has a cylinder safety valve (9) to relieve shock pressure due to heavy implement bounce.
- The control valve is actuated by the mechanical linkage for "Position control" or "Draft control" or both ("Mix control").
- These tractors have one single / double acting auxiliary control valve as standard equipment.

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DISASSEMBLING AND ASSEMBLING



Compressor

1. Discharge the refrigerant from the system. (Refer to "Discharging the System" : See page 10-S17.)
2. Disconnect the low pressure pipe (suction) (2) and high pressure pipe (discharge) (3) from the compressor, then cap the open fittings immediately to keep moisture out of the system.
3. Disconnect the 1P connector of magnetic clutch.
4. Remove the air conditioner belt (1) and remove the compressor (5).

(When reassembling)

- After reassembling the compressor, be sure to adjust the air conditioner belt tension (see page G-23) and recharge the refrigerant to the system. (Refer to "Charging the System" : See page 10-S17.)
- Apply compressor oil (NIPPONDENSO ND-OIL8 or equivalent) to the O-rings and take care not to damage them.
- "S" letter is marked on the compressor for connecting the low pressure pipe (suction side).
- "D" letter is marked on the compressor for connecting the high pressure pipe (discharge side).

(When replacing compressor)

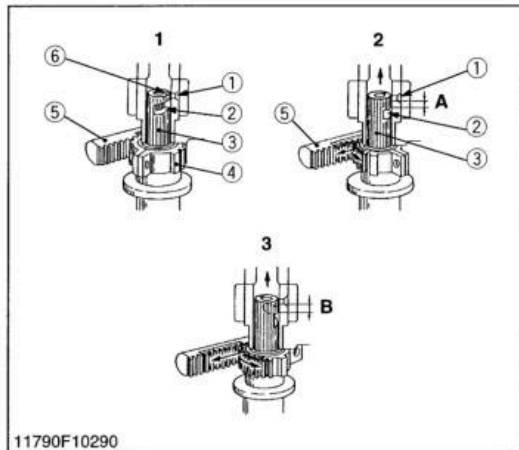
- When replacing the compressor with a new one, meet the oil amount with old one.

Tightening torque	High pressure pipe and low pressure pipe mounting screw	7.9 to 11.8 N·m 0.8 to 1.2 kgf·m 5.8 to 8.7 ft·lbs
	Compressor mounting screws	24.5 to 29.4 N·m 2.5 to 3.0 kgf·m 18.1 to 21.7 ft·lbs

- (1) Air-conditioner Belt
- (2) Low Pressure Pipe
- (3) High Pressure Pipe
- (4) 1P Connector Harness

- (5) Compressor
- (6) New Compressor
- (7) Old Compressor
- (8) Remove the Excess Oil (A-B)

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■ Injection Control

1. No fuel delivery (Engine stop)

When the control rack (5) is set at the engine stop position, the plunger does not force fuel and no fuel is delivered since the feed hole (1) aligns with the slot (6) in the plunger (3).

2. Partial fuel delivery

When the plunger (3) is rotated by the control rack (5) in the direction of arrow, the fuel is delivered to the injection nozzle.

The amount of fuel corresponds to the effective stroke (A) from closing the feed hole (1) by the plunger head to contact of the control groove (2) with the feed hole.

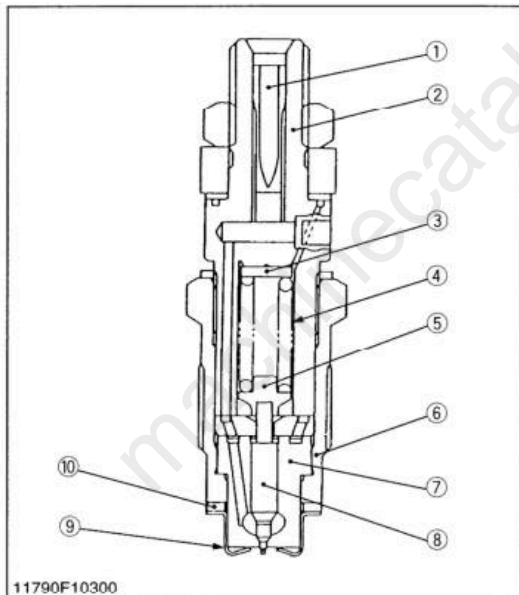
3. Maximum fuel delivery

When the control rack is moved to the extreme end in the direction of the arrow, the effective stroke (B) of the plunger is at its maximum, thus the maximum fuel delivery occurs.

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|--------------------|--------------------|
| (1) Feed Hole | (4) Control Sleeve |
| (2) Control Groove | (5) Control Rack |
| (3) Plunger | (6) Slot |

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(3) Fuel Injection Nozzle



Used as the injection nozzle, the small sized NIPPONDENSO made OPD mini nozzle is of a flat cut provided double throttle type.

This type of nozzle is designed to control the injection quantity when the lift rate is low at start of the injection, and to cut down on the knocking sound caused by excessive fuel injection by giving the needle valve section more taper than before to prevent the rapid increase in the injection quantity when the initial injection turns into the full-force injection.

Also, employed to prevent the injection quantity loss in the throttle section caused by carbon, the flat cut provided at the needle valve section helps the throttle withstand long use and reduce as much knocking sound as when it was new.

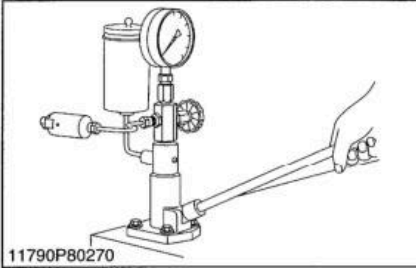
The heat seal is employed to improve the durability and reliability of the nozzle.

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|------------------------|-------------------|
| (1) Bar Filter | (6) Retaining Nut |
| (2) Nozzle Holder Body | (7) Nozzle Body |
| (3) Adjusting Washer | (8) Needle Valve |
| (4) Nozzle Spring | (9) Heat Seal |
| (5) Push Rod | (10) Gasket |

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SERVICING

(1) Cylinder Safety Valve



Operating Pressure of Cylinder Safety Valve

1. Attach the cylinder safety valve to a injection nozzle tester with a safety valve setting adaptor.
2. Measure the operating pressure of the cylinder safety valve.
3. If the operating pressure is not within the factory specifications, adjust by turning the adjust screw. (See page 8-S16.)
4. After adjustment, tighten the lock nut firmly.

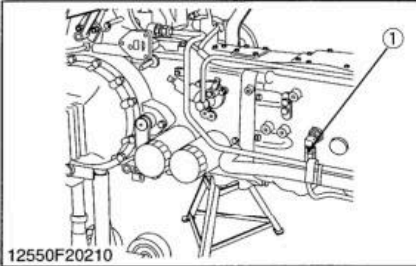
Cylinder safety valve operating pressure	Factory spec.	21.1 to 22.6 MPa 215 to 230 kgf/cm ² 3060 to 3277 psi
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NOTE

- Use specified transmission fluid (see page G-9) to test the operating pressure of the cylinder safety valve.

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(2) Oil Cooler Relief Valve



Operating Pressure of Oil Relief Valve

1. Attach the oil cooler relief valve to a injection nozzle tester with a safety valve setting adaptor.
2. Measure the operating pressure of the cylinder safety valve.

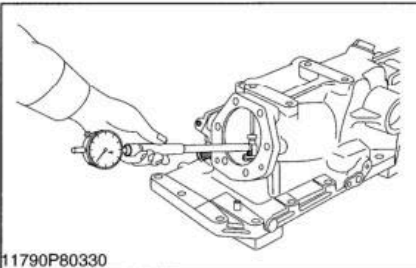
Oil cooler relief valve operating pressure	Factory spec.	4.4 to 4.9 MPa 45.0 to 50.0 kgf/cm ² 640 to 711 psi
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NOTE

- Use specified transmission fluid (see page G-9) to test the operating pressure of the oil cooler relief.

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(3) Hydraulic Cylinder Assembly



Hydraulic Cylinder Bore

1. Check the cylinder internal surface for scoring or damage.
2. Measure the cylinder I.D. with a cylinder gauge.
3. If the measurement exceeds the allowable limit, replace it.

Cylinder I.D.	Factory spec.	90.000 to 90.050 mm 3.54330 to 3.54527 in.
	Allowable limit	90.15 mm 3.5492 in.

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Full Version Available

Kubota M4900 Tractor Workshop Manual

This is a short preview. The complete manual contains all chapters, wiring diagrams, torque specifications and full service procedures.

VIEW THE FULL MANUAL

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