Open front screen

Loadall Range

This Service Manual covers the following machines:-

520 from machine No. 500001, 520HL, 520 Farm Special, 520M,
525, 525B, 525B HL, 525B Farm Special,
530, 530 HL, 530B, 530B HL,
540B, 540BM.

Information covers 2 and 4 wheel drive machines.

Publication No. 9803/3350

SERVICE SCHEDULE

Check		Every 10 Hours	Every 50 Hours	Every 100 Hours	Every 250 Hours	Every 500 Hours	Every 1000 Hours	Every 2000 Hours
Engine oil level and condition	51	■	■	□ ■	■	■	■	■
Engine coolant/anti-freeze	52	■	■	□ ■	■	■	■	■
Fuel system for leaks/contamination	53	■	■	□ ■	■	■	■	■
Air cleaner hose security	54			□ ■	■	■	■	■
Fan belt tension	55		■	□ ■	■	■	■	■
Exhaust system security	56			□		■	■	■
Engine mounting bolts	57			□		■	■	■
Cylinder head torque setting	58			□				
4.236 LD & LH								
4.236 LJ to Eng. no. UO27774M only								
* Valve clearance and lubrication –4/98	59			□		■	■	■
4.236 LD & LH								
4.236 LJ to Eng. no. UO27774M only				□				■
Idling speed	60			□		■	■	■
Max. governed engine speed	61			□		■	■	■
Exhaust (excessive smoke)	62	■	■	□ ■	■	■	■	■
Engine pull-down	63			□		■	■	■
* Battery electrolyte level	66			□	■	■	■	■
Operation of electrical equipment	67	■	■	□ ■	■	■	■	■
Instrument readings and warning lights	68	■	■	□ ■	■	■	■	■
Operation of overload warning system	69	■	■	□ ■	■	■	■	■
Wiring Harness for chafing	71			□ ■	■	■	■	■
Change								
Engine oil	76			□	■	■	■	■
Engine oil filter element	77			□	■	■	■	■
Air cleaner element (outer)	78						■	■
Air cleaner element (inner)	79							■
Fuel filter elements	80			□		■	■	■
Hydraulic fluid. Clean suction strainer	81							■
Hydraulic fluid filter element	82			□		■	■	■
Brake system contents	83							■
Shuttle reverser oil and clean suction strainer (not JCB Transmission)	84						■	■
Transmission oil filter (if fitted)	85			□		■	■	■
Gearbox oil (not JCB Transmission)	86						■	■
JCB Transmission Oil	87			□			■	■
Clean Strainer (JCB Transmission)	88			□			■	■

TECHNICAL DATA
(JCB 520-2/4, 520-2/4HL, 525B & 525BHL)

Pump	**Hamworthy**			**Sundstrand**		
Type	PAA1907, gear type			SP3/230/32L, gear type		
Flow at max. engine rev/min.	l/min	UKgal/min	USgal/min	l/min	UKgal/min	USgal/min
–at zero pressure	62	13.6	16.3	70	15.4	18.5
–at system pressure	57	12.6	14.8	67	14.7	17.6

Control Valves

Type	Parallel Service with double acting spools
Services Operated	
–Spool 1	Boom Extend and Retract
–Spool 2	Boom Raise and Lower
–Spool 3	Carriage Tilt
–Spools 4, 5 and 6	Optional Attachments

Relief Valve Operating Pressures	bar	kgf/cm^2	lbf/in^2
Main Relief Valve (M.R.V.)	221	225	3200 (525B North America– 3500 lbf/in^2)
Auxiliary Relief Valves (A.R.V.'s)			
–Carriage Tilt Backwards (Head Side)	221	225	3200
* –Carriage Tilt Forwards (Rod Side)	138	141	2000
–Boom Extension (HL only)	152	155	2200
–Hydraulic Tow Hitch Raise (Rod Side)	172	176	2500
–Hydraulic Tow Hitch Lower (Head Side)	103	105	1500
–Other Optional Attachments (Rubery Owen)	138	141	2000
–Other Optional Attachments (Rexroth)	145	148	2100

Note: See page 2/9–1 for setting pressures of Rubery Owen Attachment A.R.V.'s.

Rams	Bore		Rod Dia.		Stroke	
	mm.	in.	mm.	in.	mm.	in.
Boom Extension (520 & 525B)	80	3.15	50	1.97	1700	66.92
Boom Extension (520HL)	70	2.76	50	1.97	2300	90.55
Boom Lift (520)	110	4.33	60	2.36	793	31.22
Boom Lift (520HL)	110	4.33	60	2.36	853	33.58
Boom Lift (525B)	120	4.72	65	2.56	793	31.22
Boom Lift (525BHL)	120	4.72	65	2.56	819	32.24
Carriage Tilt (520 & 520HL)	100	3.93	60	2.36	460	18.11
Carriage Tilt (525B)	110	4.33	60	2.36	460	18.11
Displacement (520 & 520HL)	100	3.93	60	2.36	460	18.11
Displacement (525B)	110	4.33	60	2.36	460	18.11

Filtration

Filter Type	Full Flow ("spin-on")		
Filtration Size	10 microns (0.004in)		
Relief Valve Setting	1.03 bar	1.05 kgf/cm^2	15 lbf/in^2
Suction Strainer	142 micron (0.0056in.)		

* Note: A supplement, publication number 9803/3352, is available for servo operated machines.

HYDRAULIC FILTER (525)

***RENEW ELEMENT** **Every 500 Hours**

1 Extend all rams to lower the tank fluid level, stop engine.

2 Unscrew drain plug **A** and allow filter body to drain (about 5 litres – 1 UK gal).

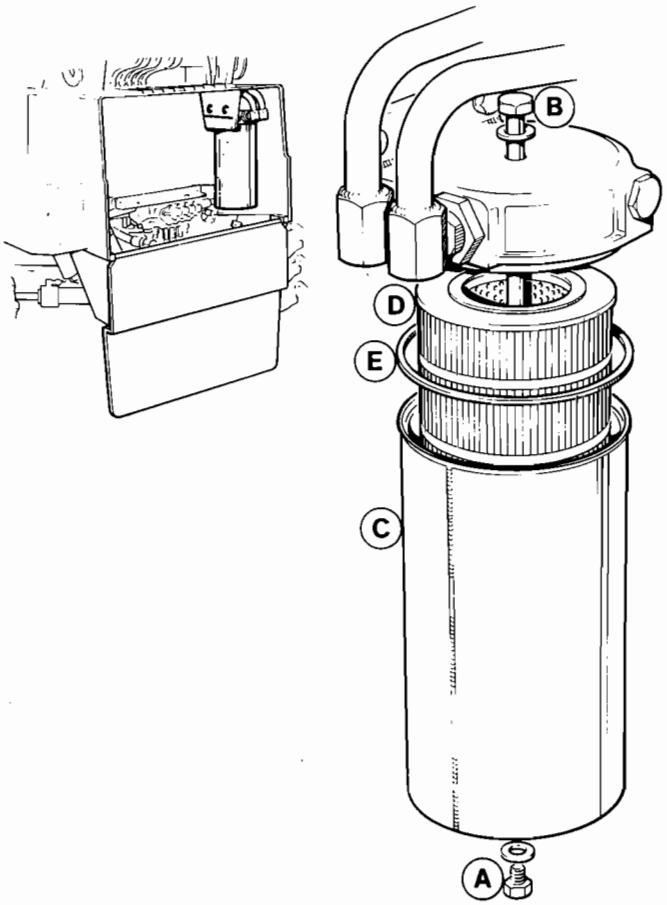
3 Unscrew bolt **B**.

4 Withdraw bolt, body **C** and element **D**. Discard element.

5 Wash all metal parts in JCB 'Special' Hydraulic Fluid.

6 Reassemble with new element and seal **E**, lubricate seals before fitting.

7 Rest forks on the ground and top up fluid.



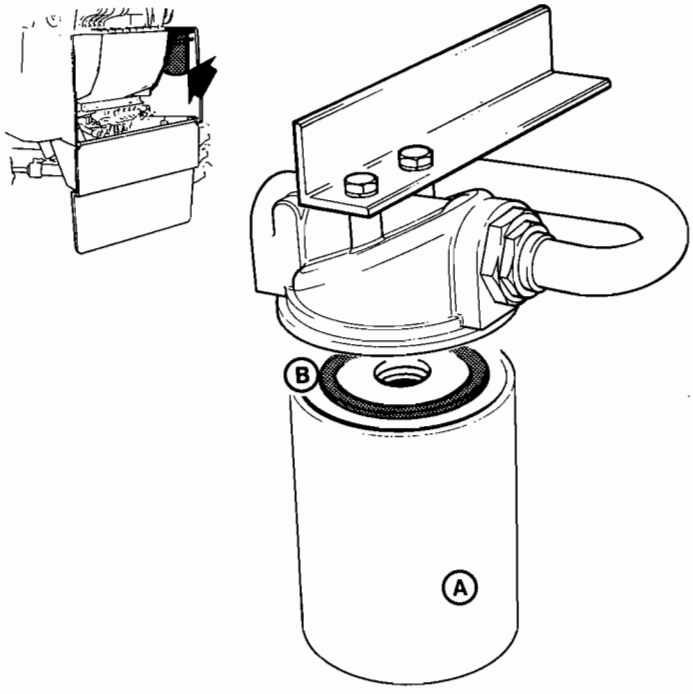
HYDRAULIC FILTER (530)

***RENEW ELEMENT** **Every 500 Hours**

1 Unscrew element **A** and discard.

2 Clean mating faces and smear seal **B** with JCB Special Hydraulic Fluid before fitting new element, hand-tight only.

3 Run engine for a few minutes then recheck fluid level and ensure that there are no leaks.



VALVE BLOCK

Typical Spool

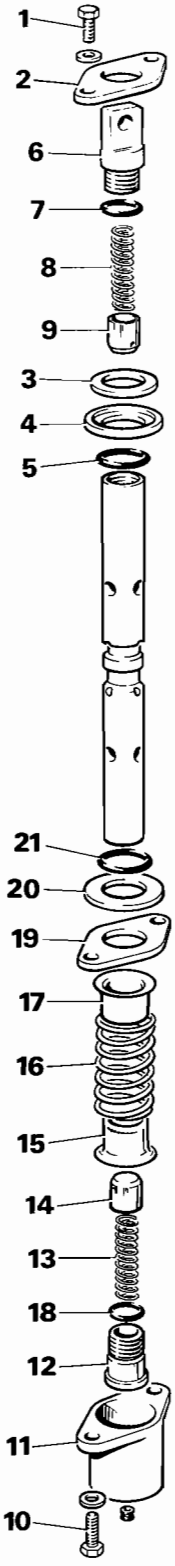
Dismantling and Assembly

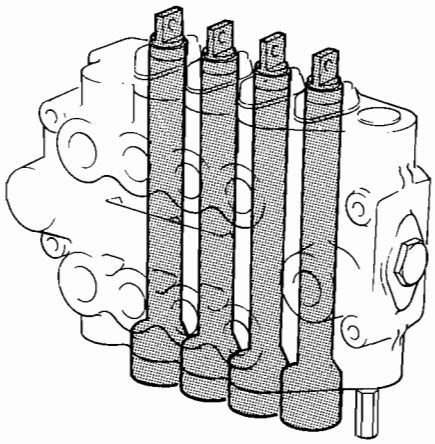
When Dismantling

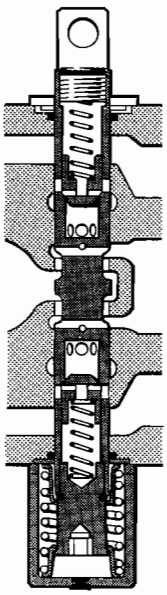
Identify one end of the spool before removal to ensure correct reassembly.

*Use barrel clamp 892/00011 to hold the spool.

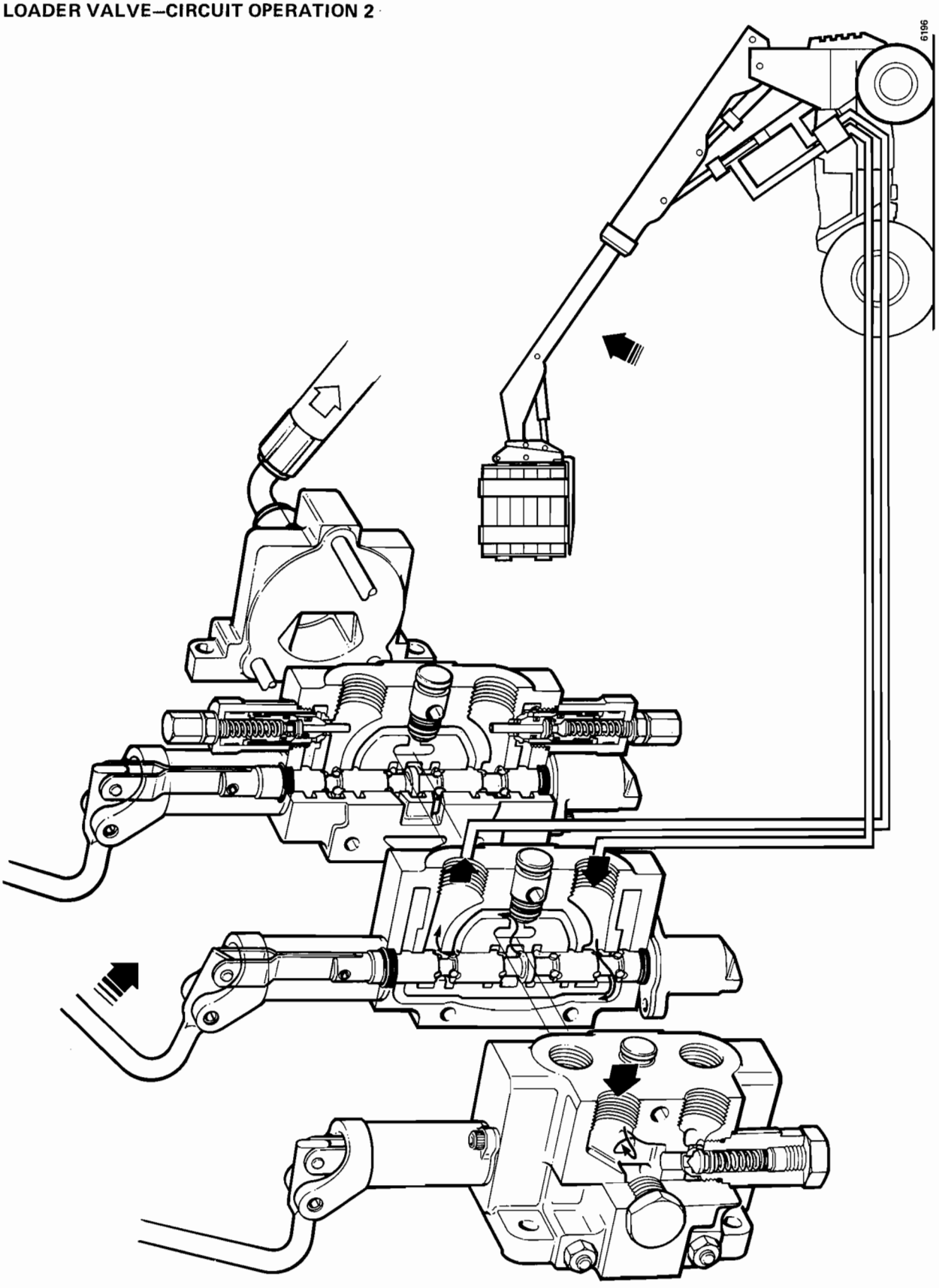
Inspect spool and its bore for scoring, if marks cannot be removed by light polishing, the complete valve block must be renewed.







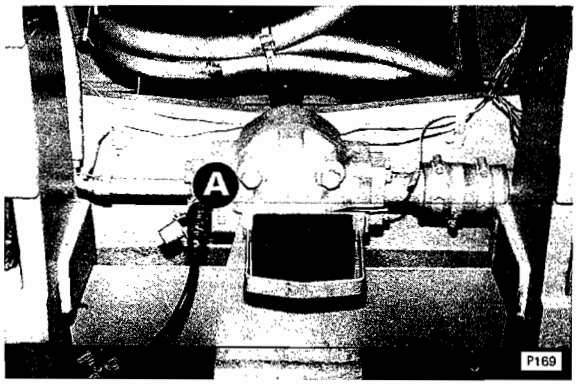
LOADER VALVE–CIRCUIT OPERATION 2



VALVE BLOCK (Rubery Owen)

Pressure Testing

* For all the following tests, connect a 0–400 bar (0–6000 lbf/in^2) pressure gauge to test point **A.**



Main Relief Valve (M.R.V.)

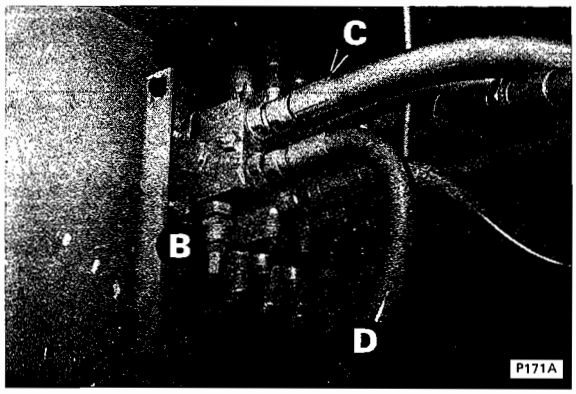
Run engine at maximum speed, lower boom and hold ram fully closed while checking maximum gauge reading which should equal the pressure specified in Technical Data.

If necessary, adjust M.R.V. at **B.**

Tilt Ram Head Side A.R.V.

Interchange the A.R.V. (position C) and the M.R.V.

Check and adjust as for M.R.V. (see above).



Tilt Ram Rod Side A.R.V.

Run engine at idling speed, fully retract tilt ram and hold while checking maximum gauge reading which should equal the pressure specified in Technical Data.

If necessary, adjust the A.R.V. at **D.**

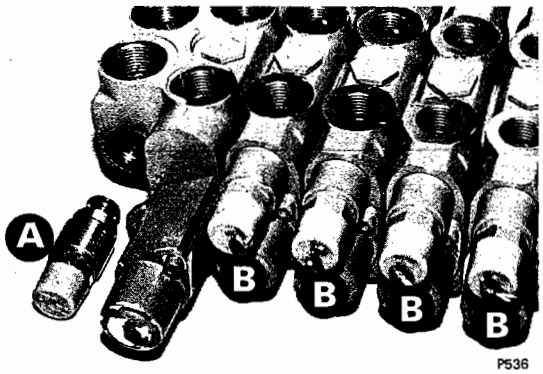
Attachment A.R.V.'s –4th and 5th Spools (if fitted)

Run engine at maximum speed and operate the relevant attachment service to full travel. Maximum gauge reading should be 14 bar (200 lbf/in^2) higher than the pressure specified in Technical Data to compensate for pressure drop between pump and ram. (The pressure will also vary according to engine speed).

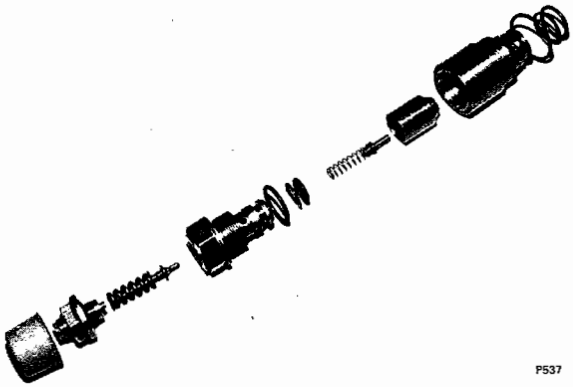
If necessary, adjust the appropriate A.R.V.

VALVE BLOCK (Rexroth)

Dismantling and Assembly – Relief Valves

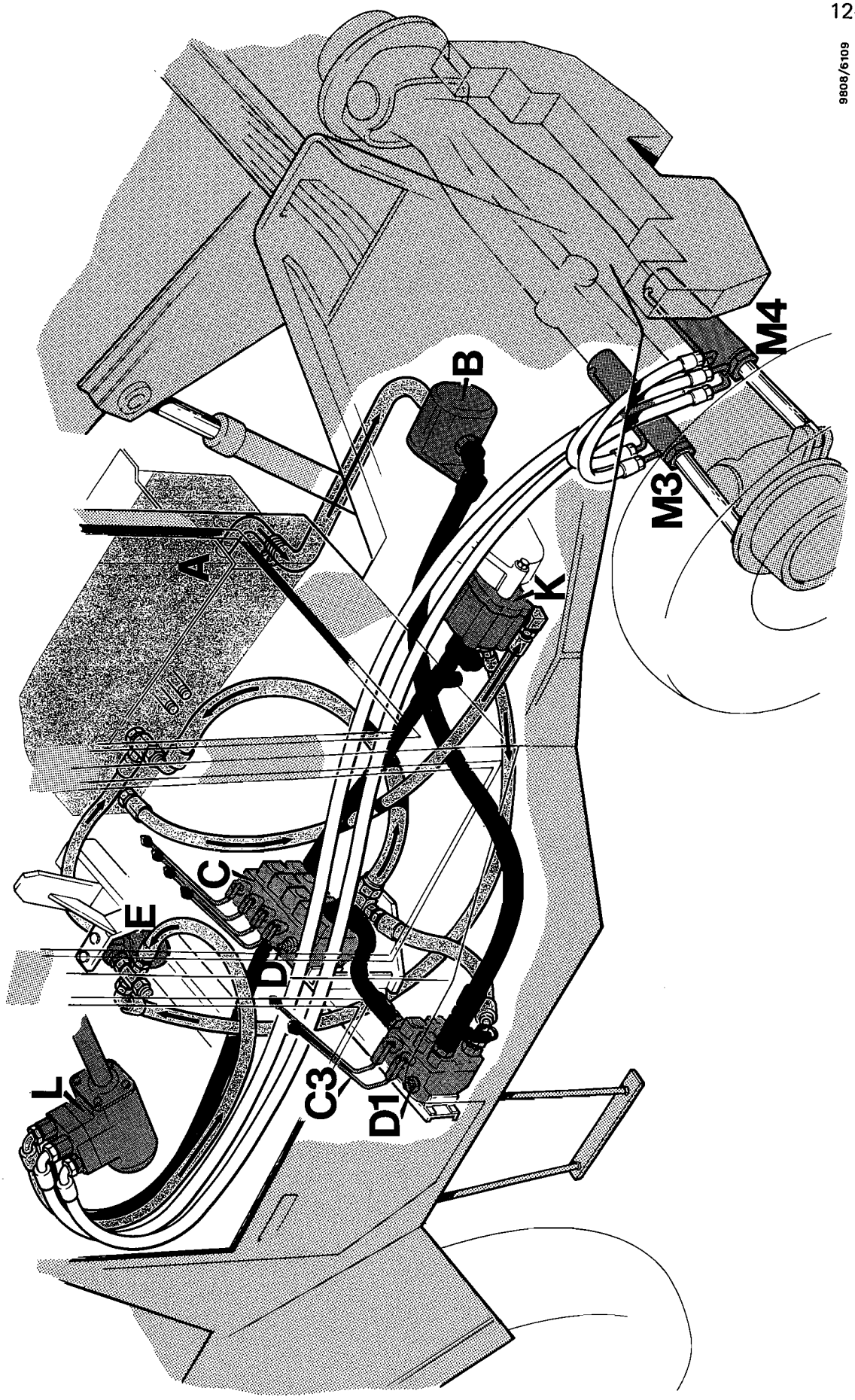


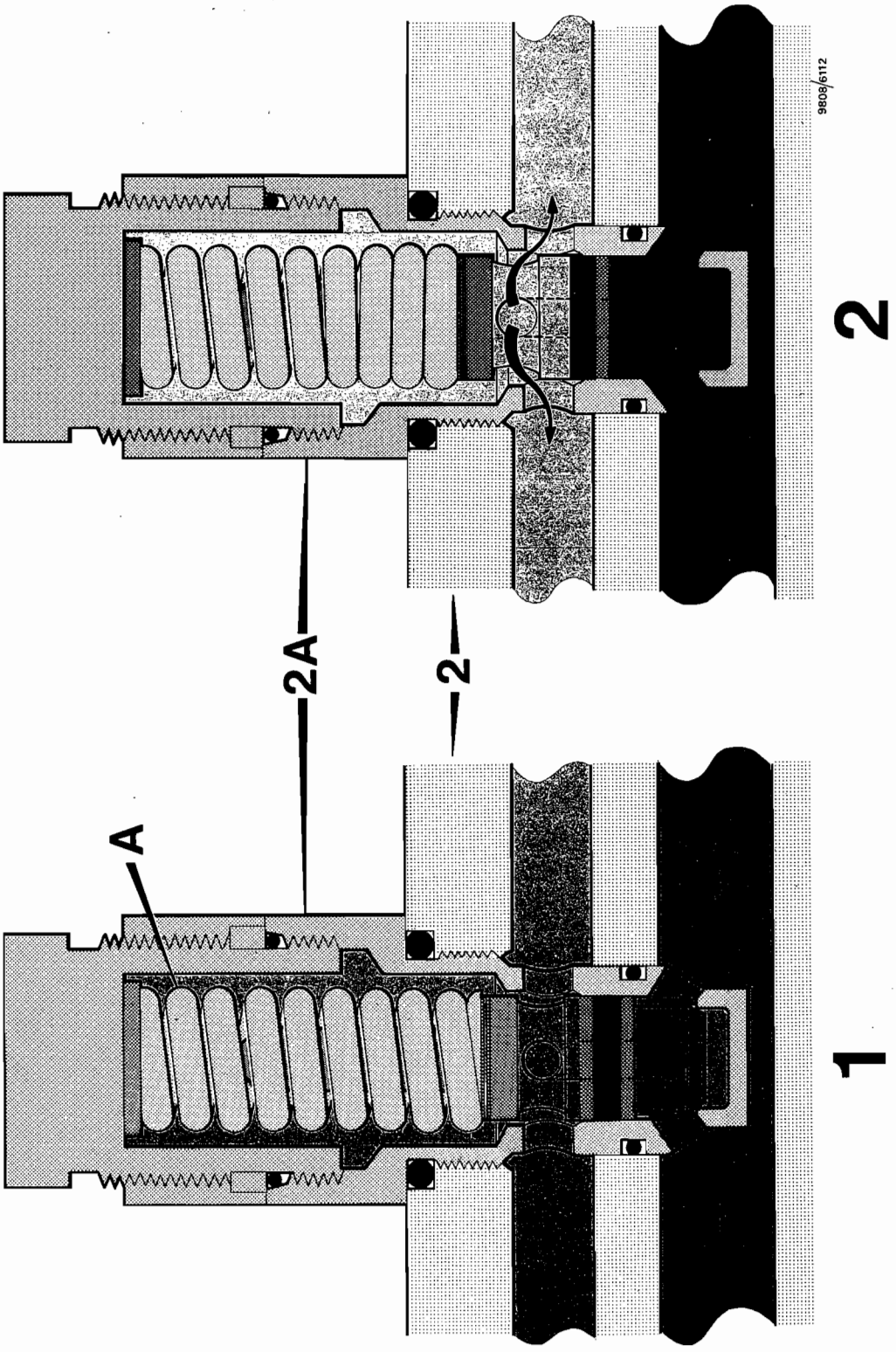
1. Remove main relief valve **A** or auxiliary relief valve **B** as required. When fitting new or re-assembled relief valves it is essential to check the pressure setting (see page 2/10–11).



2. Dismantle valve for inspection and cleaning. If any parts are worn, renew valve complete.

12–1 12–1




9809/6112
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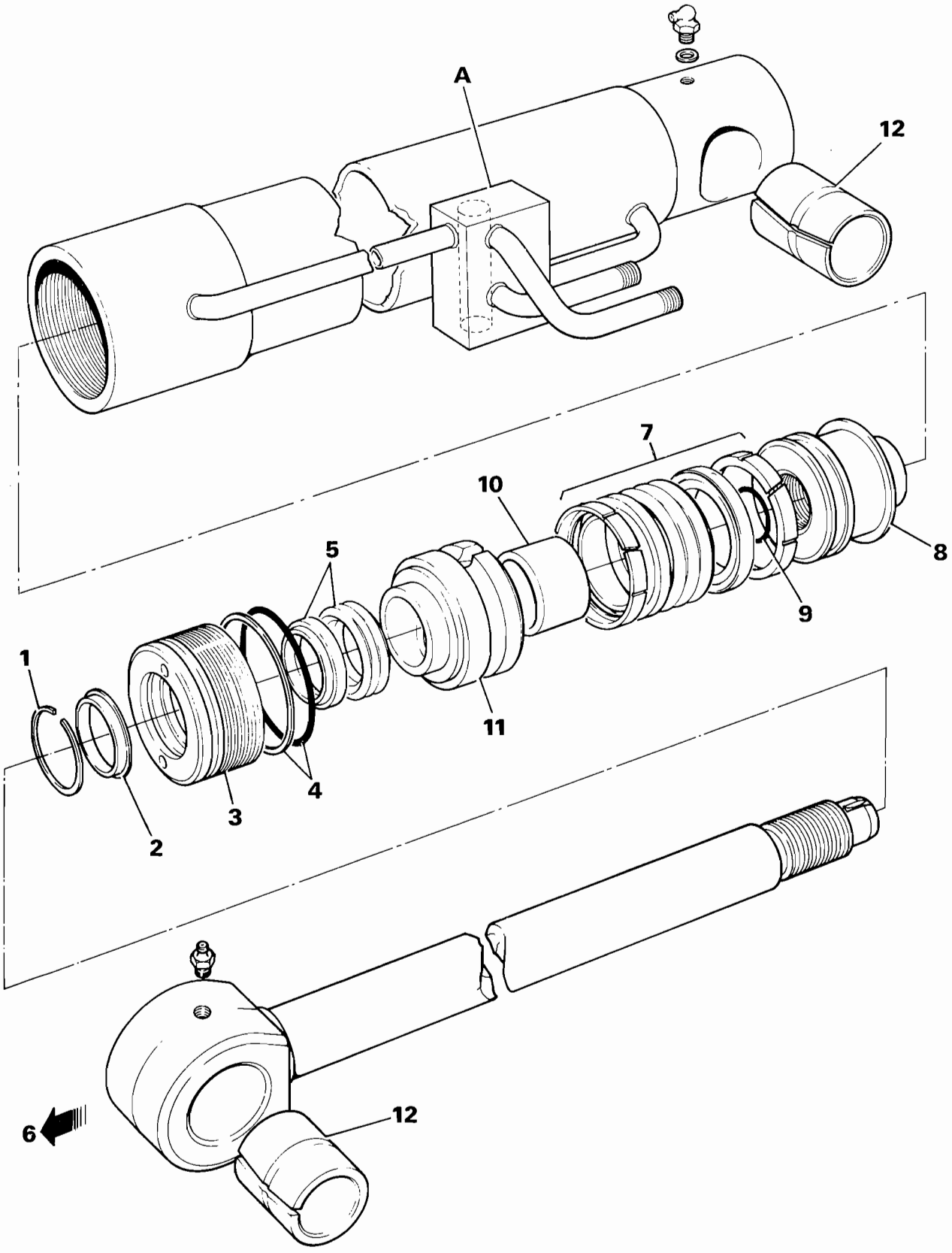
2A
2
A
1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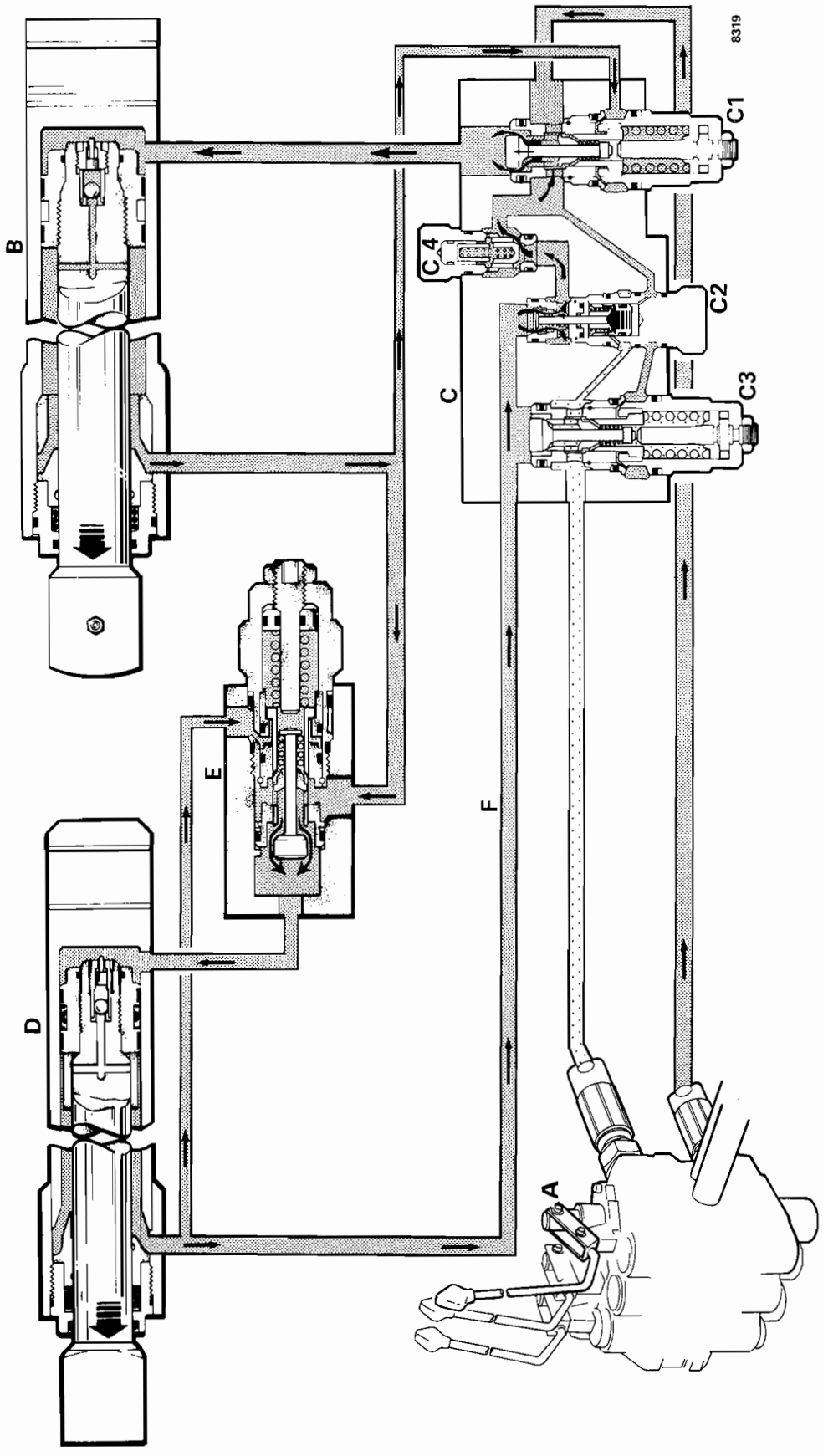
8319
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C4
C2
C3
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E
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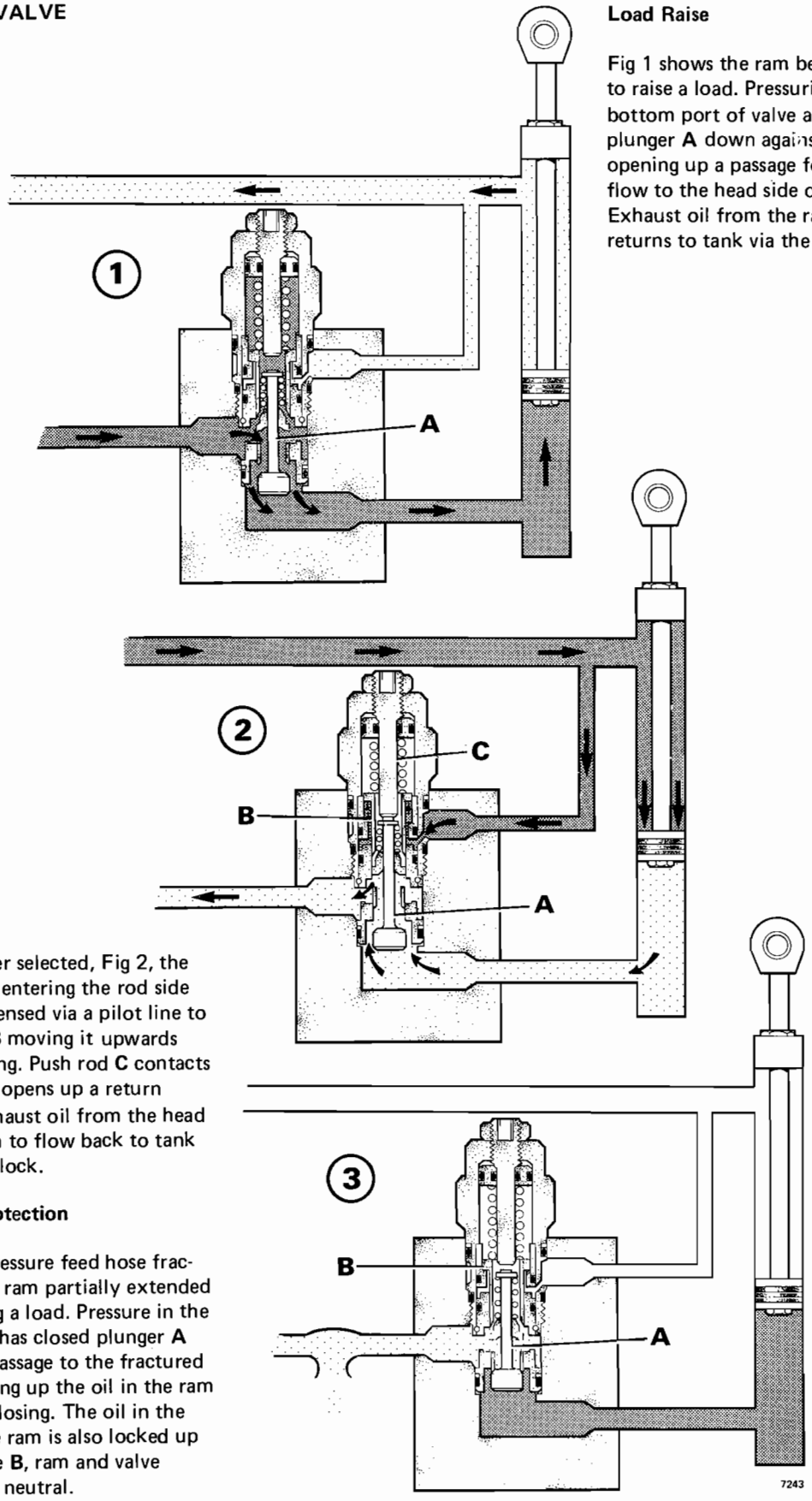
D
A

RAM CHECK VALVE



Load Raise

Fig 1 shows the ram being extended to raise a load. Pressurised oil enters bottom port of valve and moves plunger **A** down against its spring, opening up a passage for the oil to flow to the head side of the ram. Exhaust oil from the ram rod side returns to tank via the valve block.

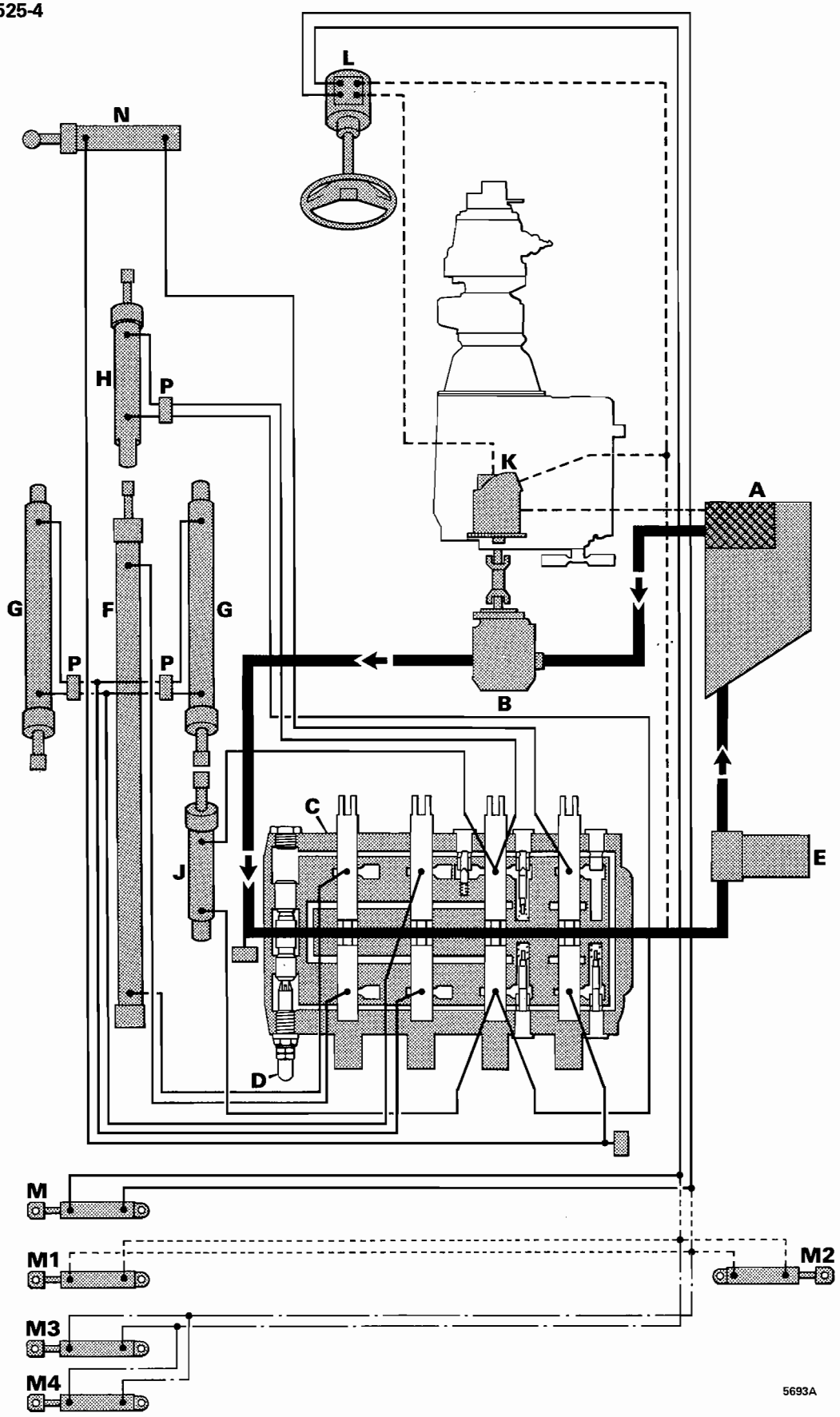
Load Lower

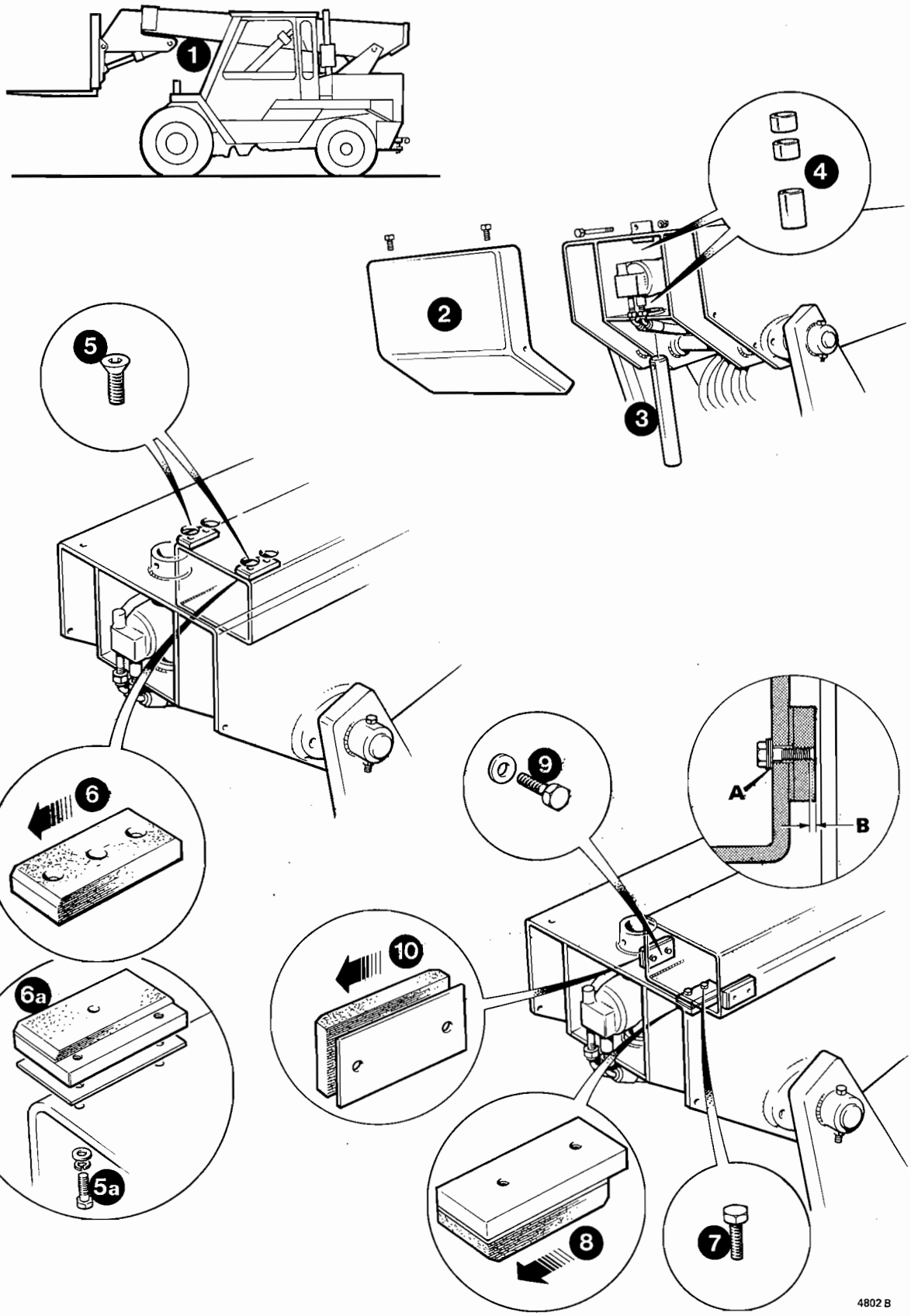
With load lower selected, Fig 2, the pressurised oil entering the rod side of the ram is sensed via a pilot line to act on sleeve **B** moving it upwards against its spring. Push rod **C** contacts plunger **A** and opens up a return passage for exhaust oil from the head side of the ram to flow back to tank via the valve block.

Hose Burst Protection

Fig 3 shows pressure feed hose fractured with the ram partially extended and supporting a load. Pressure in the ram head side has closed plunger **A** blocking the passage to the fractured hose and locking up the oil in the ram to prevent it closing. The oil in the rod side of the ram is also locked up between sleeve **B**, ram and valve block spool in neutral.

JCB 525-2/525-4




1
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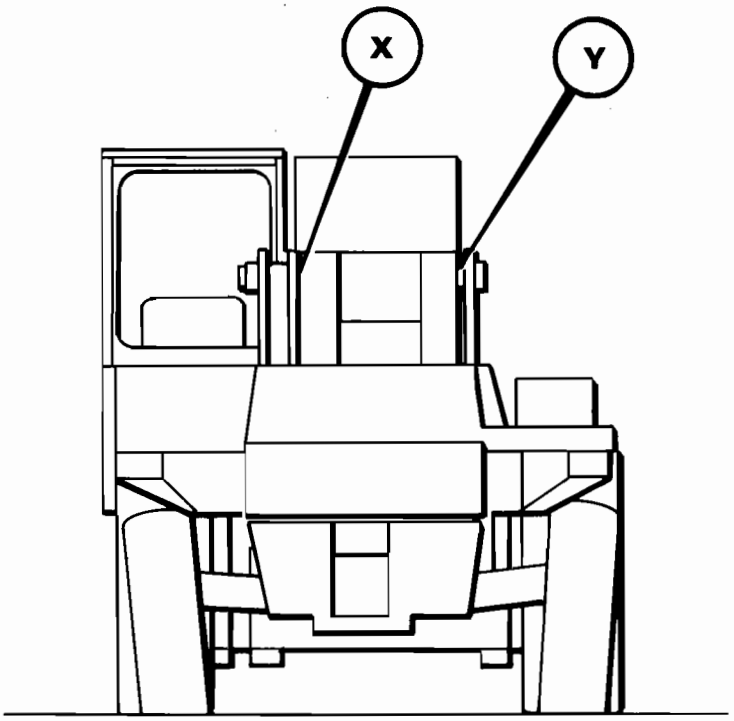
6a
5a
7
8
9
10
A
B
4802 B

BOOM PIVOT

Shim Requirements

When replacing the boom pivot pin measure clearance at each side of the boom (X and Y). If the total clearance exceeds 2mm. (0.080in), fit shimming washers as per table below.
Note: Each shim is 1.5 to 1.8mm. (0.060 to 0.070in.) thick.

Total Clearance (X plus Y)	Shim Requirement Qty at X	Qty at Y
1 to 2mm. (0.039 to 0.079in.)	NIL	NIL
2 to 3.75mm. (0.080 to 0.147in.)	1	NIL
3.75 to 5.25mm. (0.148 to 0.206in.)	1	1
5.25 to 7mm. (0.207 to 0.275in.)	2	1



* FUEL SYSTEM (4.98)

Bleeding

* If engine fails to start or misfires or if any part of the system has been disconnected or left empty, bleed system as follows:

1 Slacken screw **A.**

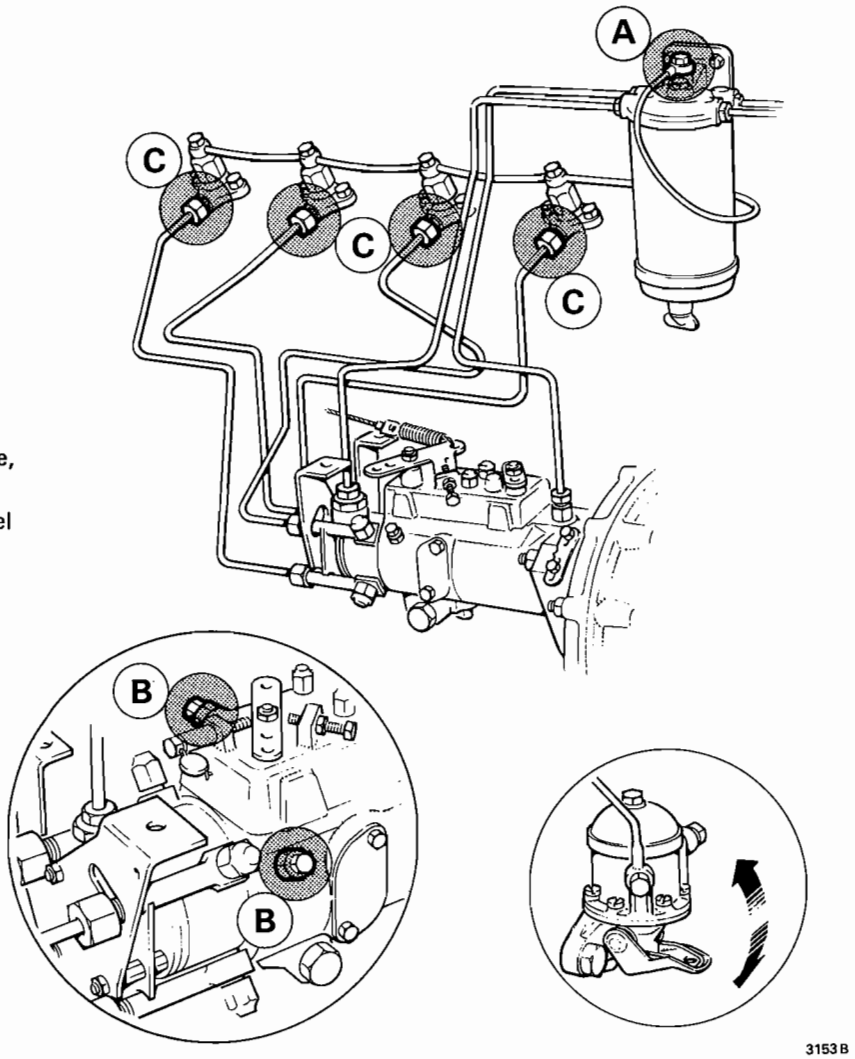
2 Operate lift pump priming lever until air free fuel flows from screw, then re-tighten.

Note:
If the lift pump priming lever cannot be operated turn engine until lever can be moved.

3 Slacken screws **B,** operate lift pump lever until air free fuel flows from screws then re-tighten.

4 Slacken unions **C,** open throttle, push in engine stop control, operate starter until air free fuel flows from unions then re-tighten.

Note: 525 filter is illustrated.
520 has filter on opposite side of engine.

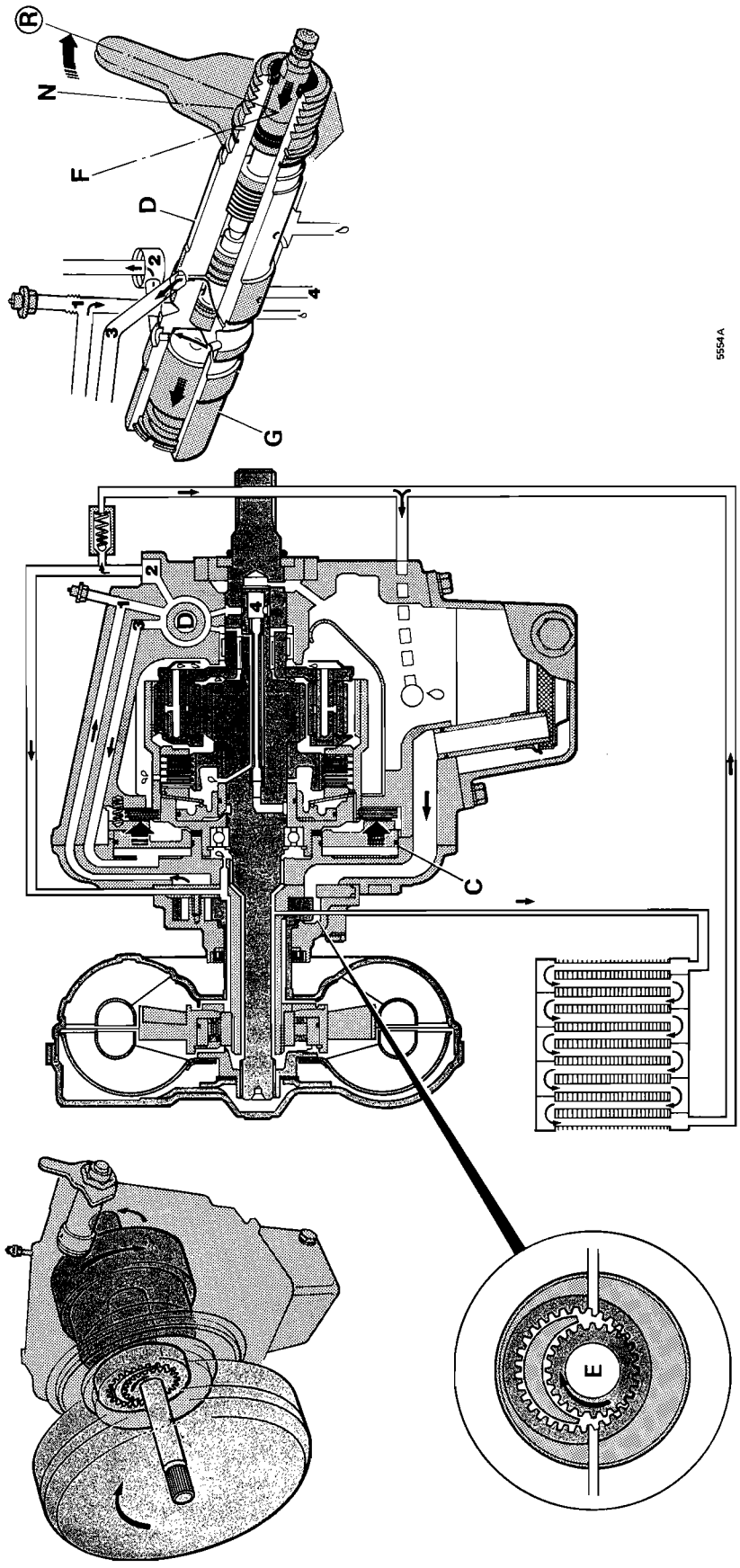


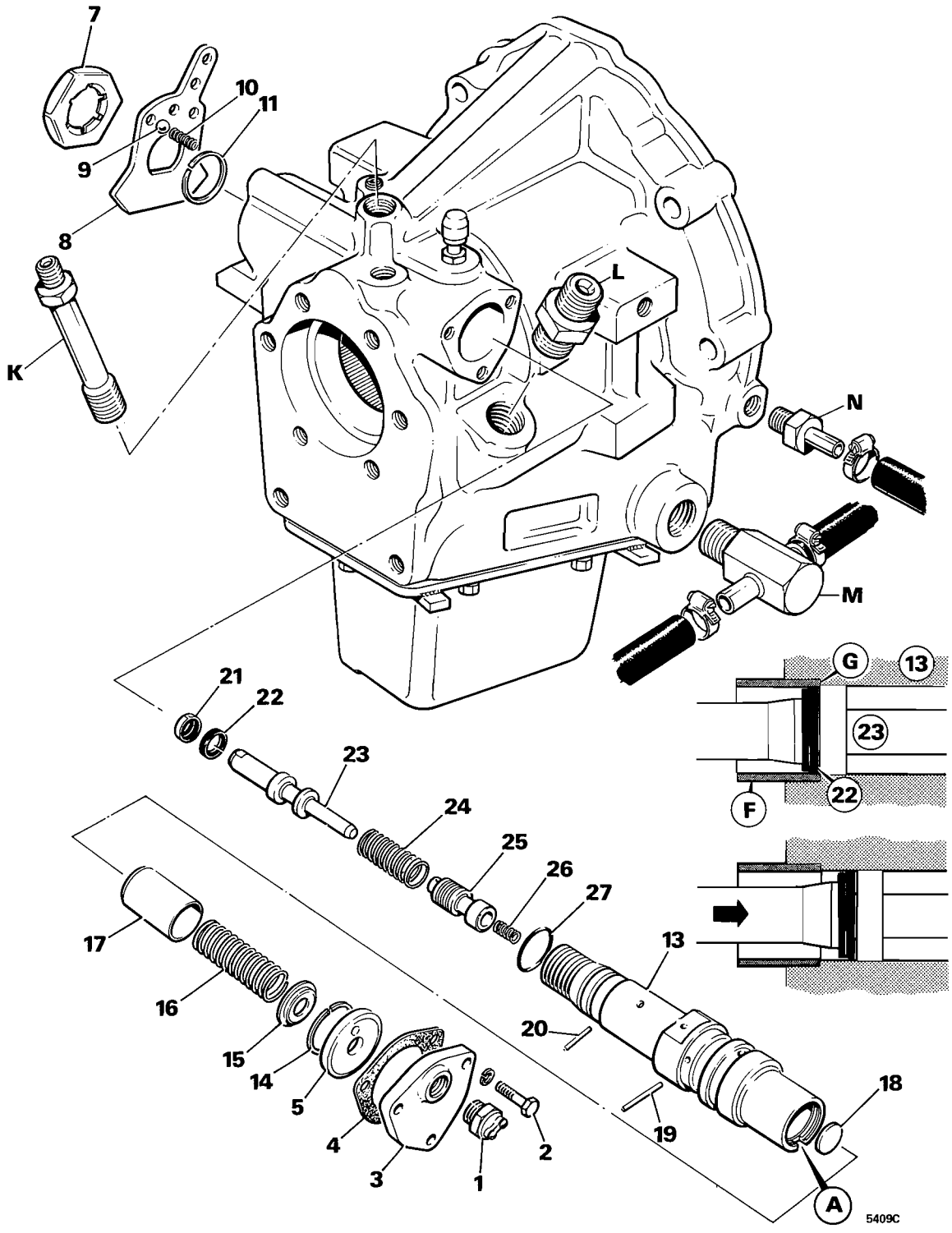
3153 B

SHUTTLE REVERSER OPERATION – REVERSE

When reverse is selected oil flows through the shuttle valve and case passages into the reverse clutch piston **C**.

The piston clamps the clutch plates together locking the ring gear to the casing. With the ring gear locked the planetary gear set pinions rotate about their own axis causing the output shaft to rotate in reverse to the input shaft.

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GEARCHANGE EXTENSION

Dismantling and Assembly

Coat both faces of gaskets **3** and **5** with Hylomar or similar jointing compound. This should also be applied to bolt threads.

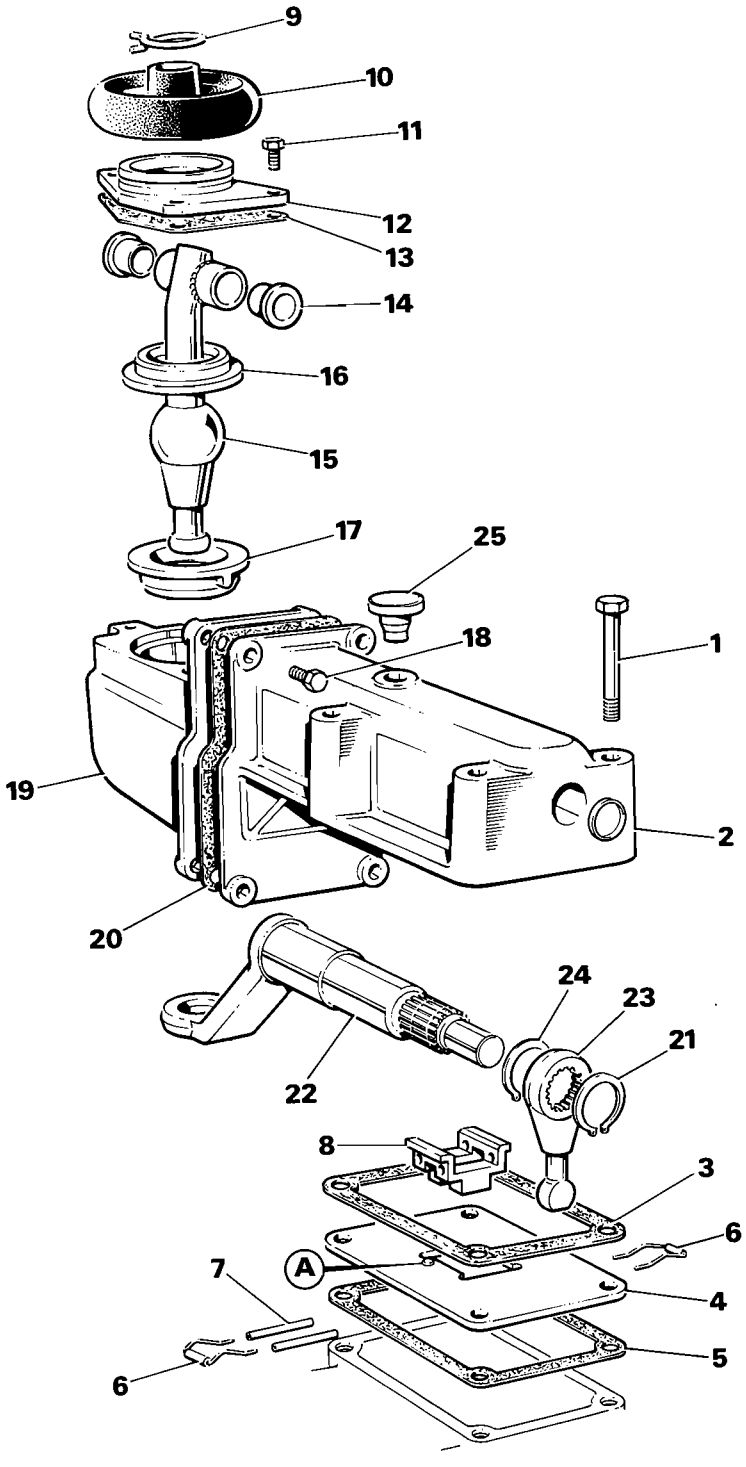
Fit plate **4** with rivets A towards item **19.**

Bolts **1, 11** and **18** are fitted with a nylon locking patch. These may be re-used providing that a torque of 2Nm. (0.2 kgf m; 17.5 lbf in) is required to overcome the patch resistance.

After fitting plate **12** check gear lever for positive, smooth operation. If necessary, adjust load on gear lever bearing cups **16** and **17** by increasing or decreasing quantity of gaskets **13.**

Torque Settings

Item	Nm	kgf m	lbf ft
1	41	4.1	30
11	28	3.0	21
18	28	3.0	21



GEARBOX
END COVER

Dismantling and Assembly

Illustration A – 525 & 525–4 to m/c no. 270750
*Illustration B – 525 & 525–4 from m/c no. 270751
Other machines

When Assembling

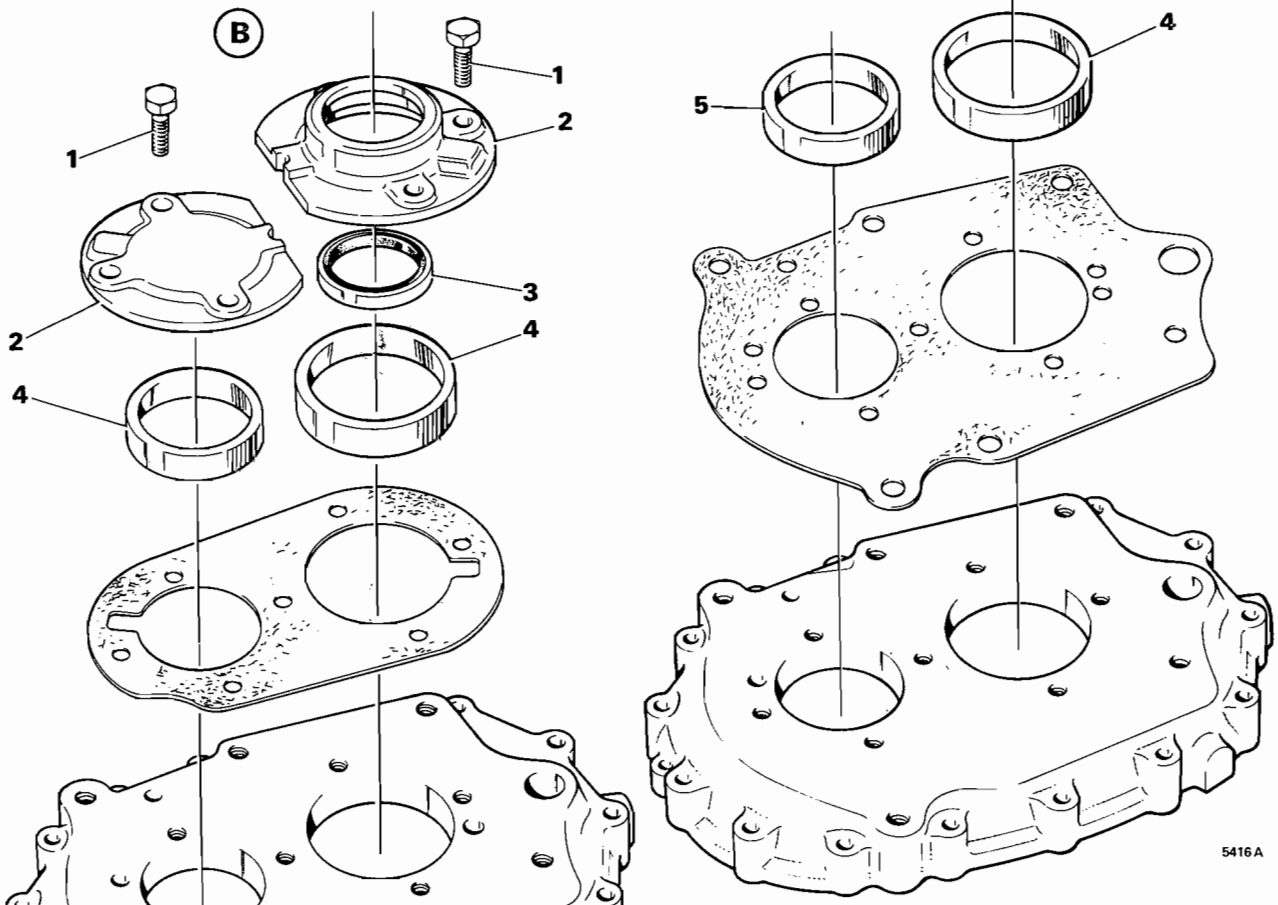
Start bearing sleeve **4** into the end cover and pull down using bolts **1** and retainer **2.**

Bolt **1** is fitted with a nylon locking patch and may be re-used providing that a torque of 2Nm. (0.2 kgf m; 17.5 lbf in) is required to overcome the patch resistance.

Coat bolt **1** with Hylomar (or similar) prior to assembly.

Torque Setting

Item	Nm	kgf m	lbf ft
1	27	2.8	20



SYNCRO SHUTTLE TRANSMISSION - FAULT FINDING

Before carrying out the checks listed, the machine should, if possible, be operated to determine the fault area and bring the systems to their normal working temperatures.

Ensure that the correct quantity and grade of oil is used and that there are no obvious leaks.

A If the transmission is noisy, start at check 1.

B If the transmission is overheating, start at check 4.

C If the transmission will not pull, start at check 12.

D If there is no drive in one or both directions, start at check 17.

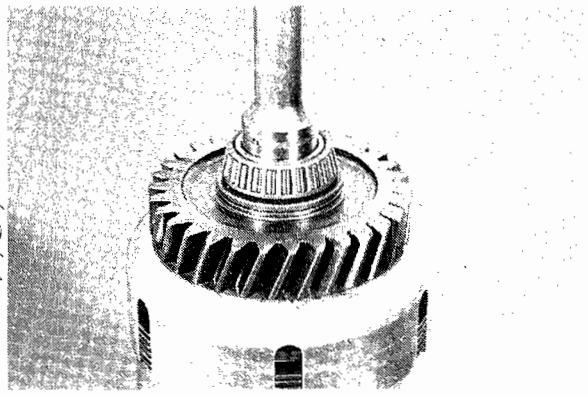
E If the transmission is jumping out of gear, start at check 29.

F If the transmission is sticking in gear, start at check 39.

G If ratios are 'crash changing', start at check 41.

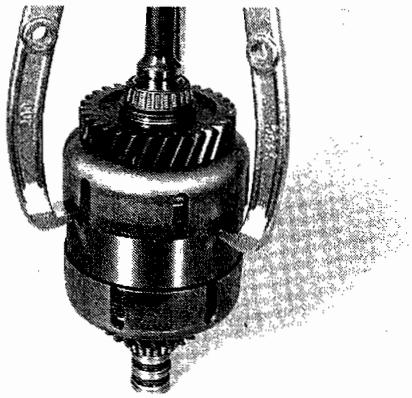
CHECK		ACTION
1	Is there noise when selecting direction?	YES: Check 3 NO: Check 2
2	Is there noise when running with direction selector in neutral and ratio selector in 1st?	YES: Check 9 NO: Check 19
3	Is there air in the hydraulic system?	YES: Continue running to expel air. NO: Check 4
4	Is the fluid level correct?	YES: Check 5 NO: Check level only when machine is cold and top-up as required.
5	Are the oil passages restricted?	YES: Clear the restriction. NO: Check 6
6	Is the suction strainer restricted?	YES: Remove and clean strainer. NO: Check 7
7	Is pump pressure as specified?	YES: Check 9 NO: Check clutch pressure maintenance valve is free to operate.
8	When flow testing pump, is output low?	YES: Renew pump. NO: Check converter sprag clutch for wear or slip.
9	Does the noise continue when direction selector is in forward or reverse?	YES: Check 10 NO: Check 11
10	Is transmission misaligned?	YES: Renew mountings and check position.
11	Are the pump bushes worn?	YES: Renew NO: Check converter for wear or cooler for restriction to flow.

JCB TRANSMISSION — DISMANTLING (cont'd.)



P1331

37 Remove piston ring seal from converter end of reverser shaft.

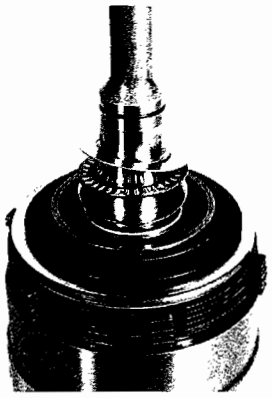


P1332

***38** Using a suitable puller, withdraw hub and bearing.

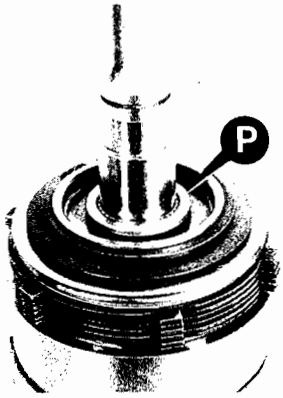
P1333

39 Gear hub showing needle roller bearing.



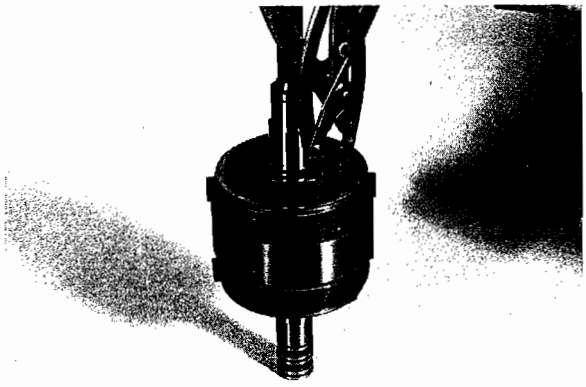
P1334

40 Remove thrust bearing.



P1335

41 Lift off spacer washer **P**.



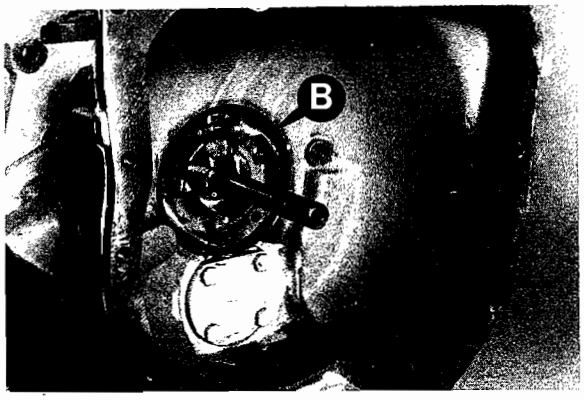
P1336

42 Remove clutch plate retaining circlip.

JCB TRANSMISSION — ASSEMBLY (cont'd.)

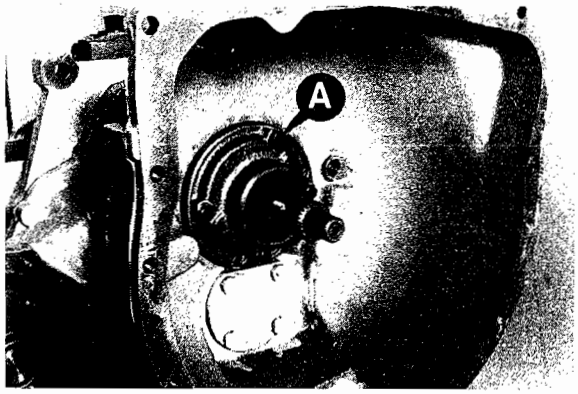
P1249

79 Fit new oil seal to pump housing.



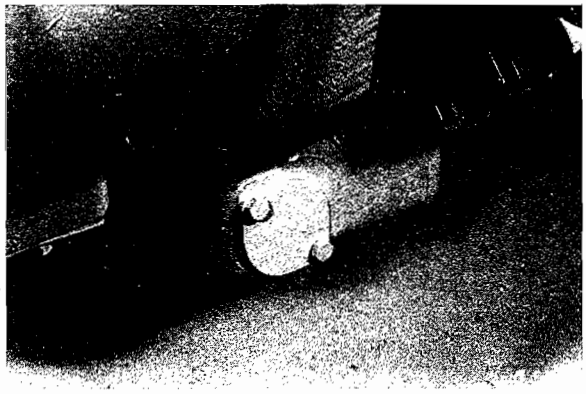
P1247

80 Place new pump sealing ring **B** in position.



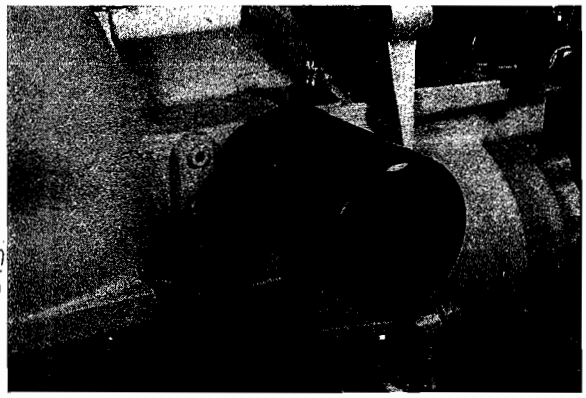
P1246

81 Fit pump taking care to align mounting holes. Apply JCB Lock and Seal to bolts **A** and, using new sealing washers, tighten to 28Nm (21 lbf.ft.).



P1388

82 Using a new gasket, fit suction strainer. Apply JCB Lock and Seal to bolts and tighten to 28Nm (21 lbf.ft.).



P1295

83 Smear seal of new filter with oil and fit hand tight only.

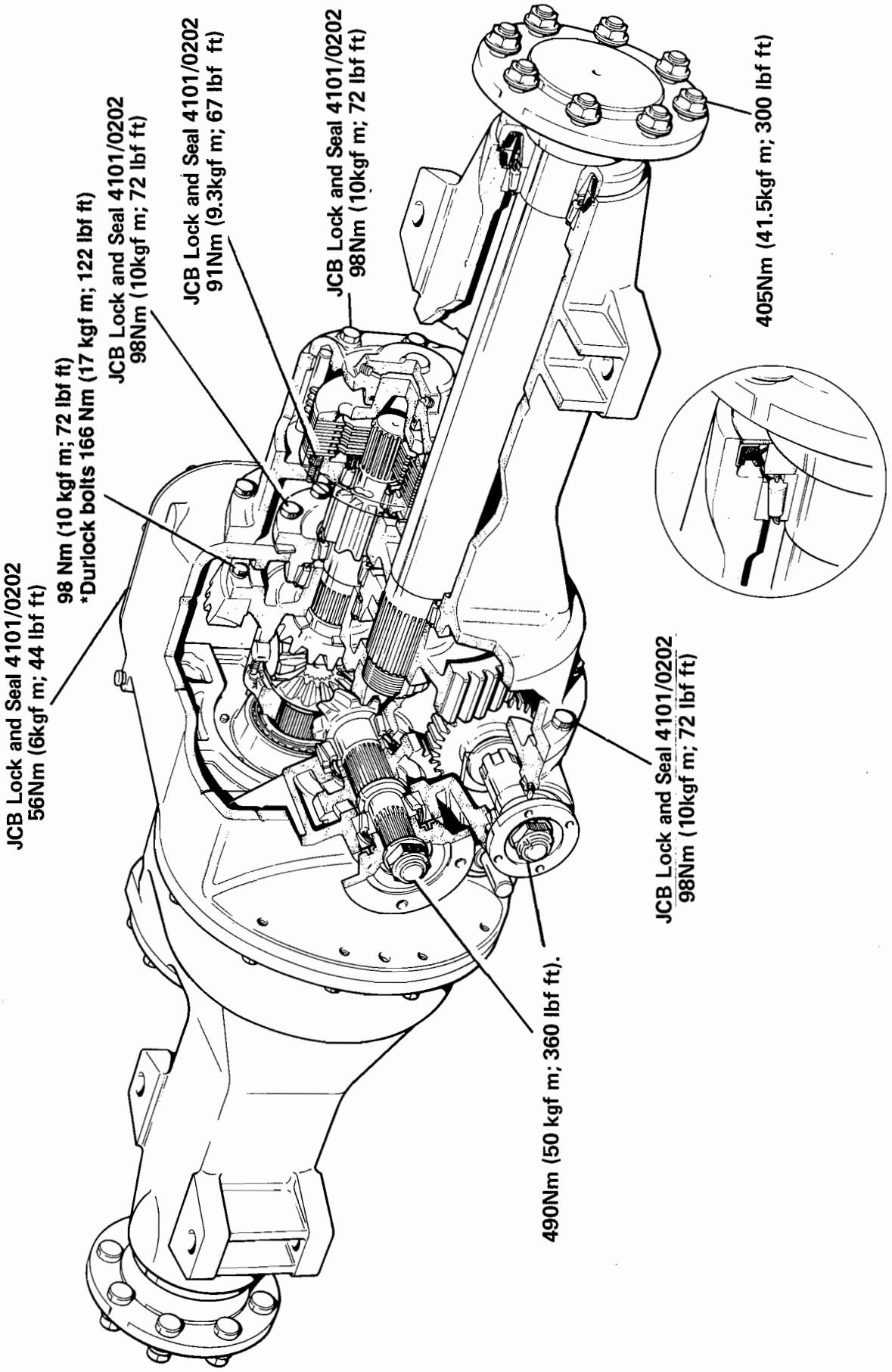
84 Install dipstick/oil filler tube as follows:

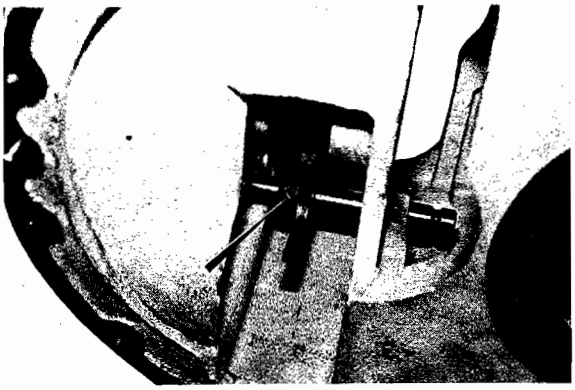
a Fit nut to tube followed by seal.

b Insert tube fully down into bore in casing. Engage nut and tighten down loosely onto seal.

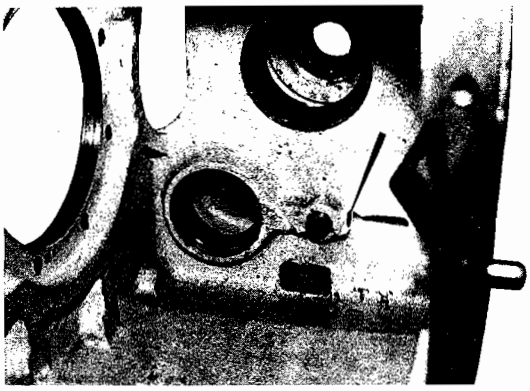
c Tighten nut fully after tube has been correctly phased.

FRONT AXLE 4WD





7. Remove roll pin holding selector fork to rail.

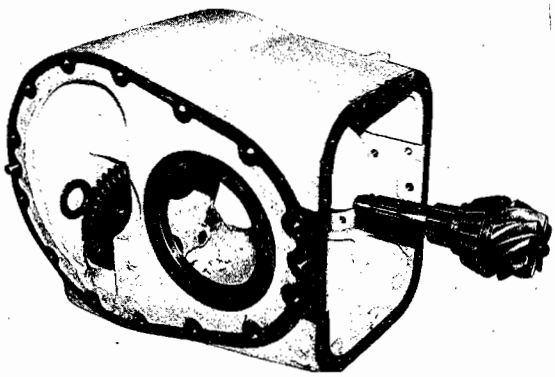


8. Collect detent ball and spring which are released as rail and selector fork are removed.

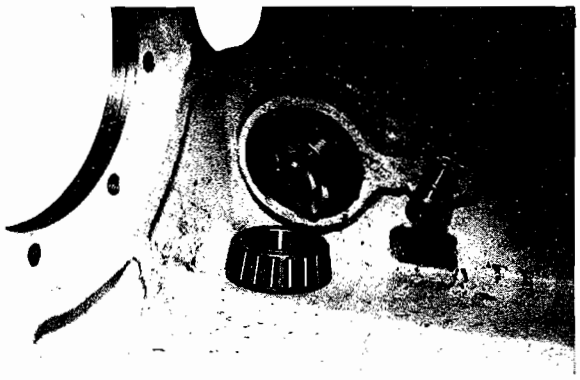
Re-assembly

Reverse the dismantling sequence with the following additions:–

9. Grease between lips of each oil seal before fitting.

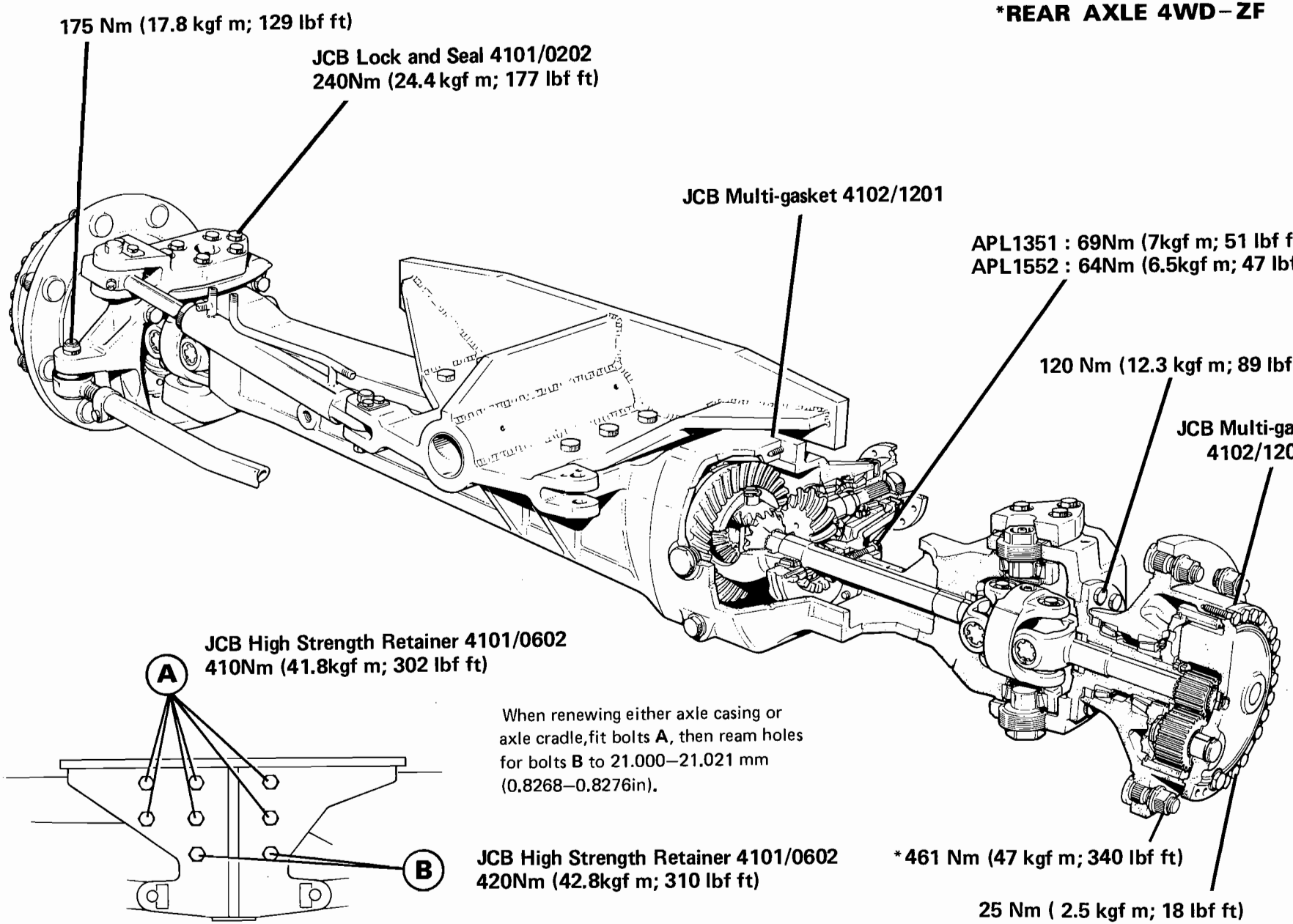


10. Fit transfer gear to pinion shaft with chamfers on teeth facing the differential. Fit selective spacer with chamfered side away from the gears. Check pre-load (see page 7/4–4).



11. Measure and note thickness of selective spacer and shims for output shaft. Install with shims next to the bearing.

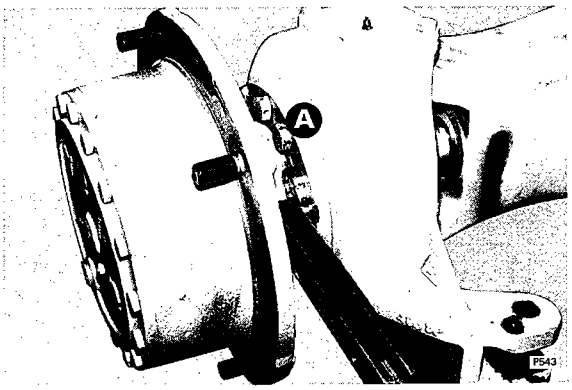
*REAR AXLE 4WD–ZF



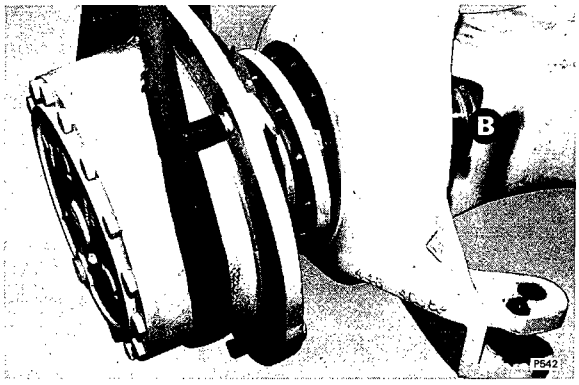
DRIVE AXLE–REAR (4 WHEEL DRIVE)

Hub Assembly–Removal and Replacement

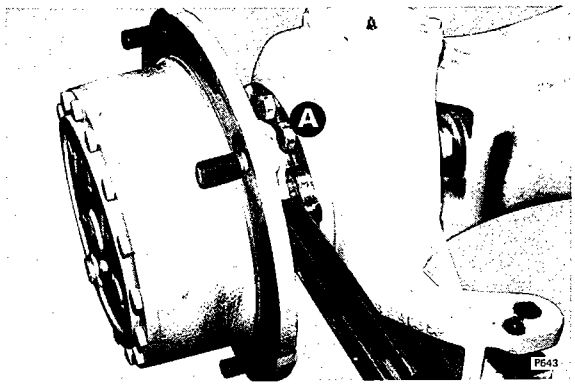
The hub and driveshaft may be removed as an assembly to gain access to the drive shaft inner oil seal and bearing or to remove the differential.



*1 Disconnect track rod and if necessary, steering rams. Support the hub and remove carrier bolts **A**.

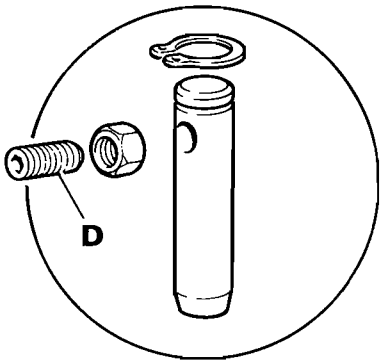


2. Withdraw hub and drive shaft assembly from axle. Prise out oil seal **B** to renew. See page 7/8–3 for removal of bearing.



3. Reverse procedure to assemble. Take care not to damage oil seal when entering splines of drive shaft. Locate drive shaft into differential gears before pushing fully home. Apply JCB Lock and Seal 4101/0202 to bolts **A** and tighten to 244 Nm (180 lbf ft) using a suitable crowfoot spanner. Reconnect track rod and steering rams, tightening pivot lock bolts to 56 Nm (40 lbf ft). Check differential oil level.
CAUTION: Do not overtighten filler/drain plugs. Maximum torque setting:

Tapered plugs	14Nm (10lbf. ft.)
Shouldered hexagon plugs	79Nm (60lbf. ft.)



4. Some axles have grub screw locking for track rod end and steer ram pivot pins. Tighten grub screws **D** to 30 Nm (21 lbf ft).

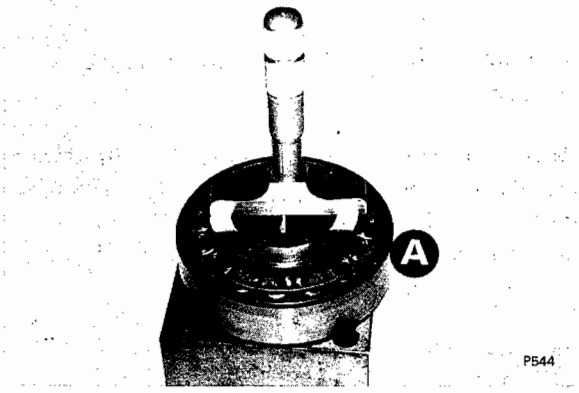
Differential–Pinion Depth Setting
(from axle No. 448/03900/00162)

1. Measure depth of inner bearing **A.**

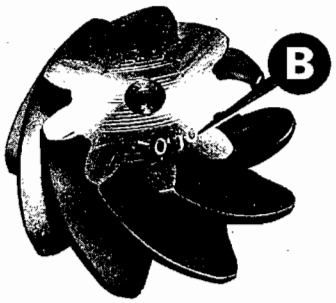
2. Note the mounting distance **B** etched on the pinion face which is in units of 0.01mm. If negative, subtract from bearing depth **A**; if positive, add to bearing depth.

3. Note dimension **C** stamped on differential housing. This will be 150 plus or minus a deviation figure. If the deviation is positive, subtract from total in paragraph 2. If deviation is negative, add to total in paragraph 2.

4. Subtract the result of paragraph 3 from the standard value of 38.00mm. This will be the thickness of shims to fit behind the pinion head.



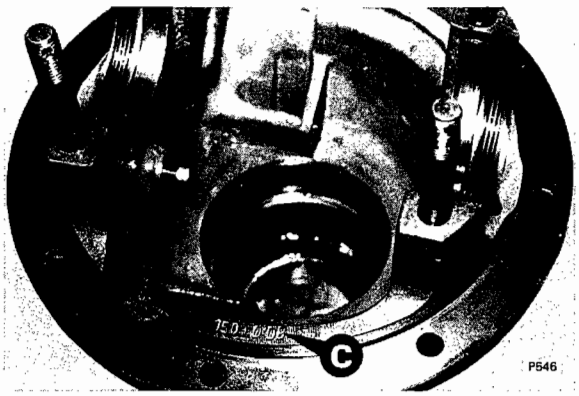
P544



P545

Example

Depth of inner bearing **A.**	35.21mm.
Mounting distance **B.**	−0.10mm.
	35.11mm.
Differential housing deviation **C.** (150 + 0.08)	−0.08mm.
	35.03mm.
Standard value	38.00mm.
Less total above	−35.03mm.
SHIM THICKNESS	2.97mm.



P546

TECHNICAL DATA

Service Brake

Type	JCB Oil-immersed Multi-plate Disc
Actuation	Hydraulic
Location	Bull Pinion Shaft
Friction Plates (5 per Brake)	
Outside Dia.	203mm. (7.992in.)
Inside Dia.	173mm. (6.811in.)
Nominal Facing Area	0.01m^2 (16.1in^2)
Hydraulic Piston Dia.	78mm. (3.07in.)

Master Cylinder

Type	*Girling CV or Frenos Iruna (two off)
Piston Diameter (each)	19.05mm. (0.75in.)
Piston Area (each)	283.5mm^2 (0.439in^2)
Pedal Ratio	6 : 1

Parking Brake

Type	Manually Adjusted Caliper
Disc Dia.	279.4mm. (11in.)

HYDRAULIC STEERING –

Right Hand Turn

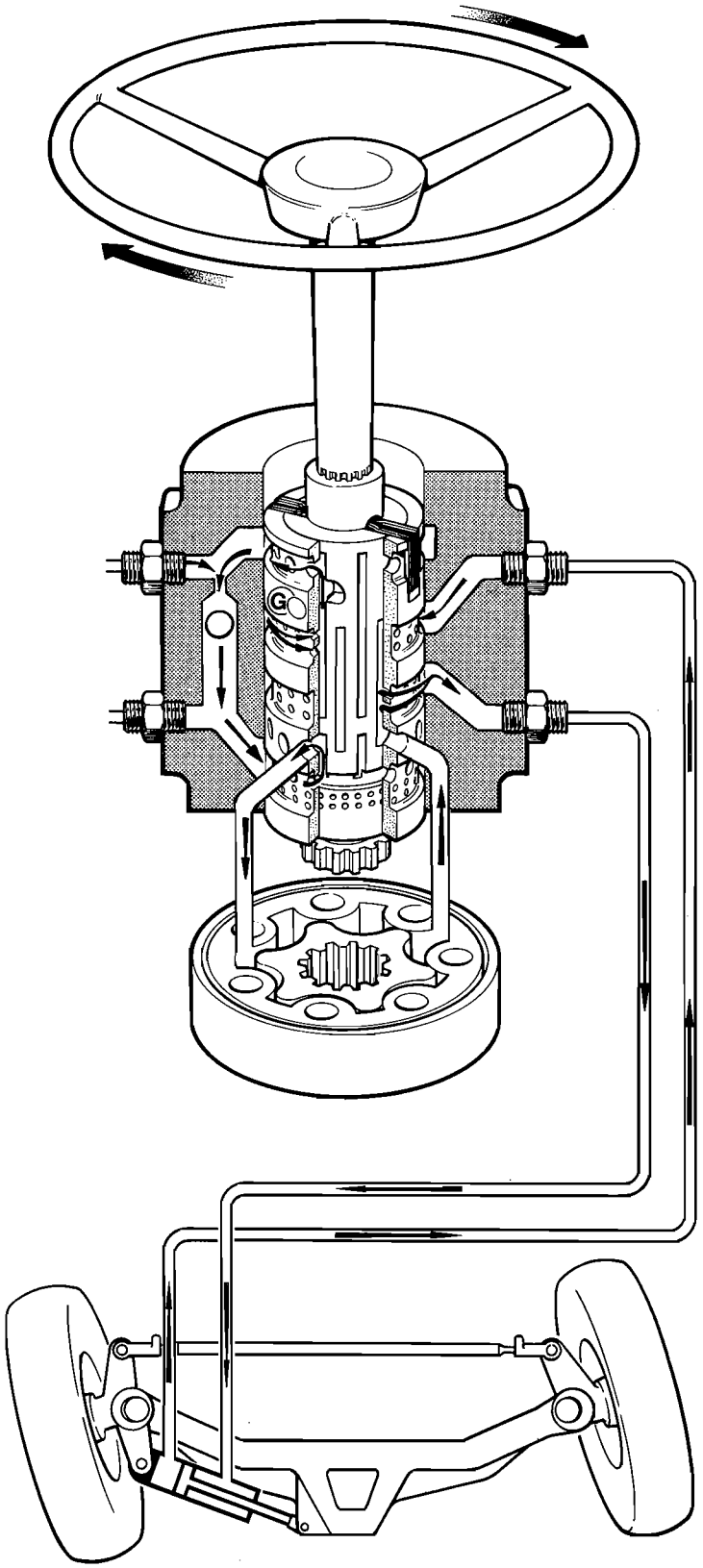
Pump inoperative

If the power pump is not supplying oil (due to either engine or pump failure), the steering unit automatically reverts to manual emergency steering.

Turning the steering wheel rotates the valve until the cross pin 'G' engages with and rotates the sleeve and rotor thereby metering oil to the steering ram under manual pressure only. As there is no oil supply from the pump; oil displaced from one side of the ram, supplemented if necessary by exhaust oil, is used to feed the other side, and flows via a ball valve normally held closed by pump pressure.

Thus a circuit is formed which is completely independent of the power pump.

The gear type power pump and the steering ram are similar to those described earlier in this book.



5–3 5–3

RAM

Dismantling and Assembly

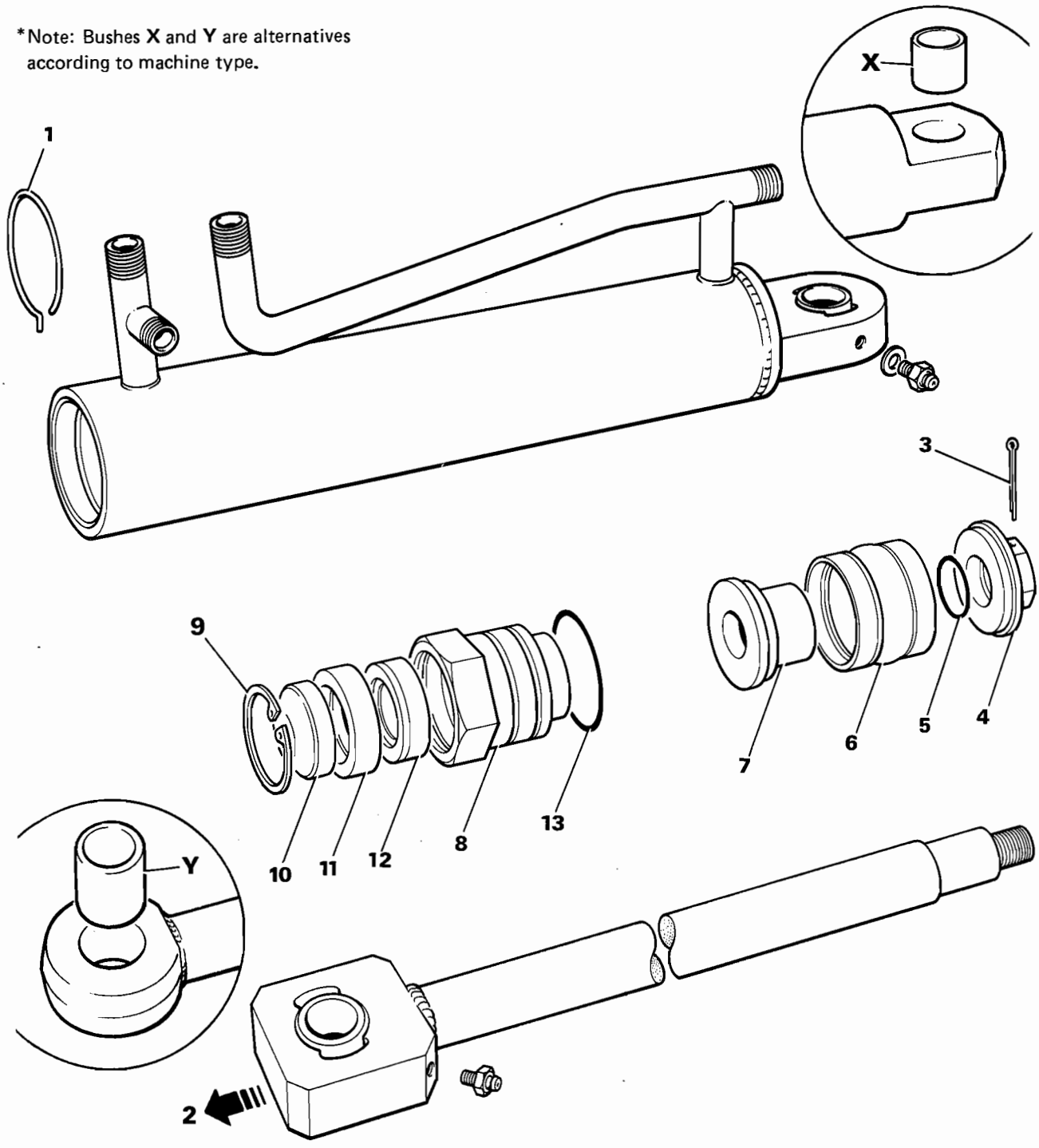
Remove and replace retaining wire **1** as shown on page 9/5–2.

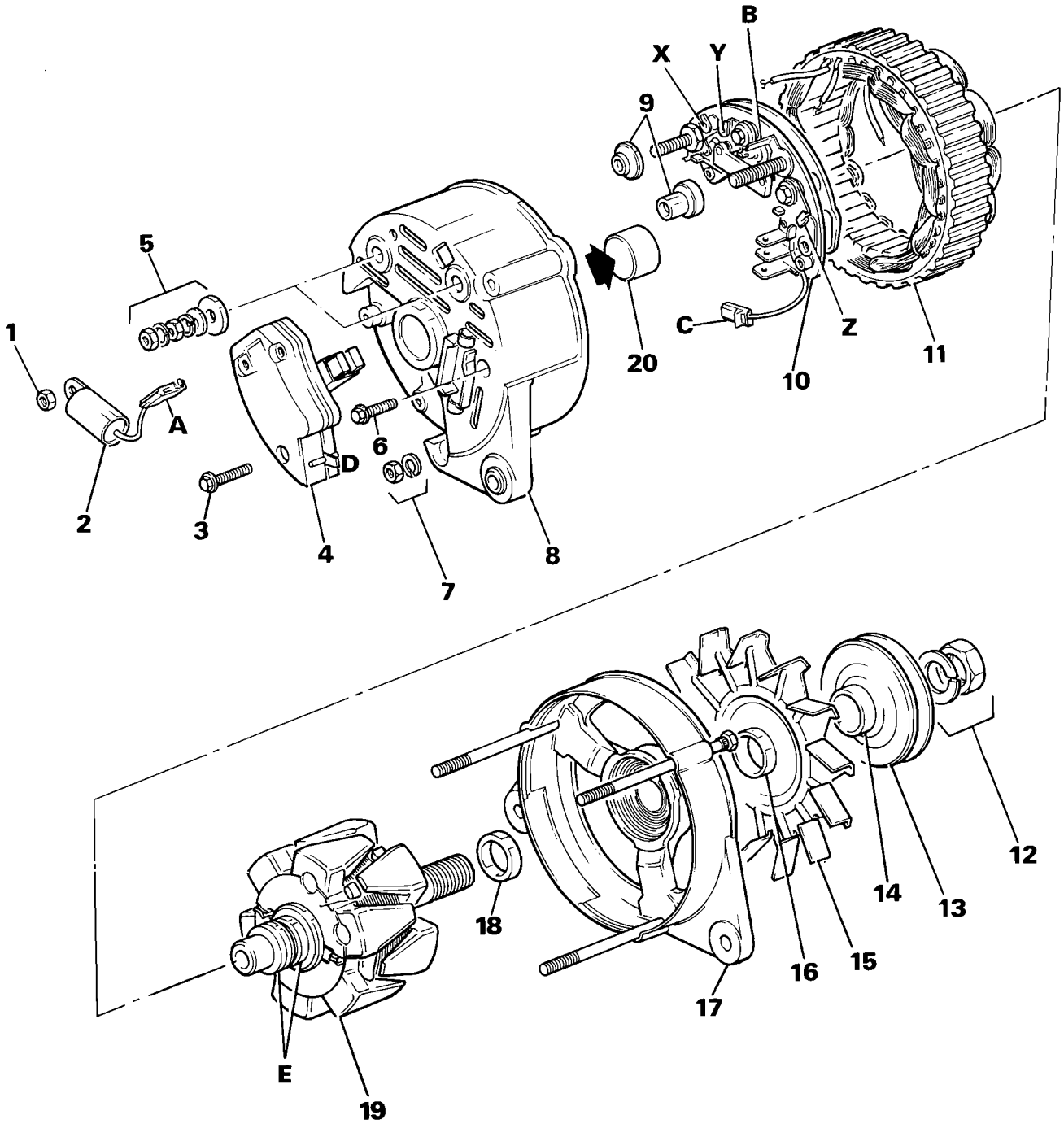
If renewing piston rod, drill hole for split pin **3** on assembly.

*Note: Bushes **X** and **Y** are alternatives according to machine type.

Torque Setting

Item	Nm	kgf m	lbf ft
4	136	13.8	100




B
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Y
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D
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C
Z
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E
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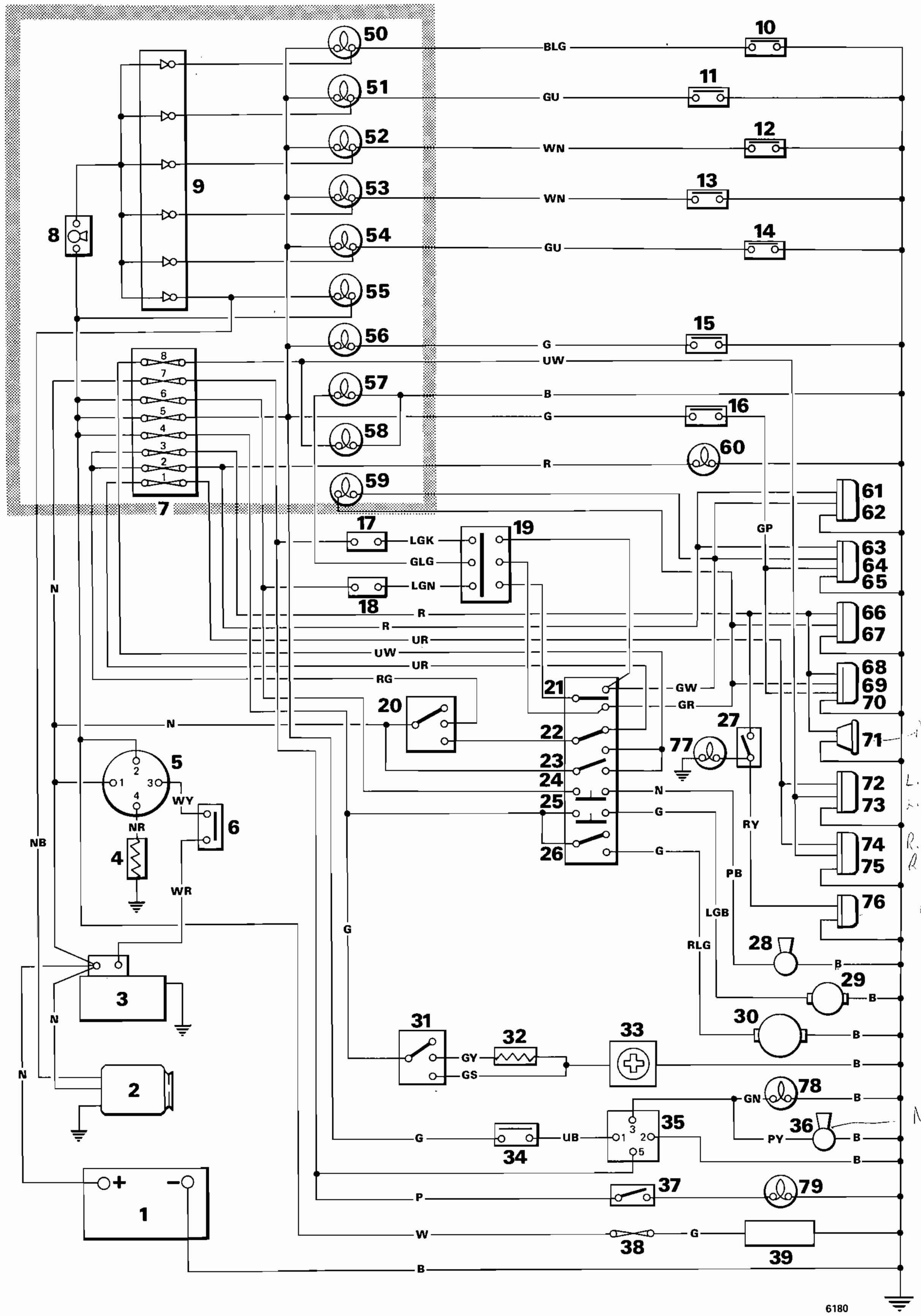
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6180

OVERLOAD WARNING SYSTEM

* Adjusting Read–out Unit using a Test Weight

Balance Setting

JCB 525–2 or 525–4 With MULTI–HITCH CARRIAGE & FORKS, SIDE TILT CARRIAGE & FORKS, or MAST CARRIAGE & FORKS.

1. With machine unladen and inner boom fully retracted, raise boom until dimension X is:–
   700mm. for multi-hitch or side tilt carriage and forks
   or 750mm. for mast carriage and forks.

2. Adjust screw **B** until light **C** just goes out.

ALL OTHER MACHINES

1. Remove any attachment fitted.

2. With machine unladen and inner boom fully retracted, raise boom to horizontal position.

3. Adjust screw **B** until light **C** just goes out.

Full Scale Setting

1. With boom fully retracted, pick up any load within following limits (refit attachment if necessary):
   520–2/4: 1300 to 2000 kg.
   520–2/4HL: 1100 to 2000 kg.
   525–2/4: 1250 to 2500 kg.
   525B–2/4: 1700 to 2500 kg.
   525B–2/4HL: 1500 to 2500 kg.
   530–2/4: 1400 to 3000 kg.
   530–2/4HL: 1500 to 2500 kg.
   530B–2/4: 2000 to 4000 kg.
   530B–2/4HL: 1000 to 3500 kg,
   540B–2/4: 2000 to 3500 kg.

WARNING: THE LOAD MUST NOT BE RAISED MORE THAN 600mm. ABOVE GROUND LEVEL.

On 530B machines the top surface of the forks should be kept precisely 500mm above the ground.

2. Slowly extend boom until machine just begins to tip forwards then lower boom to ground. Measure distance boom is extended (millimetres).

3. Refer to graph for machine concerned.
   Note: Lines **C, D** and **E** have been drawn on the graphs as examples only.

4. Find the measured extension figure on the scale and from this point read vertically (example line **C**) to the **Tipping Line AA.**

5. Read horizontally (example line **D**) to the **Safe Working Load Line BB.**

6. Read vertically (example line **E**) back to the scale and read off the Safe Load Extension Figure. (520 example : 610mm.).

7. Retract the boom to the Safe Load Extension Figure.

8. Adjust screw **F** until buzzer sounds and all warning lights flash.

9. Fully retract boom then slowly extend until buzzer sounds and all warning lights flash. Check that boom is extended to within 20mm. of the Safe Load Extension Figure.

Note: The graph for the 530HL machines shows two pairs of lines, one with the stabilisers raised and the other with the stabilisers down. Carry out the setting first with the stabilisers raised then check the setting with the stabilisers down.

GENERAL DESCRIPTION

On machines fitted with this system all the loader actions are controlled by a single lever **A** which operates an electro - hydraulic, proportional control valve block **B**, mounted on the boom pivot plate.

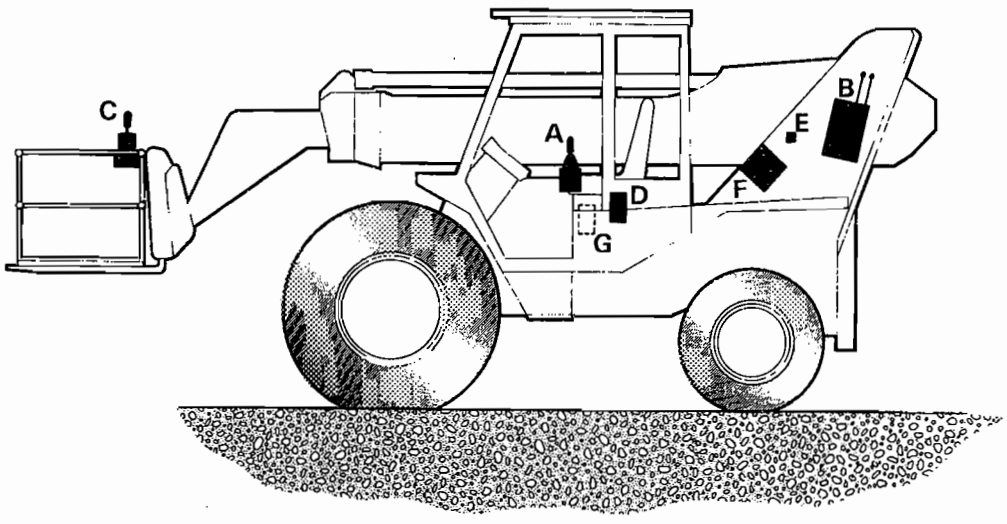
As an extra option, the loader raise/lower and extend/ retract movements (but not tilt) can also be controlled by remote levers **C** on a boom-mounted man platform. Machines with this option are also provided with a hand throttle **D**.

The speed of loader actions is proportional to the degree of lever movement (as well as engine speed). The auxiliary service, when provided, is operated by a rocker switch and does not have proportional control.

Machines with servo controls also have a modified Safe Load Indicator, which automatically prevents the loader being moved into an unstable condition. As a futher safety measure, machines with the remote facility are also provided with an emergency stop button on the man platform. This cuts off all electrical power to the system and also de-energises a dump valve **E**. When the dump valve is de-energised, the hydraulic pressure in the valve block is reduced to a level which is insufficient to operate the system. In this condition, the loader can be manually retracted and lowered by means of levers on the valve block (provided the dump valve is manually held closed).

The system electrical relays are located in a terminal box **F** (530B - HL) or **G** (525B - HL).

The valves and terminal block **F** are protected by a cover assembly which incorporates access panels for the control valve hand levers and the dump valve.



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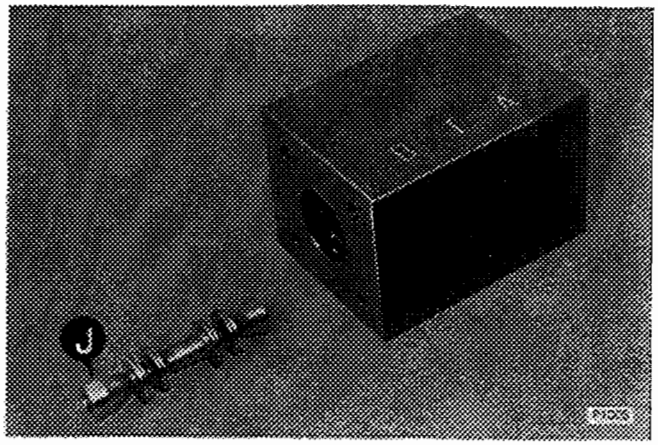
DUMP VALVE - DISMANTLING AND ASSEMBLY

Assembly



6 Reverse the dismantling sequence, ensuring that the spool is fitted with the wider land **J** towards port **B.**