



Service Manual

4DX

Backhoe Loader

Published by

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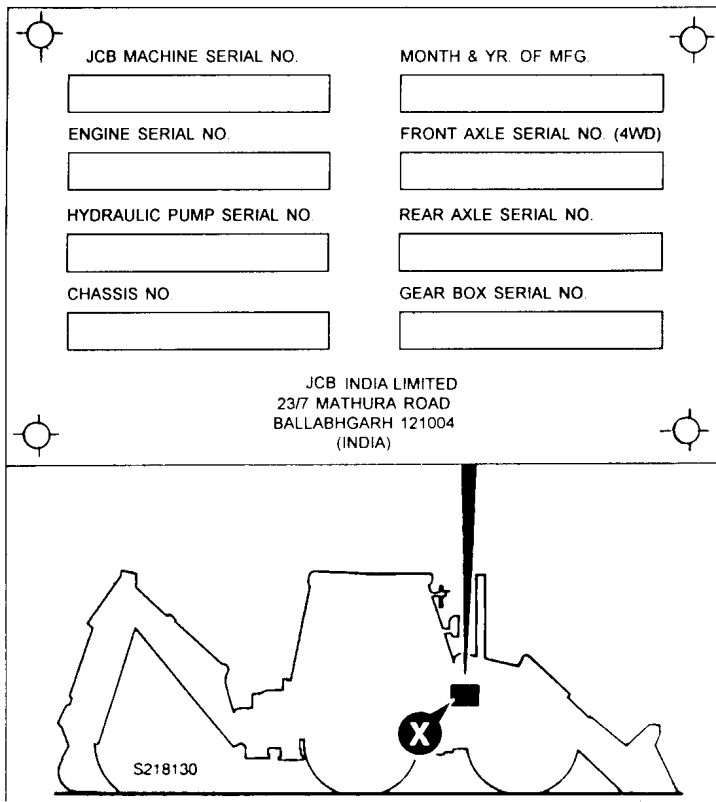
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Machine Identification Plate

Your machine has an identification plate **X** mounted on the loader tower as shown. The serial numbers of the machine and its major units are stamped on the plate.

The serial number of each major unit is also stamped on the unit itself. If a major unit is replaced by a new one, the serial number on the identification plate will be wrong. Either stamp the new number of the unit on the identification plate, or simply stamp out the old number. This will prevent the wrong number being quoted when replacement parts are ordered.

The machine and engine serial numbers can help identify exactly the type of equipment you have.

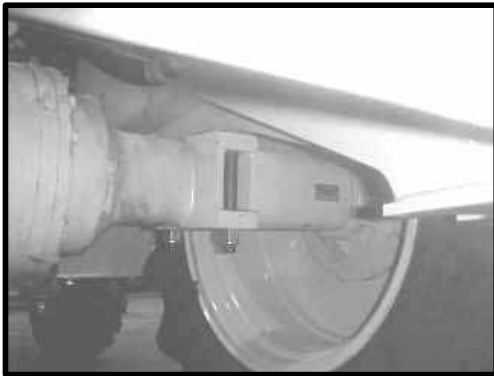


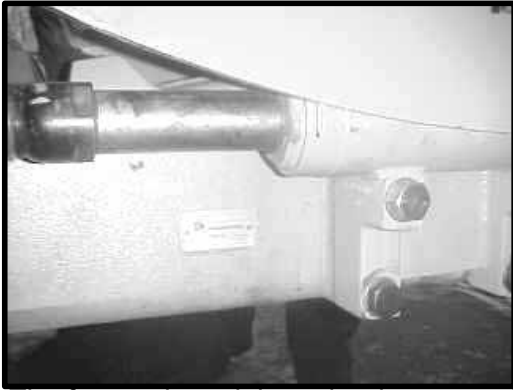
Engine Serial Plate

The engine serial number is stamped on a label which is fastened to the left side of the cylinder block (looking from the rear).

**Rear Axle Serial Plate**

The rear axle serial number is stamped on a plate mounted to the front face of the axle, as shown.

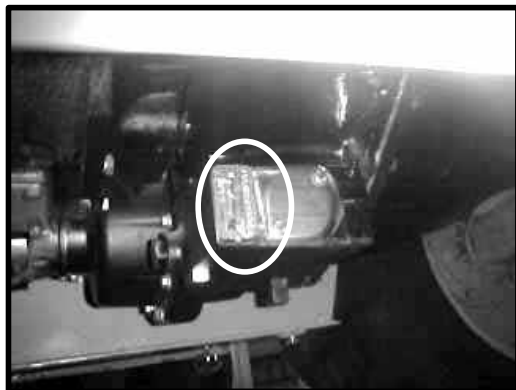


Front Axle Serial Plate

The front axle serial number is stamped on a plate mounted on the axle.

Syncro Shuttle Serial Plate

The Syncro Shuttle serial number is stamped on a label which is mounted adjacent to the Suction strainer.



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.

UNF Grade 'S' Bolts

Bolt Size in	(mm)	Hexagon (A/F) in	Torque Settings		
			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)	11/8	407	41.5	300
7/8	(22.2)	15/16	650	66.3	480
1	(25.4)	11/2	970	99.0	715
11/4	(31.7)	17/8	1940	198.0	1430
11/2	(38.1)	21/4	3390	345.0	2500

Metric Grade 8.8 Bolts

Bolt Size (mm)	Hexagon (A/F) mm	Torque Settings			
		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

Rivet Nut Bolts/Screws

Bolt Size (mm)	Torque Settings (for steel rivet nuts)			
	Nm	kgf m	lbf ft	
M3	(3)	1.2	0.12	0.9
M4	(4)	3.0	0.3	2.0
M5	(5)	6.0	0.6	4.5
M6	(6)	10.0	1.0	7.5
M8	(8)	24.0	2.5	18.0
M10	(10)	48.0	4.9	35.5
M12	(12)	82.0	8.4	60.5

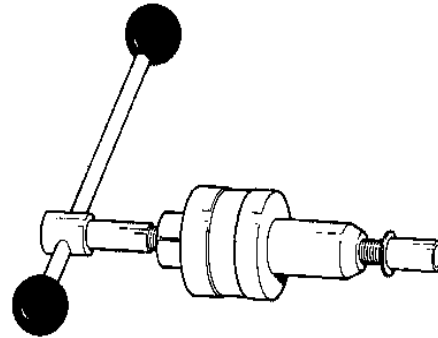
Note: All bolts used on JCB machines are high tensile and must not be replaced by bolts of a lesser tensile specification.

Service Tools

Section B – Body & Framework

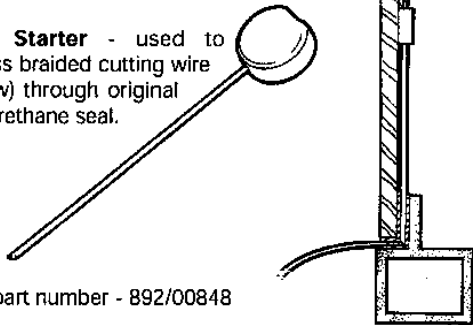
- 826/01099 M6 x 16mm Rivet Nut
- 826/01101 M6 x 19mm Rivet Nut
- 826/01103 M8 x 18mm Rivet Nut
- 826/01102 M8 x 21mm Rivet Nut
- 826/01104 M10 x 23mm Rivet Nut
- 826/01105 M10 x 26mm Rivet Nut

Installation Tool Available from:
 Bollhoff Fastenings Ltd.
 Midacre
 The Willenhall Estate
 Rose Hill
 Willenhall
 West Midlands, WV13 2JW



S261210

Wire Starter - used to access braided cutting wire (below) through original polyurethane seal.

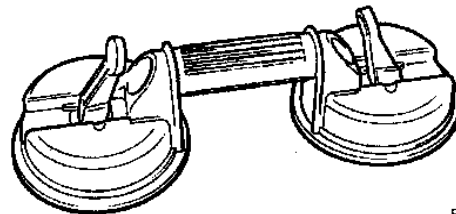


JCB part number - 892/00848

S186310

Glass Lifter - minimum 2 off - essential for glass installation, 2 required to handle large panes of glass. Ensure suction cups are protected from damage during storage.

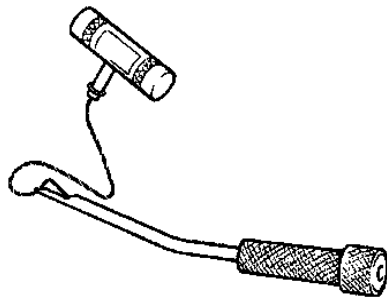
JCB part number - 892/00842



S186300

Glass Extractor (Handles) - used with braided cutting wire (below) to cut out broken glass.

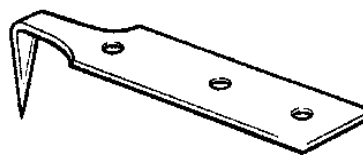
JCB part number - 892/00846



S186320

'L' Blades - 25 mm (1 in) cut - replacement blades for cut-out knife (above).

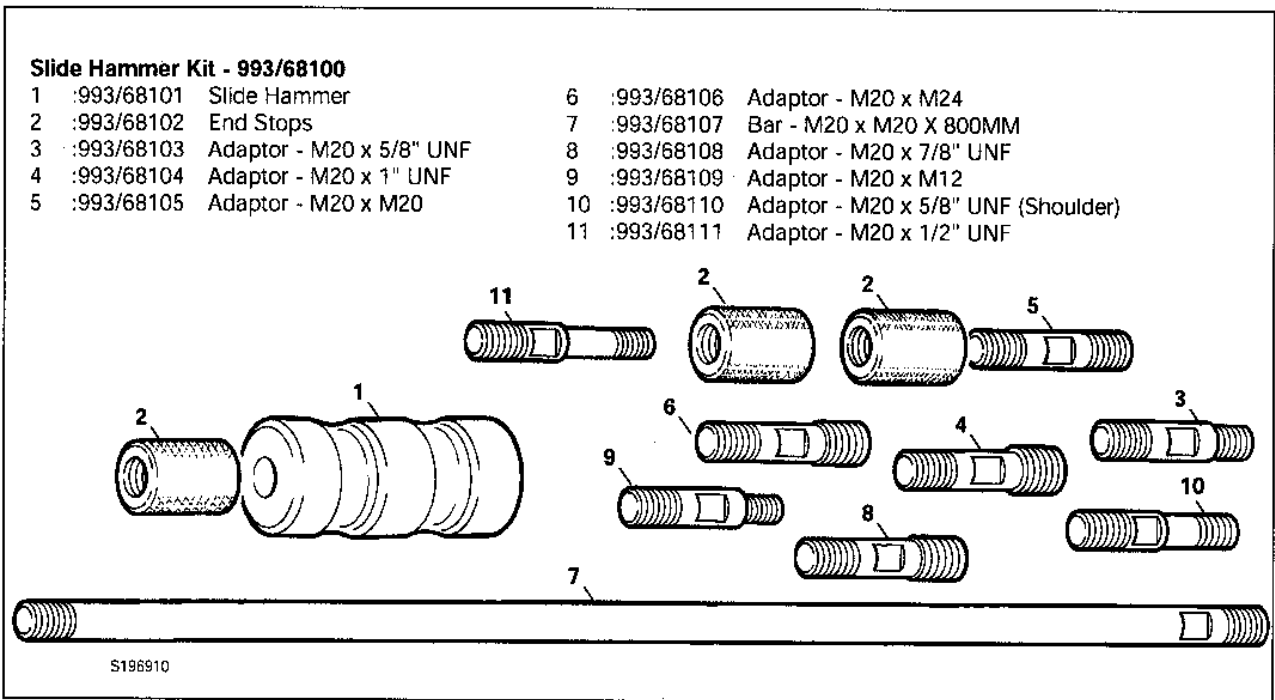
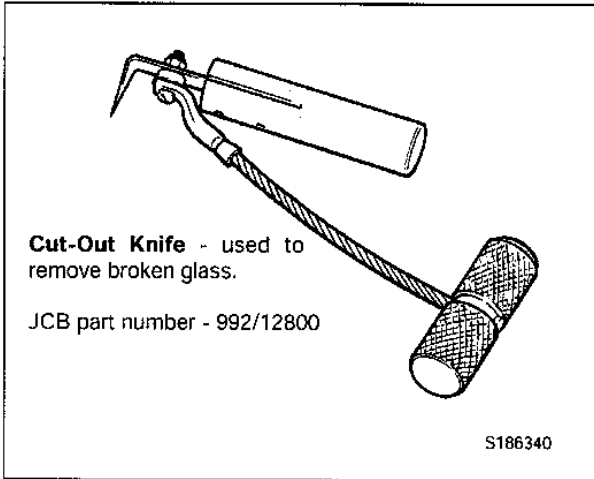
JCB part number - 992/12801 (unit quantity = 5 off)



S186350

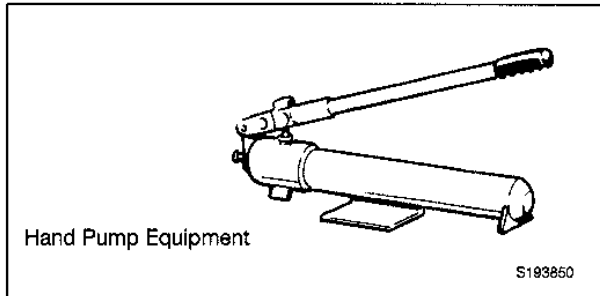
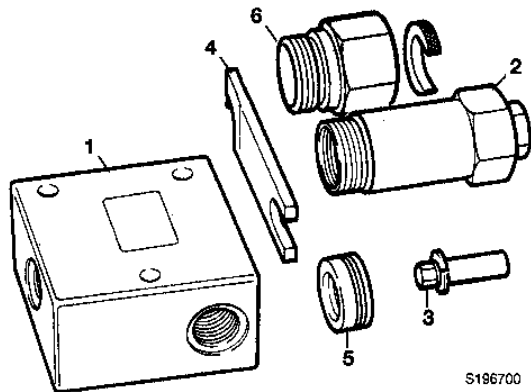
Service Tools

Section B – Body & Framework



Service Tools**Section E – Hydraulics****Components for Valve Block A.R.V. Testing**

- | | |
|---------------|-------------------------------|
| 892/00309 | A.R.V. Pressure Test Kit |
| 1 : 892/00340 | Test Block Body |
| 2 : 892/00341 | Setting Body |
| 3 : 993/68300 | Adjusting Pin |
| 4 : 892/00343 | Spanner |
| 5 : 892/00345 | Anti-cavitation Lock Out Bung |
| 6 : 892/00335 | A.R.V. Cartridge Removal Tool |



Hand Pump Equipment

S189850

Castrol heavy duty coolant

Use ethylene glycol antifreeze diluted with coolant blend as mentioned below in the following proportion in (radiator) cooling system:

Ambient temperature Deg. Centigrade	Ratio by volume of antifreeze to cooling water - blend
+ 50° to -20°	33 : 67
-20° to -40°	50 : 50
-40° to -69°	68 : 32

Water quality requirements for use as engine coolant

Water used in engine coolant should be of drinking quality with following limits:

Parameters	Maximum allowable limit
Total hardness	170 ppm (measured as CaCO_3)
Total dissolved solids	340 ppm
Chlorides (cl)	50 ppm as cl
Sulphates (SO_4)	100 ppm as SO_4

Water of above defined quality along with use of additives shall ensure trouble free operation of cooling system . Additives for cooling system should serve the following objectives:

- ?? Protect cooling water system against corrosion.
- ?? Keep waterside heat transfer surfaces clean and free of scale and corrosion deposits. This maintains designed heat transfer efficiency and prevents overheating of engines.
- ?? Be compatible with rubber hoses and other non-metallic parts of the cooling water.

It is recommended to drain the system after every 1200 hrs. Or 6 months whichever is earlier and refill the radiator with the same proportion of the coolant and water.

Engine Preservation System:

Following preservatives are recommended for engine to be supplied overseas & also when it is to be kept idle (out of use) for a prolonged period (more than 12 months).

Manufacturer	Bharat Petroleum	Hindustan Petroleum	Indian Oil Corporation	Castrol India	Veedol Tide Water Oil Co.
Engine Lub. Oil & Fuel System	Bharat Preserve Oil 30 Oil 30	Autoprun T – 120	Servo Preserve 30 Or Servo Run – N Oil 30		Veedol 30 / 40
Engine Cooling System	Bharat Sherol – B Emulsion With Water Ratio 1:20	Koolkit 40 5% Emulsion With Water	Servo Cut – 5 20% Emulsion With Water.		Veedol Amul Kut 4 Emulsion With Water Ratio 1 : 20
Unpainted Ferrous Metal Parts	Bharat Rustol 152	Rustop 274	Servo Rp 125	Rustilo DW – 904 Or DW – 901	Veedol Raspro 1t

Notes:

Rust protective film coverage: 15 – 20 m² / lt., when machine is to be transported by sea.

Following rust protective coating can be applied on stevedore special machines:

1. Castrol Rustilo DWX – 32 or rustguard rust preventive oil P – 219.
2. Castrol grades are manufactured by M/s Castrol India Limited.
3. HP / Hylub grades are manufactured by M/s Hindustan Petroleum Corporation Limited.
4. Mobil grades are manufactured by M/s Mobil Oil Corporation Limited.

Greasing

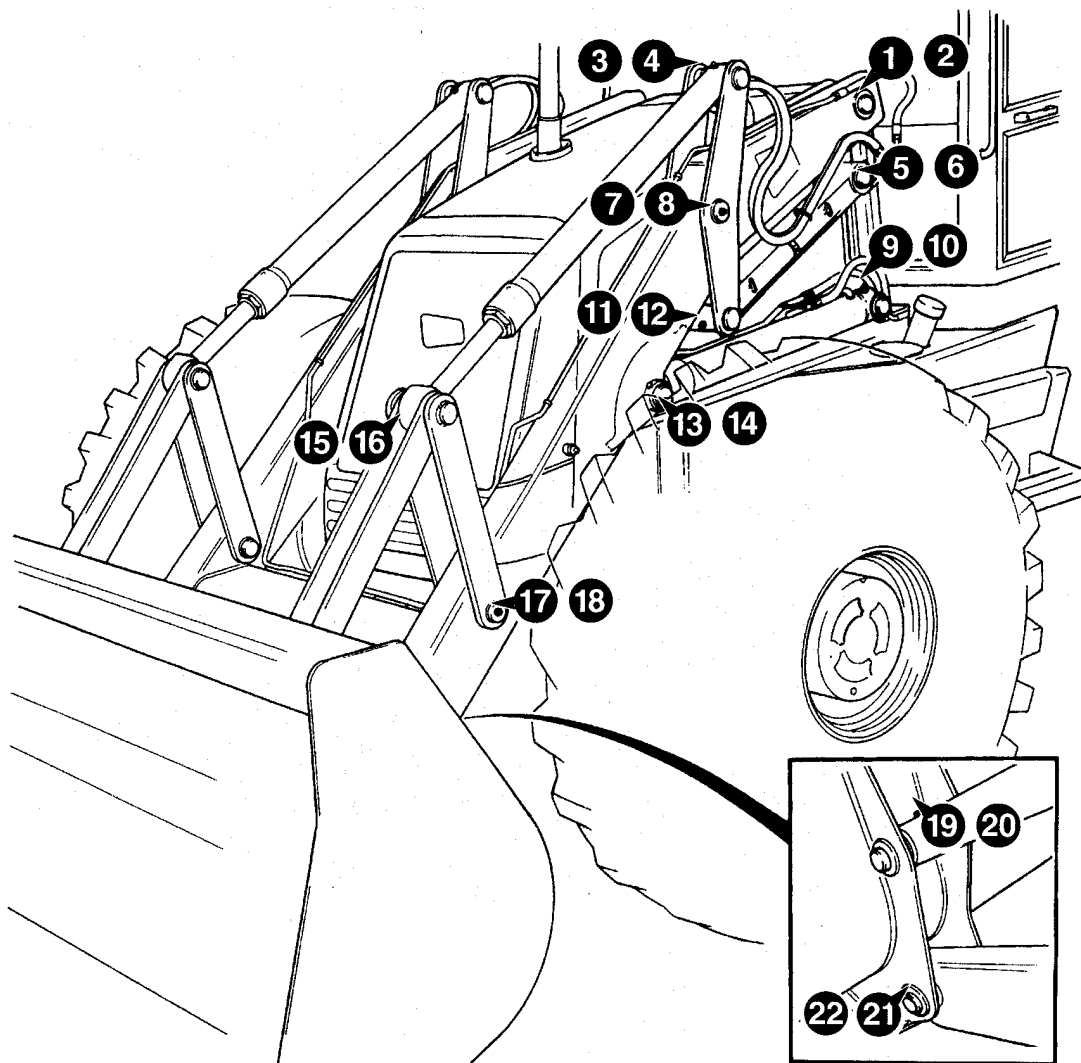
Greasing must be done regularly to keep the machine working efficiently. Regular greasing lengthen the machine's working life.

Greasing should be done with a Grease gun. Normally two strokes of the grease gun should be sufficient. Stop greasing when fresh grease appears at the joint.

Loader Arms

For each grease point there is another on the other side of the machine.

11 grease points each side -
Total 22 grease points.

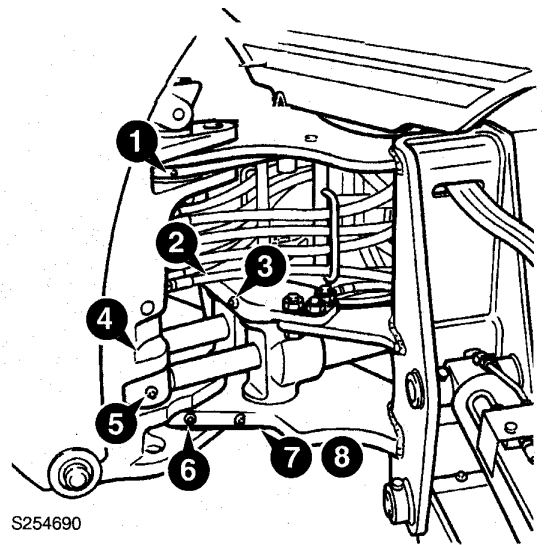
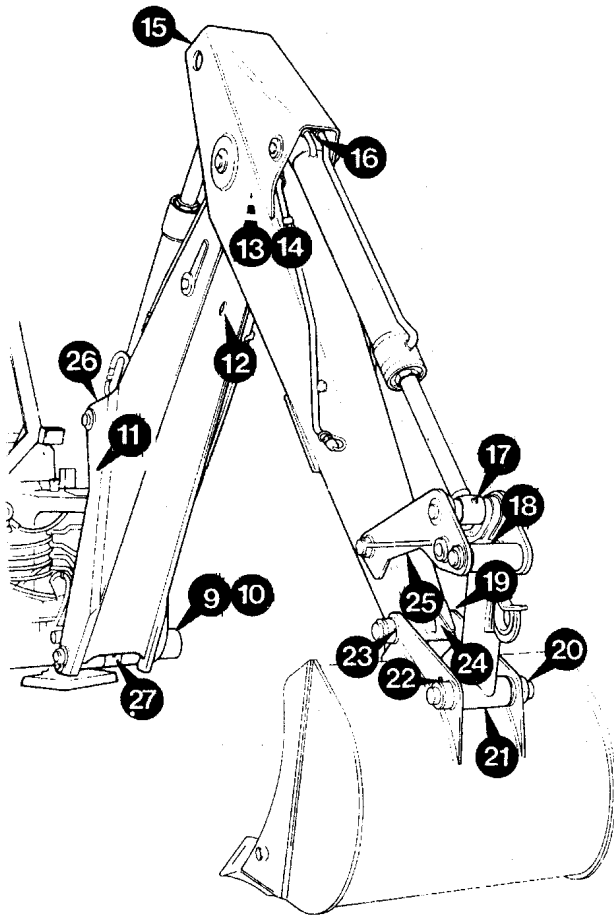


Backhoe

A - Standard Dipper – 27 Grease Points

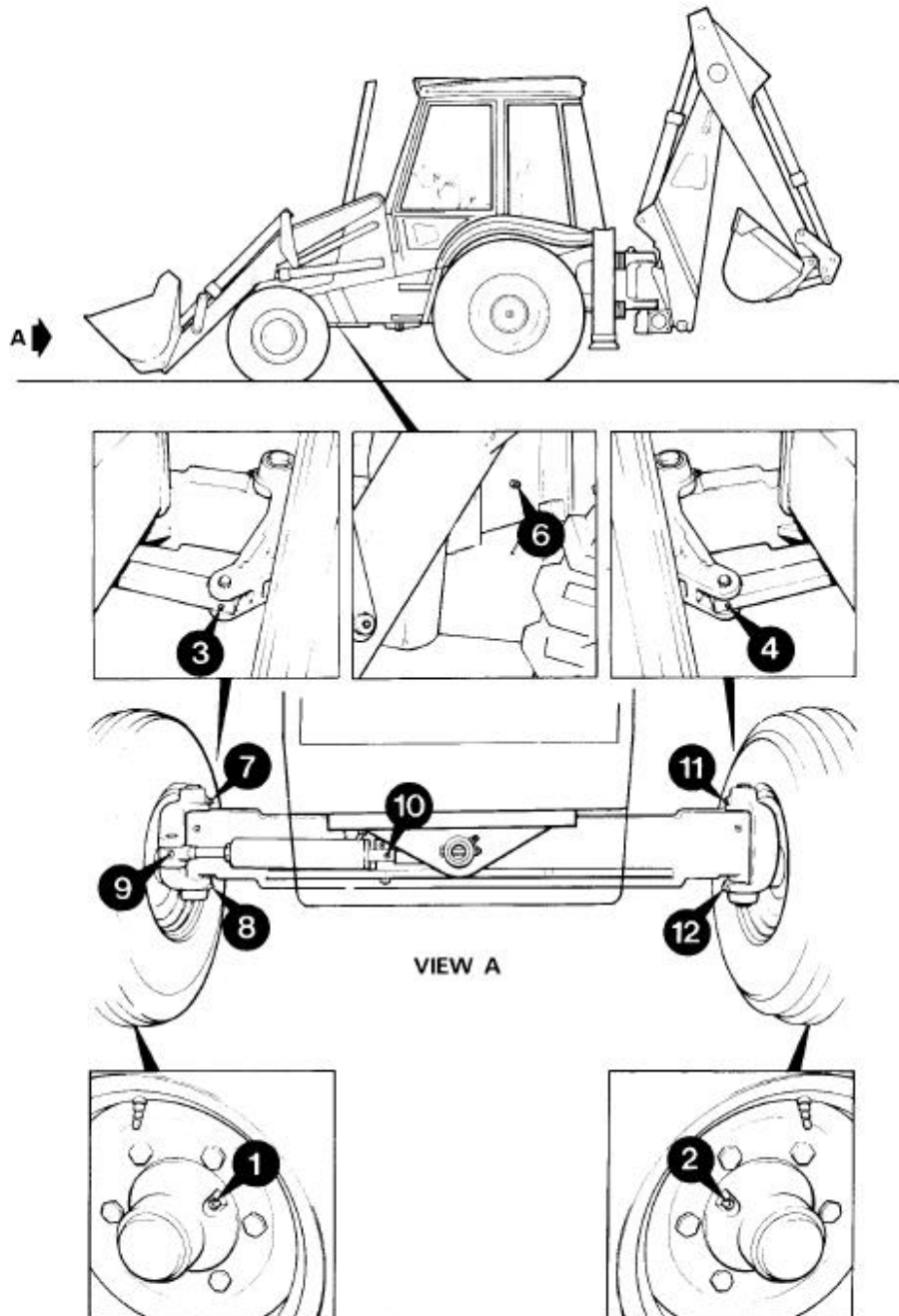
B - Extending Dipper - 27 Grease Points

Not : Do not grease the kingpost mounting rails.



Front Axle (2 Wheel Drive Machines)

11 Grease Points



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