

# 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**

Sample of manual. Download All 405 pages at:

<https://www.arepairmanual.com/downloads/jcb-520525530540-telescopic-handler-service-repair-manual/>

## Introduction

This publication is designed for the benefit of JCB Distributor Service Engineers who are receiving, or have received training by the JCB Technical Training Department.

It is assumed that such personnel have at least a sound knowledge of workshop practice, safety procedures and general techniques associated with the maintenance and repair of hydraulic earthmoving equipment. Details of such are therefore generally omitted from this manual, the intention being to convey only the more specialised information concerning particular aspects of the machine or component in question.

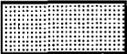
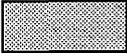
For example, renewal of oil seals, gaskets etc. and any component showing obvious wear or damage is expected as a matter of course and information on these matters is therefore only included where a specialised procedure or range of wear tolerances is required. Similarly, it is expected that components will be thoroughly cleaned and lubricated where appropriate, also that any opened hose or pipe connections will be blanked to prevent entry of dirt and excessive loss of hydraulic fluid.

For convenience the manual is compiled in sections, e.g. "Hydraulics", "Electrics" etc., but to find details of a specific component, reference should be made to the alphabetical index at the back of the book.

Illustrations showing a dismantled component are numbered as a guide to the dismantling sequence which can generally be reversed for assembly.

Torque settings quoted are given as 'mean' figures which may be varied by  $\pm 3\%$ . 'Left Hand' and 'Right Hand' are as viewed from the rear of the machine.

The following coding is used on hydraulic circuit illustrations to denote various conditions of oil pressure and flow.

- |   |  |
|---|--|
|  | 1. Neutral Circuit Pressure.   |
|  | 2. Pressure generated by the operation of a service. Depending on application, this may be anything between Neutral Circuit Pressure and MRV Operating Pressure. |
|  | 3. Pressure that is above neutral pressure but lower than that denoted by 2.   |
|  | 4. Exhaust.  |

## Contents

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**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.**

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## Colour Coding

The following colour coding, used on illustrations to denote various conditions of oil pressure and flow, is standardised throughout JCB Service Publications.



**Blue:** Neutral Circuit Pressure.



**Red:** Pressure generated by the operation of a service. Depending on application this may be anything between Neutral Circuit Pressure and M.R.V. Operating Pressure.



**Pink:** Pressure that is above Neutral Circuit Pressure but lower than that denoted by Red.



**Green:** Exhaust.



**Light Green:** Oil subjected to a partial vacuum due to a drop in pressure (cavitation).

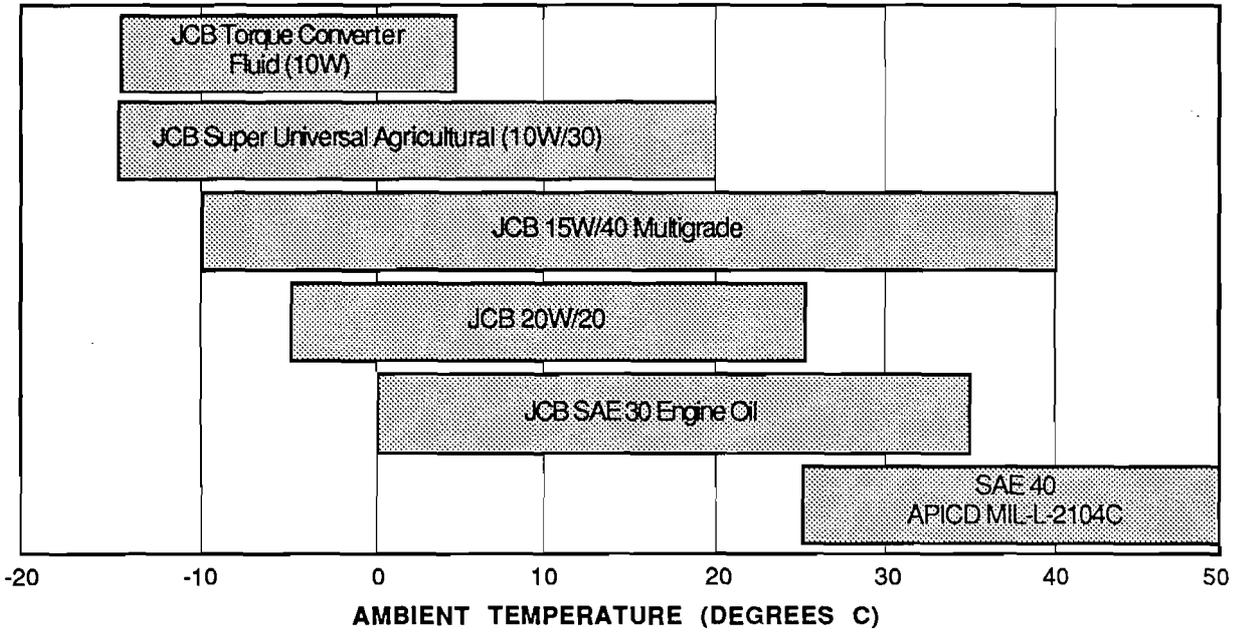


**Yellow:** Oil trapped within a chamber or line, preventing movement of components (lock-up).

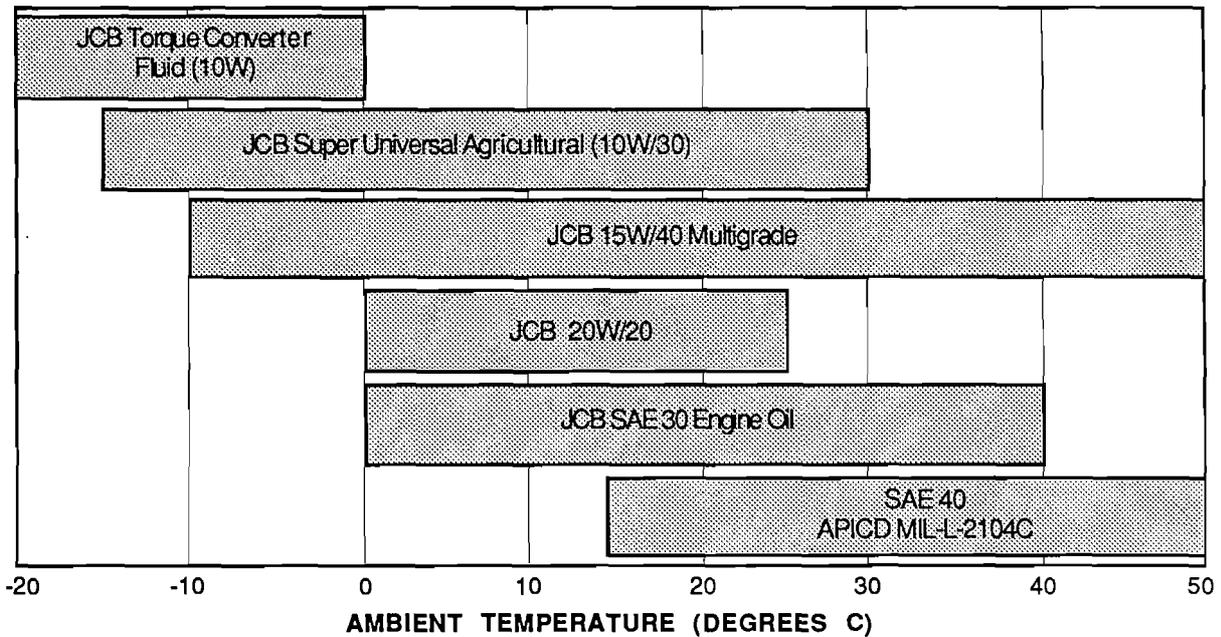
**Orange:** Oil pressure used in a controlling device (servo).

**ENGINE LUBRICATION CHART**

**LEYLAND 4/98 ENGINE**



**PERKINS 4.236 & T4236 ENGINES**



1-1A

1-1A

## LUBRICANTS &amp; CAPACITIES

\* Note: To promote thorough running-in, engines of new machines are filled at the factory with JCB 10W/30 Multi-grade oil. This oil should be drained after the first 100 hours operation and the engine filled with the appropriate recommended grade as shown in the engine lubrication chart. JCB 10W/30 Multigrade should also be used for the first 100 hours operation whenever a new or reconditioned engine is fitted to the machine. Alternatively, where a new or reconditioned engine requires protection against corrosion during prolonged storage, Mobilarna 524 may be used during the storage period and for the first 100 hours operation. It is essential that both these oils are replaced by the recommended lubricant after the first 100 hours operation.

ITEM	LUBRICANT	CAPACITY	Litres	UK gal	US gal
* ENGINE	(See separate chart)	4/98 Engine:	9.7	2.1	2.5
		4.236 Engine:	11	2.4	2.9
SHUTTLE REVERSER See Note 2	† JCB T/C Oil Type C3 (SAE 10W)	From dry:	11	2.4	2.9
GEARBOX See Note 2	† JCB 15W/40 Multigrade		2.6	0.6	0.7
* JCB TRANSMISSION See Note 2	JCB Special Transmission Fluid	From dry: 2WD	17.25	3.8	4.5
		4WD	18.25	4.0	4.8
DRIVE AXLE (FRONT)	JCB Special Gear Oil		29.5	6.5	7.8
DRIVE AXLE (REAR-4WD)					
520-4 to m/c 500281	JCB HD90 Gear Oil ††	Differential:	6.0	1.3	1.6
520M-4 to m/c 560019		Hubs (each):	0.75	0.17	0.2
525-4 to m/c 271055					
520-4 from m/c 500282	JCB HD90 Gear Oil ††	Differential:	15	3.3	4.0
520M-4 from m/c 560020		Hubs (each):	1.3	0.3	0.3
525-4 from m/c 271056					
525B-4					
530-4 from m/c 271300					
530B-4/540B-4/540BM-4					
HYDRAULIC SYSTEM					
Below 38 deg C	JCB Special Hydraulic Fluid	520/520M/525B:	87-100	19-22	23-26
		525/530:	225-228	49-51	58-60
Above 38 deg C	JCB High Performance Hydraulic Fluid	530B/540B/540BM	160-170	35-37	42-45
	Note: Capacities vary according to number of services fitted.				
* BRAKE SYSTEM	JCB Light Hydraulic Fluid				

Note 2: The JCB Transmission replaces the shuttle reverser and gearbox from the following machine serial numbers:-

JCB520: 502201  
 JCB520M: 560401  
 JCB525B: 272701  
 JCB530B: 580601  
 JCB540B: 274201

**LUBRICANTS & CAPACITIES (continued)**

ITEM	LUBRICANT	CAPACITY	Litres	UK gal	US gal
*BOOM WEAR PADS & RUNWAYS	520/525/525B/530: JCB Special Slide Lubricant or Finnigan's 'Waxoyl' (see Note 3). 530B/540B: Finnigan's 'Waxoyl'				
*FORK PIVOT PINS	JCB Special Slide Lubricant				
*SIDE TILT CARRIAGE RUBBING PADS	JCB Special Slide Lubricant				
*MAST ROLLER GUIDES	JCB Special Slide Lubricant				
MAST LEAF CHAINS	JCB Chain Lubricant				
ALL OTHER GREASE POINTS	†††JCB Special MPL Grease				
COOLANT		4/98 Engine:	13.6	3.0	3.6
		4.236 Engine:	17	3.7	4.5
FUEL		520/520M/525B:	91	20	24
		525/530:	100	22	26
		530B/540B/540BM:	100	22	26

† These oils meet the following specifications:—

- API CD
- MIL-L 2104D
- MIL-L 46152

†† JCB HD90 Gear Oil meets specifications API-GL-5 and MIL-L-2105C.

††† JCB Special MPL Grease is a lithium based no. 2 consistency grease.

\*Note 3: From the following machine serial numbers, all 520 and 525B booms are now treated with 'Waxoyl' lubricant; 520 from 502405, 520HL from 502391, 525B from 272944 and 525BHL from 272928.

\* Note 4: When renewing the hydraulic hoses which run inside the telescopic boom, these must be coated with JCB Slide Lubricant to assist the sliding action as the boom extends.

**TORQUE SETTINGS**

Use only where no torque setting is specified in the text. Values are for Dry threads and may be within three per cent of the figures stated. For lubricated threads the values should be REDUCED by one third.

Note: ALL bolts used on JCB machines are high tensile and must not be replaced by bolts of a lesser tensile specification.

**UNF Grade 'S' Bolts**

Bolt Size		Hexagon (A/F)	Torque Settings		
in.	(mm.)	in.	Nm.	kgf m	lbf ft
1/4	(6.3)	7/16	14	1.4	10
5/16	(7.9)	1/2	28	2.8	20
3/8	(9.5)	9/16	49	5.0	36
7/16	(11.1)	5/8	78	8.0	58
1/2	(12.7)	3/4	117	12.0	87
9/16	(14.3)	13/16	170	17.3	125
5/8	(15.9)	15/16	238	24.3	175
3/4	(19.0)	1.1/8	407	41.5	300
7/8	(22.2)	1.5/16	650	66.3	480
1	(25.4)	1.1/2	970	99.0	715
1.1/4	(31.7)	1.7/8	1940	198.0	1430
1.1/2	(38.1)	2.1/4	3390	345.0	2500

**Metric Grade 8.8 Bolts**

* Bolt Size		Hexagon (A/F)	Torque Settings		
(mm.)		mm.	Nm.	kgf m	lbf ft
M5	(5)	8	7	0.7	5
M6	(6)	10	12	1.2	9
M8	(8)	13	28	3.0	21
M10	(10)	17	56	5.7	42
M12	(12)	19	98	10	72
M16	(16)	24	244	25	180
M20	(20)	30	476	48	352
M24	(24)	36	822	84	607
M30	(30)	46	1633	166	1205
M36	(36)	55	2854	291	2105

**SERVICE SCHEDULE**

Check		Every 10 Hours	Every 50 Hours	Every 100 Hours	Every 250 Hours	Every 500 Hours	Every 1000 Hours	Every 2000 Hours
Hydraulic fluid level	1	■	■	□■	■	■	■	
Hydraulic system for leaks	2	■	■	□■	■	■	■	■
Condition of ram piston rods	4			□■	■	■	■	■
Pump drive	5			□■	■	■	■	■
Operation of all services:—	6							
—Boom lift	7	■	■	□■	■	■	■	■
—Boom extend	8	■	■	□■	■	■	■	■
—Fork tilt	9	■	■	□■	■	■	■	■
—Optional Attachments	10	■	■	□■	■	■	■	■
—Steering	11	■	■	□■	■	■	■	■
Operation of hose burst check valves	12			□			■	■
* M.R.V. pressure	13					■	■	■
* A.R.V. pressure	14					■	■	■
* Steering relief pressure	15					■	■	■
Hoses/pipework for chafing/damage	16			□■	■	■	■	■
Tyre pressures and condition	21	■	■	□■	■	■	■	■
Tightness of wheel nuts	22	■	■	□■	■	■	■	■
Axle oil level	23		■	□■	■	■		
Shuttle Reverser/Transmission oil level	24	■	■	□■	■	■		
Gearbox oil (not JCB Transmission)	25		■	□■	■	■		
Operation of transmission	26	■	■	□■	■	■	■	■
* Clutch oil pressures	27			□		■	■	■
* Torque Converter Main Line Pressure	28			□		■	■	■
Brake reservoir contents	31	■	■	□■	■	■	■	■
Parking brake adjustment	32					■	■	■
Footbrake operation	33	■	■	□■	■	■	■	■
Parking brake operation	34	■	■	□■	■	■	■	■
Wheel alignment	41			□		■	■	■
Wheel bearings	42			□		■	■	■
King pins and bushes	43			□		■	■	■
Axle beam clearance	44			□		■	■	■
Pivot pins and bushes	46					■	■	■
Wear pads and boom runways	47			□	■	■	■	■
Optional mast leaf chains	48			□			■	■

□ First 100 hours or one month whichever occurs sooner

■ Routine Service

**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 4.236 LD & LH 4.236 LJ to Eng. no. UO27774M only	58			□				
* Valve clearance and lubrication -4/98 4.236 LD & LH 4.236 LJ to Eng. no. UO27774M only	59			□		■	■	■
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			□ ■	■	■	■	■
<b>Change</b>								
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			□			■	■

**SERVICE SCHEDULE**

**Change**

Drive Axle oil – front 89

Drive Axle oil - rear 90

**Clean**

Battery terminals 91

Air filter dust valve 92

Fuel lift pump 93

Injectors and test –4/98  
–4.236 94

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**Grease**

Steer axle universal joints (4WD only) 99

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525 up to m/c 270937) 105

Pump drive shaft (if fitted) 106

Propshaft – gearbox to front axle 107

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Boom wear pad runways (Waxoyl) 114

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Optional Attachments: – 116

–Mast lift ram 117

–Mast pulleys 118

–Mast leaf chains 119

–Mast roller guides 120

–Side tilt carriage main pivot 121

–Side tilt carriage rubbing pads 122

–Side tilt carriage ram 123

–Multi-hitch carrier rams 124

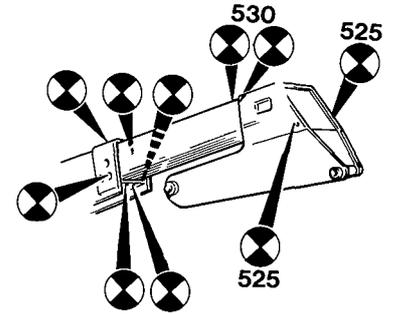
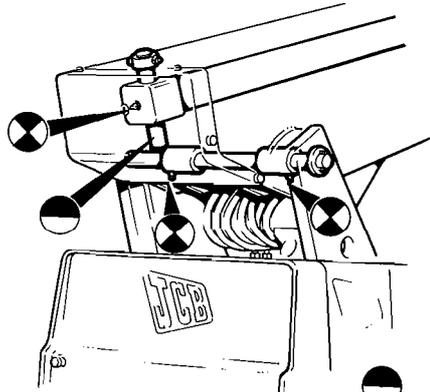
–Multi-hitch carrier pick-up arms 125

	Every 10 Hours	Every 50 Hours	Every 100 Hours	Every 200 Hours	Every 400 Hours	Every 800 Hours	Every 1600 Hours
89						■	■
90						■	■
91			■	■	■	■	■
92						■	■
93					■	■	■
94					■	■	■
95		■	■	■	■	■	■
96		■	■	■	■	■	■
99	■	■	■	■	■	■	■
100	■	■	■	■	■	■	■
101	■	■	■	■	■	■	■
102	■	■	■	■	■	■	■
103	■	■	■	■	■	■	■
104	■	■	■	■	■	■	■
105						■	■
106			■	■	■	■	■
107		■	■	■	■	■	■
108	■	■	■	■	■	■	■
109			■	■	■	■	■
110							■
111	■	■	■	■	■	■	■
112	■	■	■	■	■	■	■
113				■	■	■	■
114						■	■
115					■		■
116							
117		■	■	■	■	■	■
118							■
119			■	■	■	■	■
120			■	■	■	■	■
121	■	■	■	■	■	■	■
122		■	■	■	■	■	■
123						■	■
124		■	■	■	■	■	■
125		■	■	■	■	■	■

**GREASING LOADER UNIT**

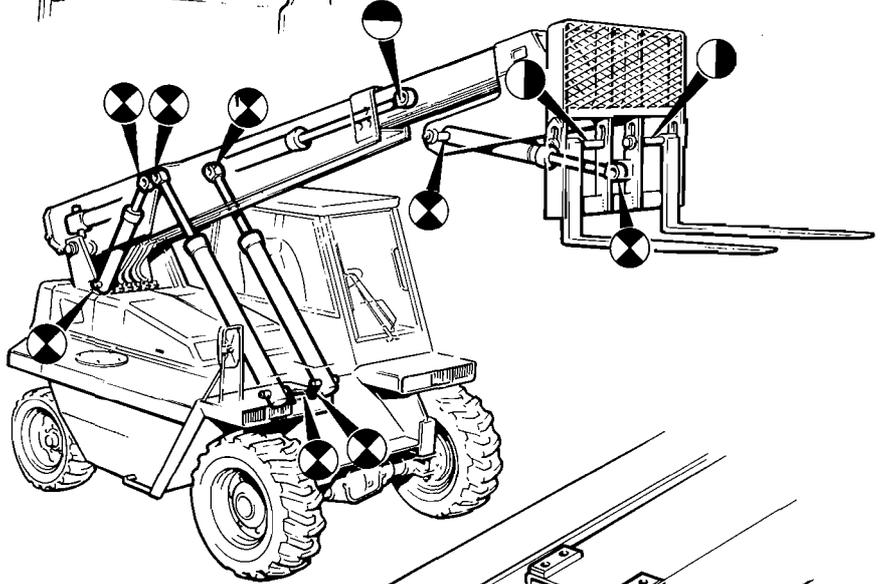
**Every 10 Hours**

Grease all pivot pins.  
Grease boom wear pads using 'JCB slide lubricant' and the grease gun provided. Ensure lubricant is evenly distributed by extending boom to four different positions and apply 3 shots of grease to all nipples.



**Every 100 Hours**

Brush 'JCB slide lubricant' on fork pins.

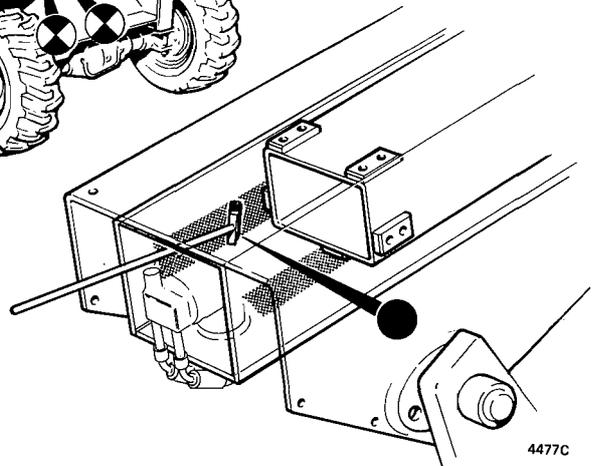


**\*Every 250 Hours**

Extend boom, remove rear cover and grease the lower wear pad runways using the recommended lubricant and 'fitch' brush.

**\*Every 2000 Hours**

Remove both extension ram pivot pins, clean and re-pack with recommended lubricant.



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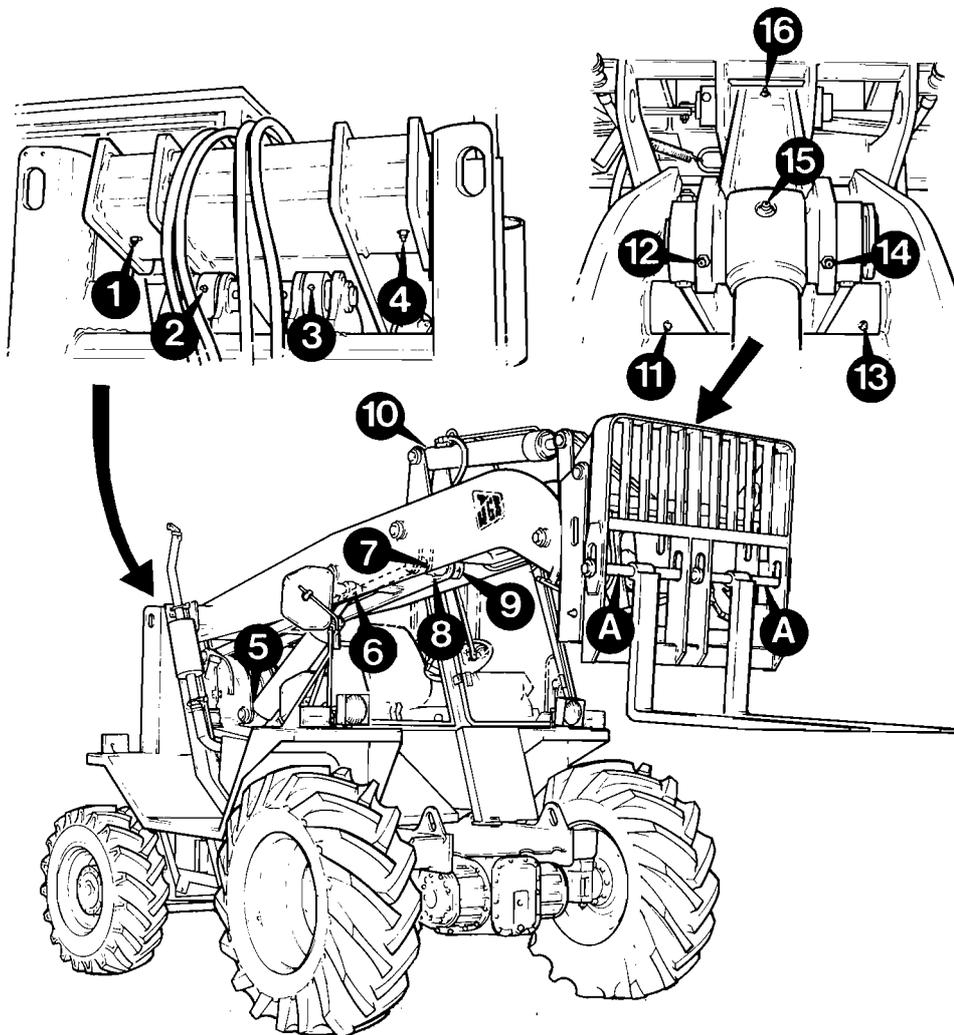
**GREASING LOADER UNIT - 520M**

**Every 10 Hours**

Grease pivot points 1 to 16.

**Every 100 Hours**

Brush JCB Slide Lubricant on fork pins A.



092460

**GREASE LOADER UNIT - 520, 520 HL, 525B and 525B HL****Every 10 Hours**

Grease pivots 1 to 9.

Grease boom wear pads using JCB Slide Lubricant and grease gun provided (see Note). With boom retracted apply 3 shots of grease to nipples on wear pads. Extend boom 800mm (32in) and apply a further 3 shots of grease to the wear pad nipples.

**Every 250 Hours**

Extend boom, remove rear cover and grease lower wear pad runways using JCB Slide Lubricant and 'fitch' brush.

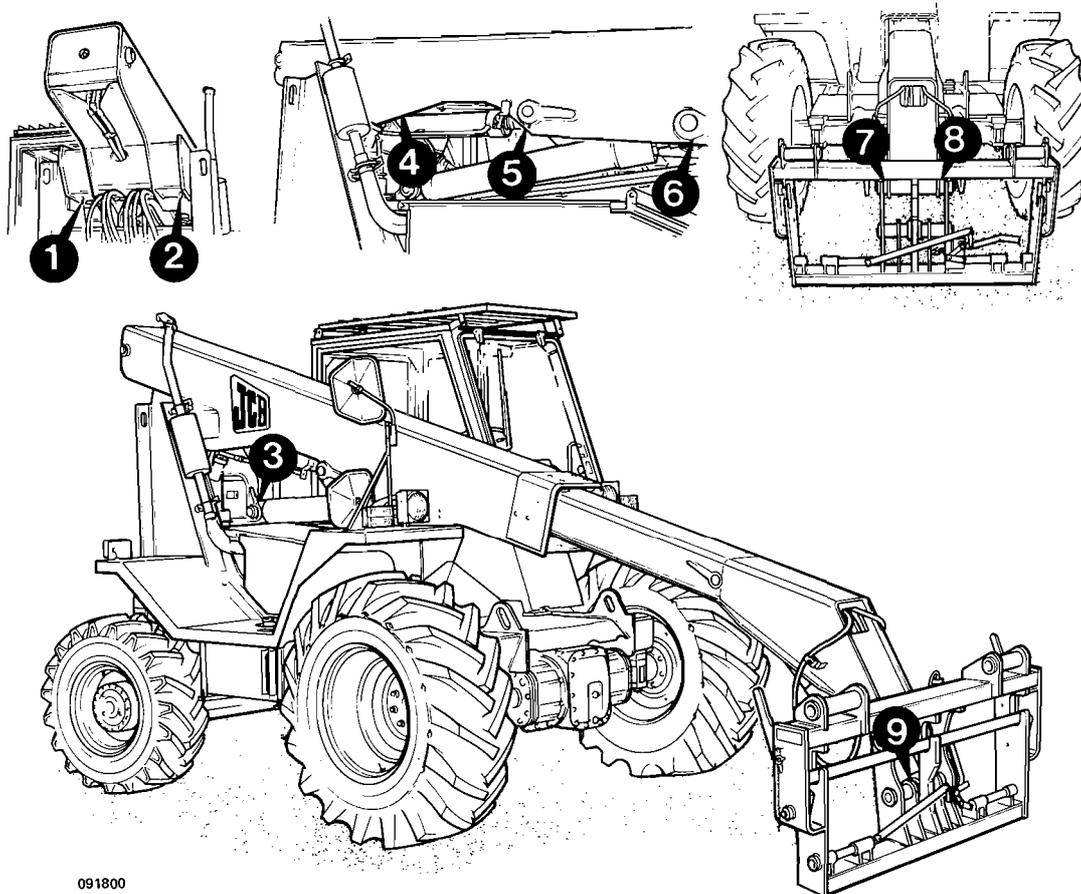
**Every 2000 Hours**

Remove both extension ram pivot pins, clean and re-pack with recommended lubricant.

**Note:** From the following machine serial numbers, all telescopic booms are treated with 'Waxoyl' lubricant; 520 from 502405, 520HL from 502391, 525B from 272944 and 525B HL from 272928.

With the introduction of 'Waxoyl' the boom lubrication period is extended to 1000 hours or 12 months (whichever comes first) when a re-application is required as detailed for 530B and 540B machines.

'Waxoyl' may be used in place of Slide Lubricant on earlier machines provided that boom is thoroughly steam cleaned first and all traces of Slide Lubricant removed. Allow to dry before applying 'Waxoyl'. Wear pads should be replaced or thoroughly cleaned.



091800

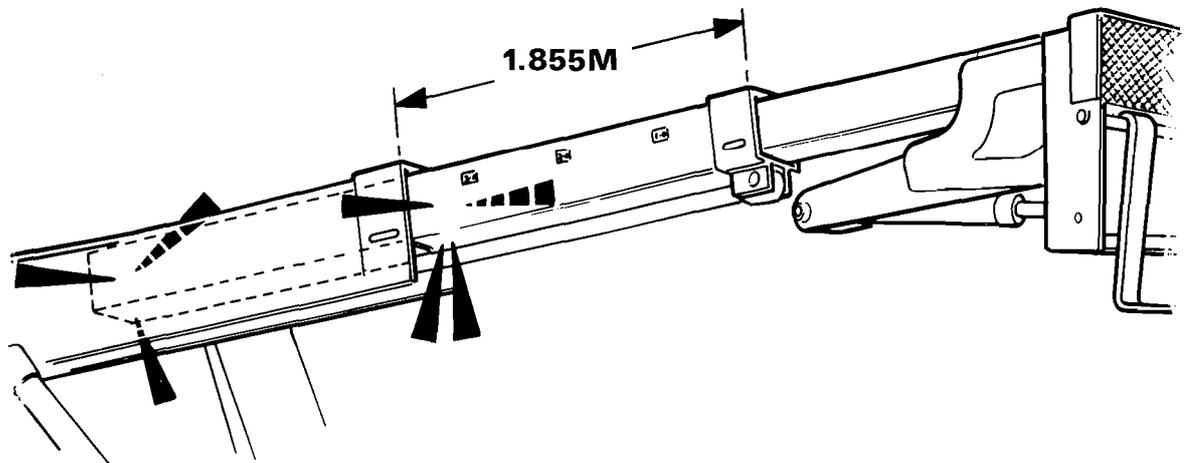
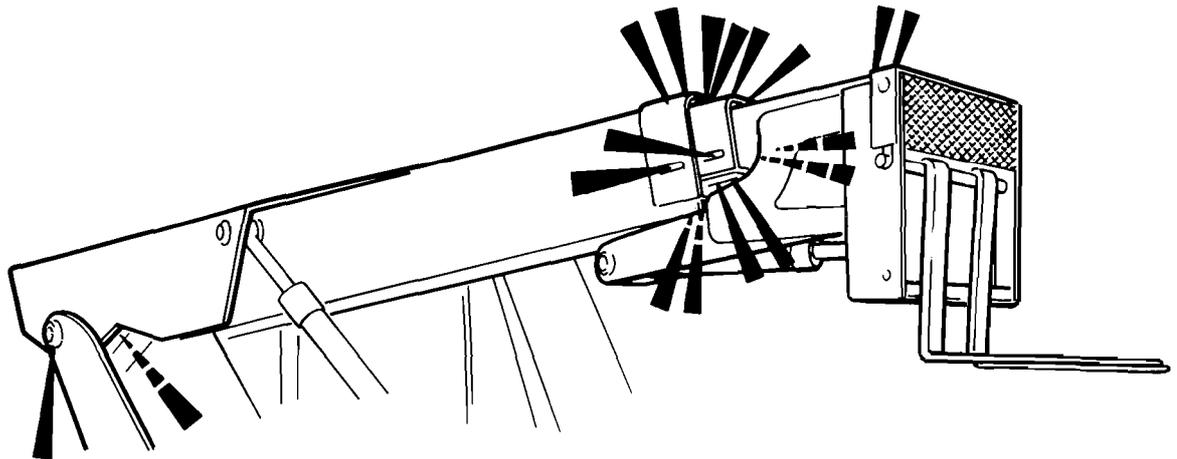


**GREASING LOADER UNIT****530HL TELESCOPIC BOOM****Every 10 Hours**

Grease boom wear pads using 'JCB Slide Lubricant' and the grease gun provided. Apply 3 shots of grease to points shown in upper illustration.

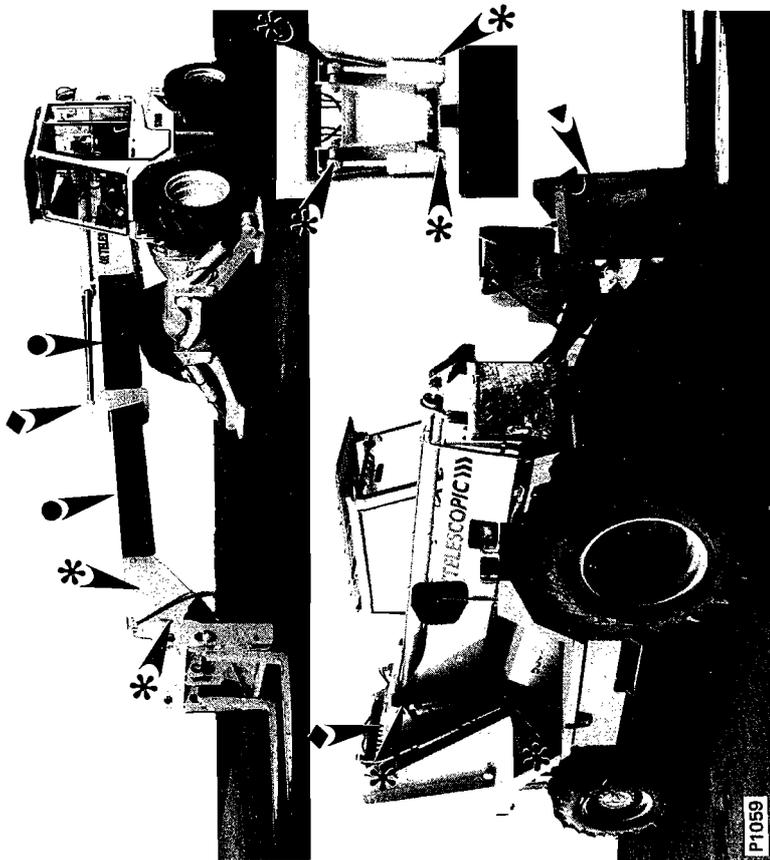
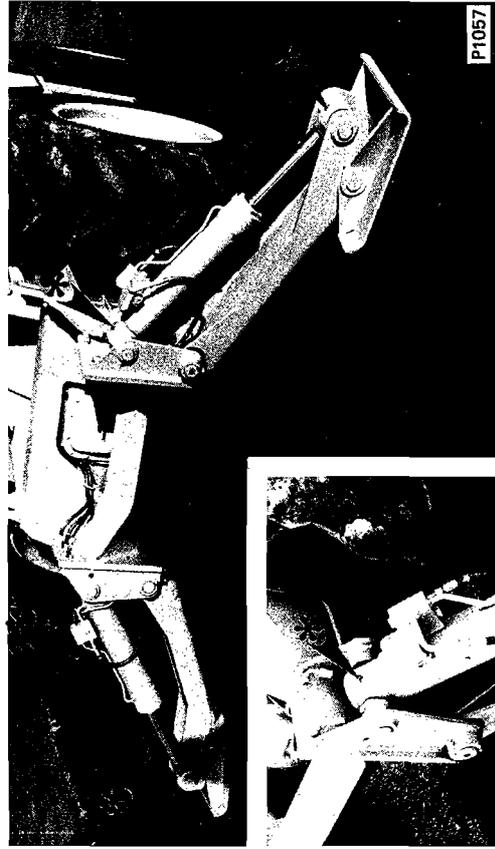
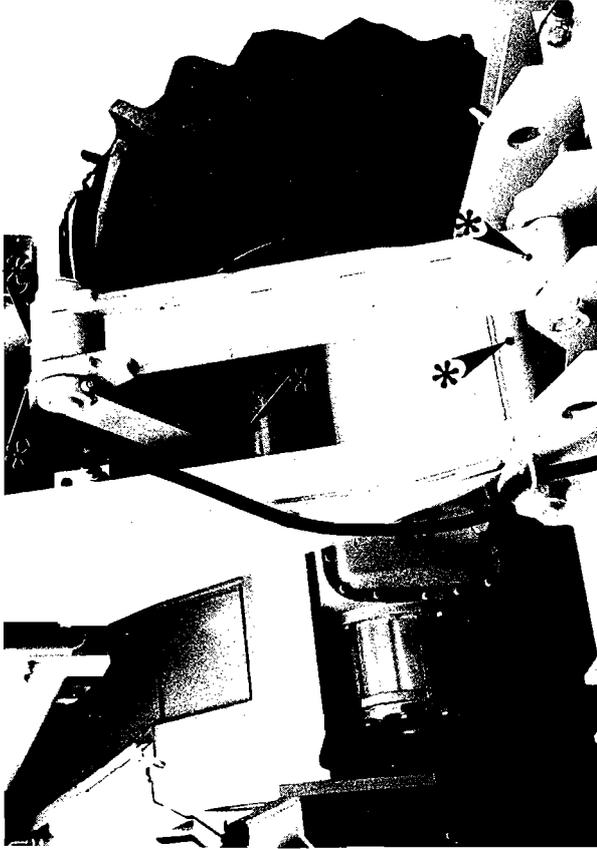
Extend boom to dimension shown and apply grease to points shown in lower illustration.

Refer to page 1/3-1 for all other grease points.



GREASING LOADER UNIT -530B & 540B

- \* Grease every 10 Hours
  - ◆ Grease every 50 Hours
  - ▼ Every 100 Hours brush 'Waxoyl' on fork pins.
  - \*Every 1000 Hours remove both extension ram pivot pins, clean and repack with recommended lubricant.
- \* Clean off boom and re-coat all sliding surfaces with 'Waxoyl'.



**GREASING-PROPSHAFTS**

**Every 50 hours**

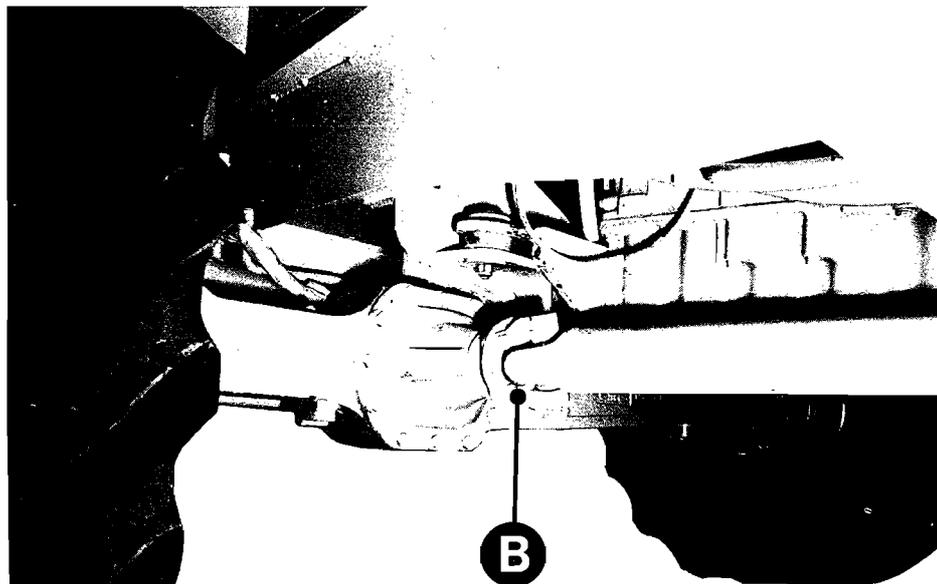
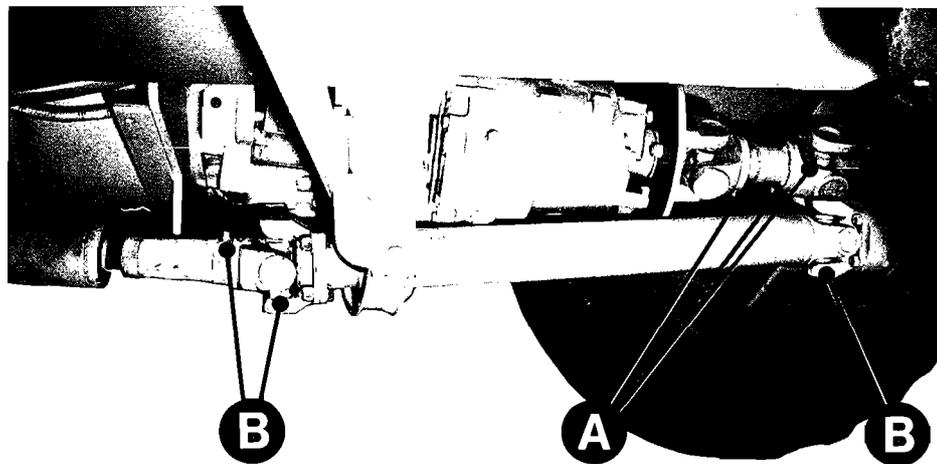
Grease propshaft connecting gearbox and front axle **A**.

\* Grease 4 wheel-drive propshaft **B**.

**Every 100 hours**

Grease pump drive shaft (not shown)

Note: Some machines have either sealed or rigid pump drive shafts which do not require greasing.

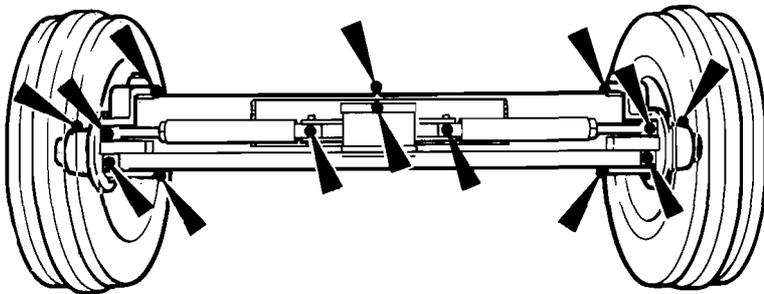
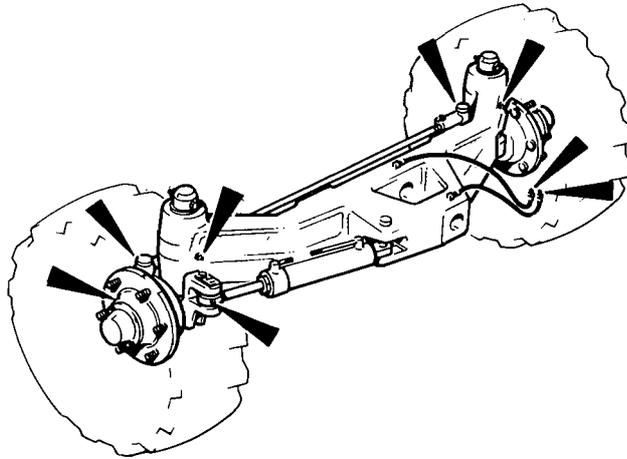


**GREASING REAR AXLE**

**Every 10 Hours**

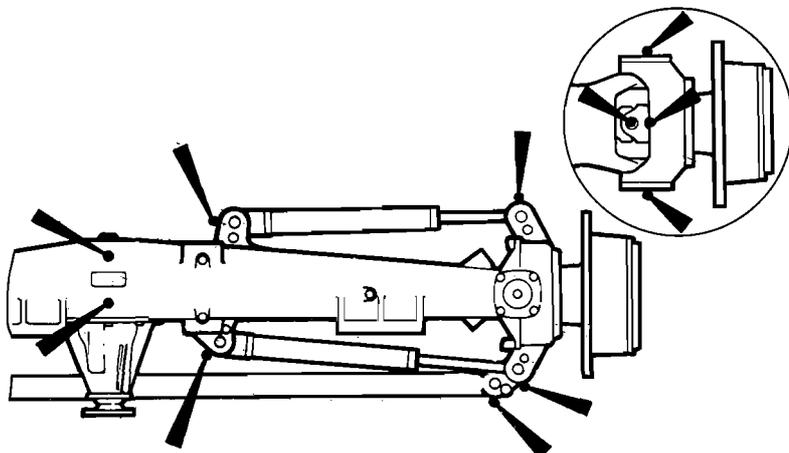
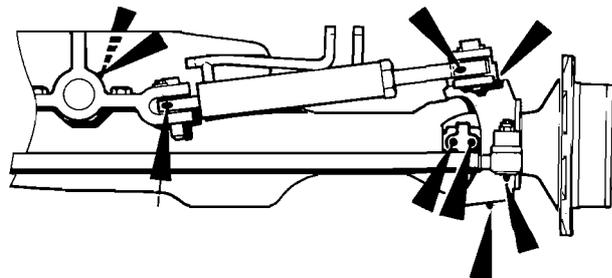
Grease all pivot pins.

**525-2 up to m/c 270937**



**525-2 from m/c 270938  
& all other 2WD machines**

**4WD machines fitted  
with ZF axle**



**4WD machines fitted  
with JCB axle**

1-1

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

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 <sup>2</sup>	lbf/in <sup>2</sup>
Main Relief Valve (M.R.V.)	221	225	3200
Auxiliary Relief Valves (A.R.V.'s)			(525B North America— 3500 lbf/in <sup>2</sup> )
—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 <sup>2</sup> 15 lbf/in <sup>2</sup>
Suction Strainer	142 micron (0.0056in.)

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

**TECHNICAL DATA**  
**(JCB 520M-2 & 520M-4)**

**\*Pump (Except North America)**

Type

Flow at max. engine rev/min.

—at zero pressure

—at system pressure

**Hamworthy**

PAA1907, gear type

62 litres/min (13.6 UK gal/min)

57 litres/min (12.6 UK gal/min)

**Sundstrand**

SP3/230/40L, gear type

88 litres/min (19.4 UK gal/min)

85 litres/min (18.7 UK gal/min)

**\*Pump (North America)**

Type

Flow at max. engine rev/min.

—at zero pressure

—at system pressure

**Hamworthy**

PA 1909, gear type

83 litres/min (22.0 US gal/min)

77 litres/min (20.4 US gal/min)

**Sundstrand**

SP3/230/40L, gear type

88 litres/min (23.3 US gal/min)

85 litres/min (22.5 US gal/min)

**\*Control Valve**

Type

Services Operated

—Spool 1

—Spool 2

—Spools 3, 4 and 5

Parallel Service with double acting spools.

Boom raise and lower (with float)

Carriage tilt

Optional attachment services

**Relief Valve Operating Pressures**

	bar	kgf/cm <sup>2</sup>	lbf/in <sup>2</sup>
Main Relief Valve (M.R.V.)	221	225	3200
Auxiliary Relief Valves (A.R.V.'s)			
—Carriage Tilt Forwards (Head Side)	145	148	2100
—Carriage Tilt Backwards (Rod Side)	221	225	3200
—Mast Ram Spool Port A (Bottom)	17	18	250
—Mast Ram Spool Port B (Top)	179	183	2600
—Hydraulic Tow Hitch Raise (Rod Side)	172	176	2500
—Hydraulic Tow Hitch Lower (Head Side)	103	105	1500
—Other Optional Attachments	145	148	2100

**Rams**

	Bore		Rod Dia.		Stroke	
	mm.	in.	mm.	in.	mm.	in.
Boom Lift	120	4.72	65	2.56	660	26
Carriage Tilt	100	3.93	60	2.36	654	25.75

**Filtration**

Type

Filtration Size

Relief Valve Setting

Suction Strainer

Full flow ("spin-on")

10 micron (0.0004in.)

1.03 bar      1.05 kgf/cm<sup>2</sup>

142 micron (0.0056in.)

15 lbf/in<sup>2</sup>

1-3

1-3

**TECHNICAL DATA  
(JCB 525 & 525-4)****Pump**

Type	Hamworthy PA2208 G2 B2A, gear type	
Flow at 2000 rev/min.		
– at zero pressure	117 litres/min	(25.8 UK gal/min.)
– at system pressure	107 litres/min	(23.5 UK gal/min.)

**Control Valves**

Type	Parallel Service with double acting spools
Model	
–3 Spool	VB 1107 DDD 112V
–4 Spool	VB 1107 DDDD 140V
–6 Spool	VB 1107 DDDDDD 195V
Services Operated	
–Spool 1	Boom Extension & Retract
–Spool 2	Boom Raise & Lower
–Spool 3	Carriage Tilt
–Spools 4,5 & 6	Optional Attachments.

**Relief Valve Operating Pressure**

	Bar	kgf/cm <sup>2</sup>	lbf/in <sup>2</sup>
Main Relief Valve (M.R.V.)	138	141	2000
Auxiliary Relief Valve (A.R.V.)			
–Carriage Tilt Ram, Head Side	138	141	2000
–Carriage Tilt Ram, Rod Side	83	84	1200
–Attachment	103	105	1500

Note: See page 2/6-1 for A.R.V. setting pressures.

**Rams**

	Bore		Rod Dia.		Stroke	
	mm.	in.	mm.	in.	mm.	in.
Boom Extension	101	4	63	2.5	2388	94
Boom Lift	101	4	63	2.5	1327	52.2
Carriage Tilt	101	4	51	2	445	17.5
Displacement	101	4	51	2	445	17.5
Optional Attachments:						
–Side Tilt	70	2.75	38	1.5	254	10
–Multi-Hitch Carrier	101	4	51	2	261	10.27
–Mast Lift	101	4	51	2	787	31

**Filtration**

Type	Full flow		
Filtration Size	15 microns (0.0006in.)		
Area	3.1m <sup>2</sup> (33.3 ft <sup>2</sup> )		
Relief Valve Setting	1.03 bar	1.05 kgf/cm <sup>2</sup>	15 lbf/in <sup>2</sup>
Suction Strainer	142 microns (0.0056in.)		

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### TECHNICAL DATA (JCB 530-2/4 & 530-2/4HL)

#### Pump

Type	Hamworthy PA2207G2831A, gear type		
Flow at 2000 rev/min.			
—at zero pressure	107 litres/min.	22.5 UK gal/min.	28.3 US gal/min.
—at system pressure	90 litres/min.	19.8 UK gal/min.	23.8 US gal/min.

#### Control Valves

Type	Hamworthy Sectional
Model	
—3 Spool	SVAP01033 DDD 7V
—4 Spool	SVAP01033 DDDD 4V
—5 Spool	SVAP01033 DDDDD 6V
—6 Spool	SVAP01033 DDDDDD 3V
Services Operated	
—Spool 1	Boom Extend & Retract
—Spool 2	Boom Raise & Lower
—Spool 3	Carriage Tilt
—Spool 4	Attachment
—Spools 5 & 6 (530)	Attachments
—Spool 5 (530HL)	L.H. Stabiliser
—Spool 6 (530HL)	R.H. Stabiliser

Relief Valve Operating Pressures	bar	kgf/cm <sup>2</sup>	lbf/in <sup>2</sup>
Main Relief Valve (M.R.V.)	220	225	3200
Auxiliary Relief Valves (A.R.V.)			
* —Extension Ram, head side	193	197	2800
* —Extension Ram, rod side			
—Tilt Ram, head side	220	225	3200
—Tilt Ram, rod side	103	105	1500
—Attachments	138	141	2000
—Stabilisers (530HL only)	138	141	2000

\* Note: See page 2/11-7 for A.R.V. setting pressures.

Rams	Bore		Rod Dia.		Stroke	
	mm.	in.	mm.	in.	mm.	in.
Boom Extension (530)	80	3.15	60	2.36	2390	94
Boom Extension inner (530HL only)	80	3.15	50	1.97	2340	92.12
Boom Extension outer (530HL only)	100	3.93	60	2.36	2340	92.12
Boom Lift (530)	80	3.15	60	2.36	1310	51.6
Tilt	100	3.93	60	2.36	577	22.72
Displacement	100	3.93	60	2.36	460	18.11
Stabiliser (530HL only)	70	2.75	40	1.57	648	25.51

#### Filtration

Filter Type	Full flow. ("spin-on")		
Filtration Size	10 microns (0.0004in.)		
Area	0.6m <sup>2</sup> (930in <sup>2</sup> )		
Relief Valve Setting	1.03 bar	1.05 kg/cm <sup>2</sup>	15 lbf/in <sup>2</sup>
Suction Strainer	142 microns (0.0056in.)		

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**TECHNICAL DATA****(JCB 530B-2/4 & 530B HL-2/4)****Pump**

Type	Sundstrand SP3/230/40L, gear type		
Flow at max. engine rev/min.			
—at zero pressure	88 litres/min.	19.4 UK gal/min.	23.3 US gal/min.
—at system Pressure	85 litres/min.	18.7 UK gal/min.	22.5 US gal/min.

**Control Valves**

Type	Monsun-Tison or Kontak, parallel service, double acting spools.		
Services Operated	530B & 530B HL		
—Spool 1	Boom Extend & Retract		
—Spool 2	Boom Raise & Lower		
—Spool 3	Carriage Tilt		
—Spool 4	Attachment		
—Spool 5	Attachment or Hyd. Tow Hitch		
Stabiliser Valve	—Spool 1	L.H. Stabiliser	530B HL only
	—Spool 2	R.H. Stabiliser	

Relief Valve Operating Pressures	bar	kgf/cm <sup>2</sup>	lbf/in <sup>2</sup>
Main Relief Valve (MRV) — except 530BHL	220	225	3200
Main Relief Pressure — 530BHL (stabiliser valve)	241†	246†	3500†
Auxiliary Relief Valves (A.R.V.)			
—Tilt Ram, head side	138	141	2000
—Tilt Ram, rod side	280	285	4060
—Attachments	138	141	2000
* -Mast Extension - (530B HL only)	241	246	3500
Hydraulic Tow Hitch lower (head side)	175	179	2540
Hydraulic Tow Hitch raise (rod side)	100	102	1450

† Note: On 530BHL machines the maximum system pressure is controlled by the Stabiliser Relief Valve. The relief valve fitted in the loader valve on these machines should therefore be adjusted fully in to render it inoperative.

Rams	Bore		Rod Dia.		Stroke	
	mm	in	mm	in	mm	in
Boom Extension (530B)	80	3.15	60	2.36	2180	85.83
Boom Extension—inner (530B HL)	90	3.54	60	2.36	2765	108.86
Boom Extension—outer (530B HL)	110	4.33	60	2.36	2635	103.74
Boom Lift (530B)	110	4.33	60	2.36	732	28.82
Boom Lift (530B HL)	110	4.33	60	2.36	1020	40.16
Tilt (530B)	100	3.93	60	2.36	800	31.50
Tilt (530B HL)	120	4.72	65	2.56	495	19.50
Displacement (530B)	100	3.93	60	2.36	270	10.63
Displacement (530B HL)	120	4.72	65	2.56	280	11.00
Stabiliser (530B HL only)	100	3.93	60	2.36	380	15.00
Tow Hitch	50.8	2.00	25.4	1.00	445	17.52

**Filtration**

Filter Type	Partial flow ('spin on')		
Filtration Size	10 microns (0.0004 in)		
Relief Valve Setting	1.03 bar	1.05 kg/cm <sup>2</sup>	15 lbf/in <sup>2</sup>
Suction Strainer	142 microns (0.0056in)		

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

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**TECHNICAL DATA**

(JCB 540B-2/4 &amp; 540BM-2/4)

**Pump**

Type	Sundstrand SP3/230/40L, gear type		
Flow at max. engine rev/min.			
—at zero pressure	88 litres/min.	19.4 UK gal/min.	23.3 US gal/min.
—at system pressure	85 litres/min.	18.7 UK gal/min.	22.5 US gal/min.

**Control Valves**

Type	Monsun-Tison or Kontak, parallel service, double acting spools.	
Services Operated	540B	540BM
—Spool 1	Boom Extend & Retract	Boom Raise & Lower
—Spool 2	Boom Raise & Lower	Carriage Tilt
—Spool 3	Carriage Tilt	Attachment
—Spool 4	Attachment	Attachment
—Spool 5	Attachment or Hyd. Tow Hitch	—

**Relief Valve Operating Pressures**

	bar	kgf/cm <sup>2</sup>	lbf/in <sup>2</sup>
Main Relief Valve (MRV) — 540BM	220	225	3200
* Main Relief Valve (MRV) — 540B	220	225	3200
Auxiliary Relief Valves (ARV)			
—Tilt Ram, head side	138	141	2000
—Tilt Ram, rod side (540BM)	220	225	3200
—Tilt Ram, rod side (540B)	280	285	4060
—Attachments	138	141	2000
Hydraulic Tow Hitch lower (head side)	175	179	2540
Hydraulic Tow Hitch raise (rod side)	100	102	1450

**Rams**

	Bore		Rod Dia.		Stroke	
	mm	in	mm	in	mm	in
Boom Extension (540B only)	80	3.15	60	2.36	2180	85.83
Boom Lift (540B)	110	4.33	60	2.36	761	29.96
Boom Lift (540BM)	100	3.93	60	2.36	733	28.85
Tilt (540B)	110	4.33	60	2.36	790	31.10
Tilt (540BM)	110	4.33	60	2.36	800	31.50
Displacement	110	4.33	60	2.36	270	10.63
Tow Hitch	50.8	2.00	25.4	1.00	445	17.52

**Filtration**

Filter Type	Partial flow ('spin on')		
Filtration Size	10 microns (0.0004 in)		
Relief Valve Setting	1.03 bar	1.05 kg/cm <sup>2</sup>	15 lbf/in <sup>2</sup>
Suction Strainer	142 microns (0.0056 in)		

## HYDRAULIC TANK & SUCTION STRAINER

### CHECK FLUID LEVEL      Every 10 Hours

The correct level is to 'full' line on sight tube as at **A** when boom is retracted and forks are resting on the ground.

### DRAIN & REFILL              Every 1600 Hours

Rest forks on the ground and remove plug **B** to drain tank. Refit plug and refill at **C** to correct level on sight tube.

### CLEAN SUCTION STRAINER

Whenever tank is empty.

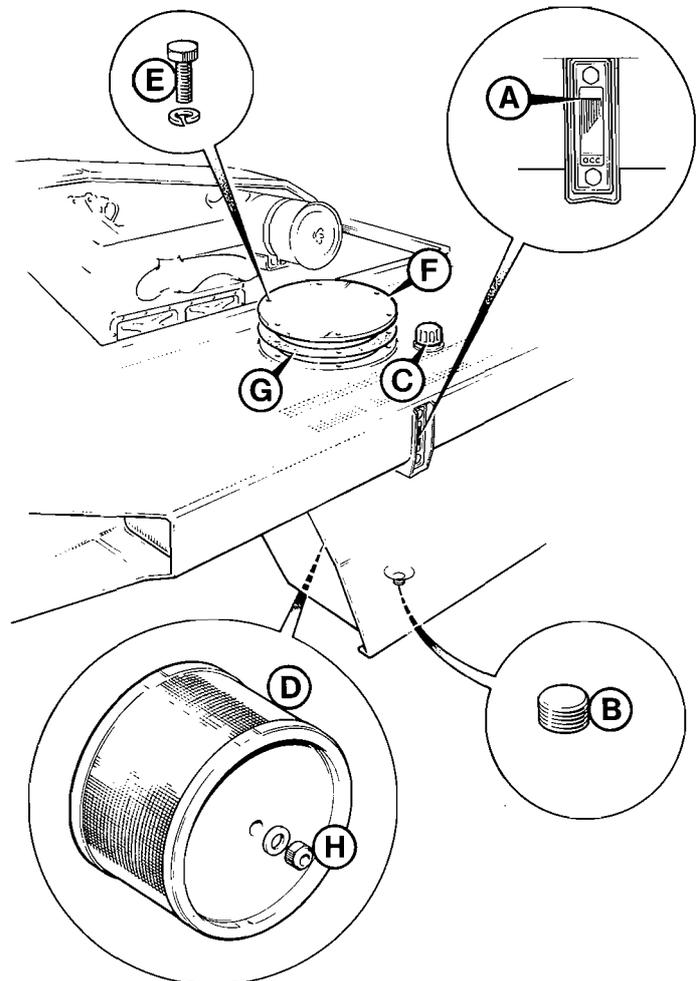
To remove suction strainer **D**:

- 1 Unscrew bolts **E**, remove cover plate **F** and gasket **G**.
- 2 Unscrew Nut **H**, remove strainer and wash in petrol or carbon tetrachloride.

#### Note:-

If a new strainer is fitted it should be similarly washed to remove protective coating.

- 3 Reassemble in reverse order using new gasket **G**.



## HYDRAULIC TANK & SUCTION STRAINER

### CHECK FLUID LEVEL      Every 10 Hours

Retract telescopic boom and rest forks on ground.

The fluid level should be between 'MAX' and 'MIN' marks on sight tube **A** or half to two thirds up the tube.

### DRAIN & REFILL              Every 2000 Hours

Rest forks on the ground and remove plug **B** to drain tank. Refit plug and refill at **C** to correct level on sight tube.

### CLEAN SUCTION STRAINER

Whenever tank is empty.

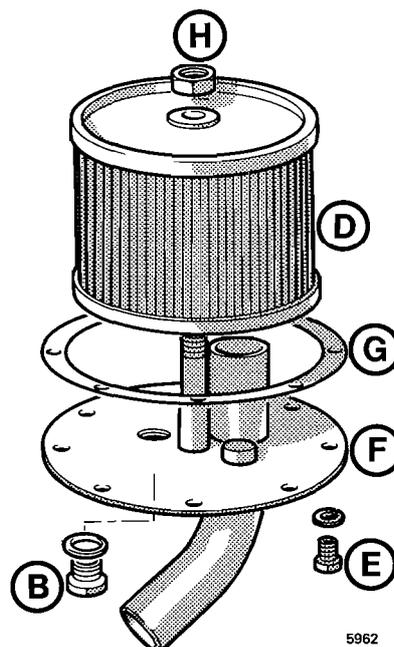
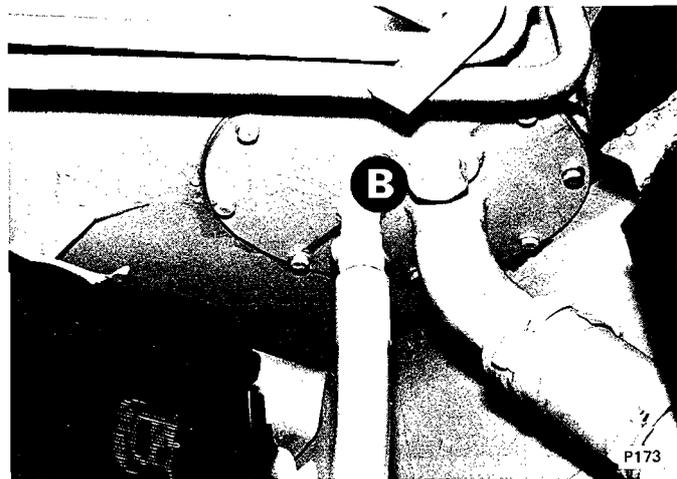
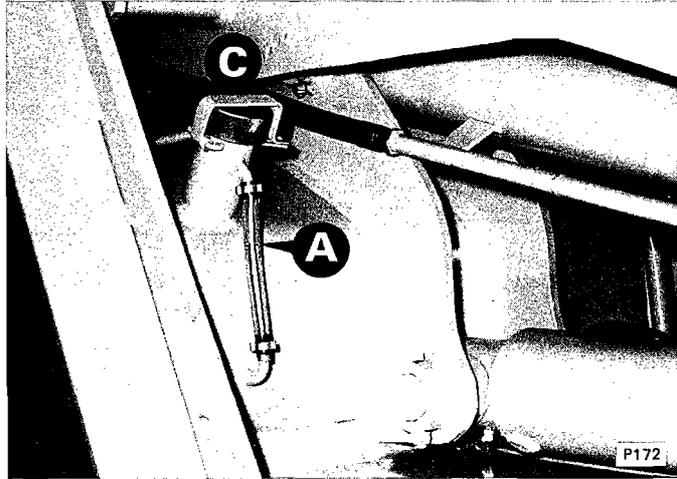
To remove suction strainer **D**:

- 1      Unscrew bolts **E**, remove cover plate **F** and gasket **G**.
- \* 2     Unscrew nut **H**, remove strainer and wash in petrol.

#### Note:

If a new strainer is fitted it should be similarly washed to remove protective coating.

- 3      Reassemble in reverse order using new gasket **G**.



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### HYDRAULIC TANK & SUCTION STRAINER

#### CHECK FLUID LEVEL Every 10 Hours

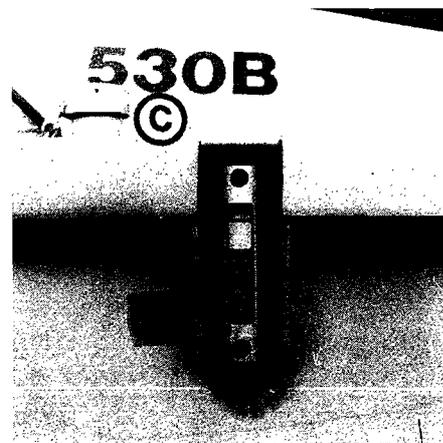
Retract telescopic boom and rest forks on ground.

The fluid level should be between 'MAX' and 'MIN' marks on sight tube **A** or half to two thirds up the tube.



#### DRAIN & REFILL Every 2000 Hours

Rest forks on the ground and remove plug **B** to drain tank. Refit plug and refill at **C** to correct level on sight tube.



#### CLEAN SUCTION STRAINER

Whenever tank is empty.

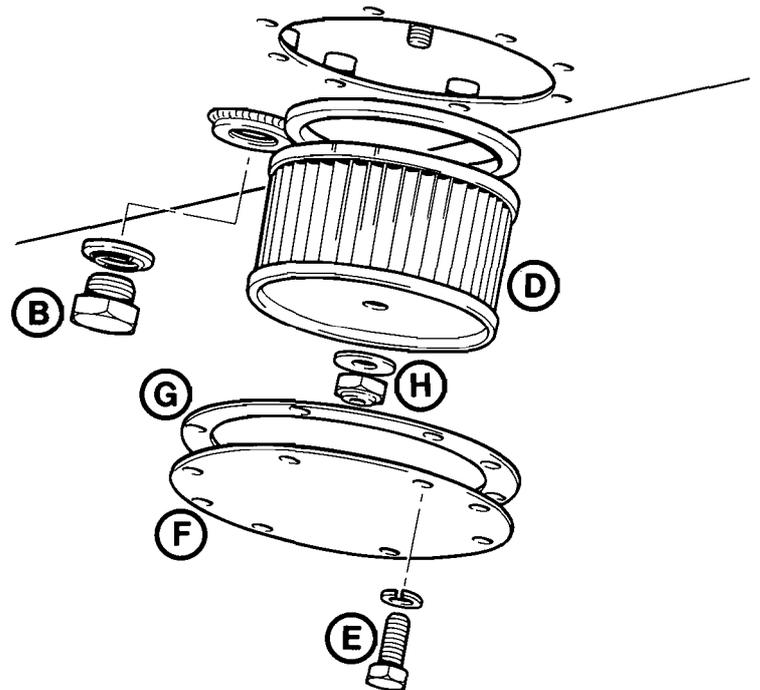
To remove suction strainer **D**:

- 1 Unscrew bolts **E**, remove cover plate **F** and gasket **G**.
- \*2 Unscrew nut **H**, remove strainer and wash in petrol.

#### Note:

If a new strainer is fitted it should be similarly washed to remove protective coating.

- 3 Reassemble in reverse order using new gasket **G**.



Product: JCB 520,525,530,540 Telescopic Handler Service Repair Manual  
Full Download: <https://www.arepairmanual.com/downloads/jcb-520525530540-telescopic-handler-service-repair-manual/>

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