BACKHOE

Service Manual

SM30A

CASE
CONSTRUCTION

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GENERAL

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CYLINDERS

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GROUP 3

VALVES

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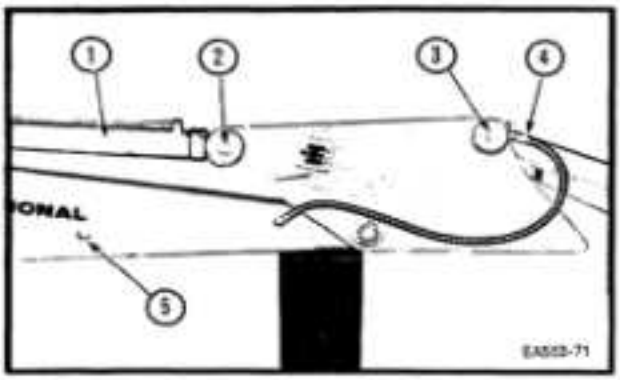


Fig.7

3b. DISMANTLING

Refer to para.2b making the B dimension of the 'C' spanner 57.2 mm (2-1/4 in) for the 3122 and 63 mm (2-1/2 in) for the 3142 Back Hoe.

3c. INSPECTION

Refer to Section A, para.2c.

3d. ASSEMBLY

(a) Refer to para.2d.

(b) Piston nut torque:

	kgm	lbft
3122 dig cylinder	62.3 to 69.1	(450 to 500)
3142 dig cylinder	146.5 to 214.3	(1450 to 1550)

(c) Cylinder cap torque:

	kgm	lbft
3122 dig cylinder	82.9 to 110.6	(600 to 800)
3142 dig cylinder	110.6 to 138.2	(800 to 1000)

3e. INSTALLATION

(a) Position the cylinder on the boom, drive in the pin (3-1) and secure with the circlip.

(b) Align the eye of the rod end with the hole in the dipperstick then drive in the pin (2-7) and secure with the pins and cotters.

(c) Connect the hoses (4-1).

4. BUCKET CYLINDER

4a. REMOVAL

(a) With the Back Hoe fully extended rest the bucket on the ground.

NOTE: On a Back Hoe removed from the tractor ensure that it is safely blocked to prevent any danger of collapsing.

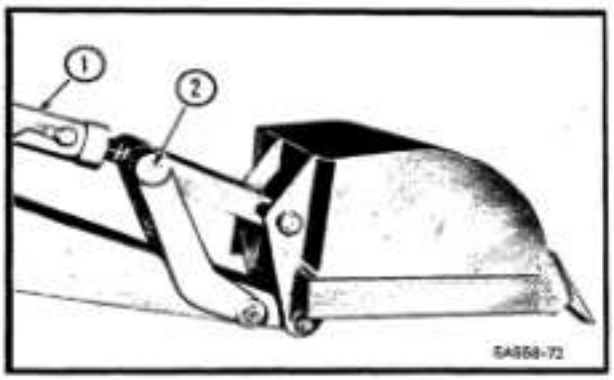


Fig.8

(b) Release the pressure in the bucket section by moving the control lever backward and forward.

(c) Disconnect the hoses (4-7) on either side and blank exposed connections.

(d) Remove the cotters and pins then drive out the pin (2-8) and lower the cylinder onto the dipperstick.

(e) Support the cylinder (1-8) then remove the circlip and drive out the pin (3-7).

(f) Remove the cylinder.

4b. DISMANTLING

Refer to para.2b, making the 'B' dimension of the 'C' spanner 50.8 mm (2 in) for the 3122 and 57.2 mm (2-1/4 in) for the 3142 Back Hoe.

4c. INSPECTION

Refer to Section A, para.2c.

4d. ASSEMBLY

(a) Refer to para.2d.

(b) Piston nut torque:

	kgm	(lbft)
3122 bucket cylinder	62.3 to 69.1	(450 to 500)
3142 bucket cylinder	62.3 to 69.1	(450 to 500)

(c) Cylinder cap torque:

	kgm	(lbft)
3122 bucket cylinder	62.3 to 69.1	(450 to 500)
3142 bucket cylinder	82.9 to 110.6	(600 to 800)

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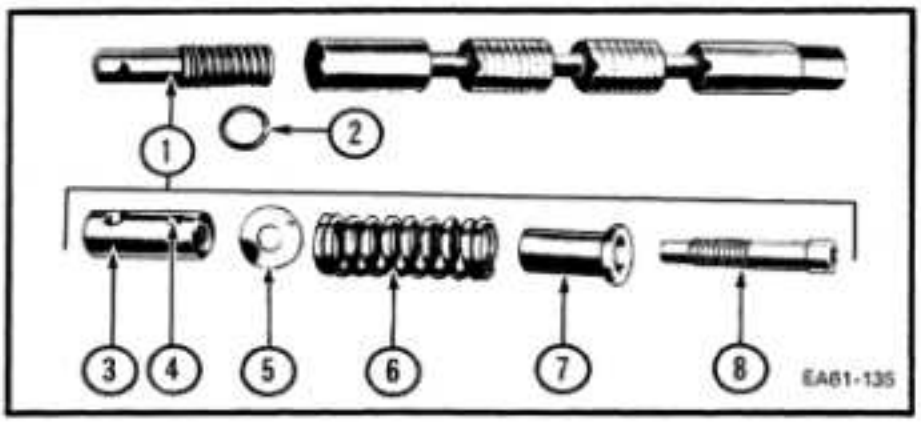


Fig.11

2d. ASSEMBLY

(a) Install the 'O' ring (4-10) and backing ring (5-10) on the poppet (3-10), ensuring that the 'O' ring is nearest the poppet waist.

(b) Install the poppet in the valve sleeve.

(c) Install the pilot valve (2-10) and spring (1-10) then screw in the adjusting screw (11-12).

(d) Install the assembled relief valve in the valve body from the spool clevis end then screw in the plug (6-12) and 'O' ring and securely tighten.

(e) Screw in the adjuster (5-12) then loosely install the lockwasher (3-12) and acorn nut (1-12).

(f) Install the relief valve spring (18-12) ensuring that it is correctly seated on the poppet spigot, then screw in the plug (19-12) and 'O' ring, ensuring that the spring is seated in the plug recess and securely tighten the plug.

(g) Grip the plunger pin (3-11) in a soft jawed vice then assemble the sleeve (7-11), spring (6-11), and washer (5-11) to the screw (8-11).

(h) Compress the spring, screw the screw into the plunger pin and securely tighten. Punch stake the assembly through the hole (4-11).

(i) Install the spring assembly (1-11) in the spool and install the circlip (2-11).

(j) Install the spools (15-9) with a screwing motion, until the clevis is just clear of the seal seat.

(k) Install the expanders (10-9), ensuring that they are seated correctly then install the seals (9-9), seal retainers (11-9) and caps (12-9).

(l) Install the bolts (14-9) and securely tighten.

(m) Install the seals (3-9), expanders (4-9) and seal retainers (2-9), then install the bolts (1-9) and securely tighten.

(n) Turn the spools to align the roll pin holes then drive in the roll pins (13-9).

(o) Install the check valve poppets (8-9), and springs (7-9), then install the plugs (5-9) with 'O' rings (6-9) and securely tighten.

(p) Test the valve as detailed in para.2e.

2e. TESTING

(a) Connect a test rig or hand pump to each outlet port in turn and, with the spool in the neutral position, pump up the pressure to 70.31 kg/cm^2 (1000 lb/in^2).

(b) Hold this pressure for one minute and collect any oil leakage in a graduated vessel.

(c) Leakage should not exceed 16.4 cm^3 (1 in^3) per minute when an SAE-20 is used at a temperature of 55°C (130°F).

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1. DESCRIPTION

1a. GENERAL

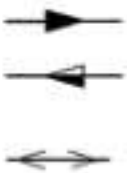
The schematic diagrams in this group are designed to indicate the major components of the various hydraulic systems, their approximate relationship to each other on the machines and the oil flow in the systems.

The interconnecting pipes and hoses are not shown separately nor are all the cored and drilled passages inside the control valves.

For detailed information on specific components, refer to the cross sections in the relevant Group.

In all diagrams, the foot of the page represents the rear of the machine and the top of the page, the front of the machine.

The following arrows are used to indicate oil flow:



High pressure

Return flow

Reversing flow according to control valve

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